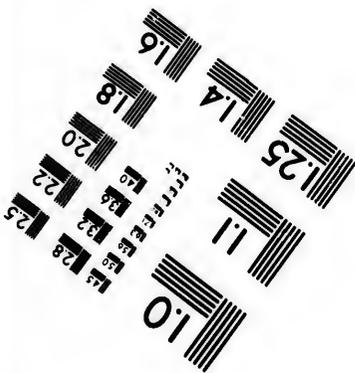
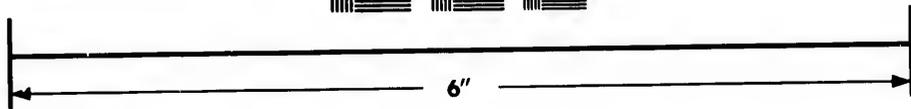
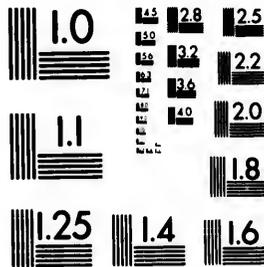


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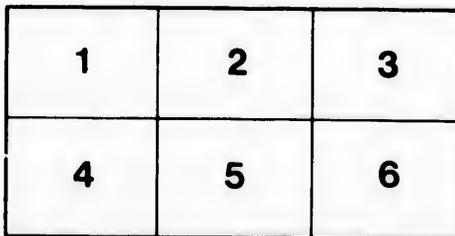
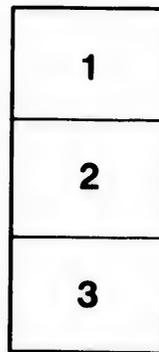
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HISTORY

OF THE

ROYAL SAPPERS AND MINERS,

FROM THE FORMATION OF THE CORPS IN MARCH 1772, TO THE DATE
WHEN ITS DESIGNATION WAS CHANGED TO THAT OF

ROYAL ENGINEERS,

IN OCTOBER 1856.

T. W. & F. GOSNOLD,

PRINTERS, 15, N. BROADWAY, LONDON.

"Of most disastrous chance,
Of moving accidents, by flood and field;
Of hair-breadth escapes, 't' the imminent deadly breach."—*Shakespeare.*

"There is a corps which is often about life, unseen and unsuspected, and which is labouring
as hard for life in peace as others do in war."—*The Times.*

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1857.

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Plate I



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PREFACE TO THE SECOND EDITION.

THE First Edition of the Work has long been out of print, and the Second would have been published earlier, only that an expected change in the designation of the corps delayed its appearance. That change having occurred, the volumes are republished, recording the services of the corps to the date it continued to bear its old title.

Revised in many places, with verbal inaccuracies corrected, aided moreover by journals and official memoranda placed at my disposal to modify or enlarge certain incidents and services, the work is as complete as it would seem to be possible at present to produce it.

The concluding Chapters record the services of the corps in the Aland Islands, in Turkey, Bulgaria, Circassia, Wallachia, and the Crimea. The siege of Sebastopol and the destruction of the memorable docks have been given with the fulness which the industry and gallantry of the sappers merited; and in order that the many adventures and enterprises recorded in the final years of the history should not fail in interest and accuracy, Colonel Sandham, the Director of the Royal Engineer Establishment, with the permission of General Sir John Burgoyne, kindly lent me the assistance of the Engineers' Diary of the Siege, as well as several collateral reports concern-

ing its progress and the demolition of the docks. At the same time I think it right to say, that no attempt has been made in these pages to offer a history of the Crimean operations. So much only of the details has been worked into the narrative as was necessary to preserve unbroken the thread of sapper services in connexion with particular works and undertakings.

It should also be borne in mind, that these volumes are devoted to the affairs of the Royal Sappers and Miners; and, consequently, that care has been taken to touch as lightly as practicable on the services of other regiments. Hence the officers of the Royal Engineers have only been named when it was desirable to identify them with parties of Sappers, whom on certain occasions they commanded.

I feel a loyal pride in being able to state that the work has been honoured with the munificent patronage of Her Majesty the Queen, and of His Royal Highness the Prince Albert; than which nothing could be more acceptable to me, either as an author or a subject.

In closing I beg to express my deep obligations to General Sir John Burgoyne, Bart., G.C.B., the officers of the corps generally, my personal friends, and the public, for the patronage with which I have been favoured; and also to the Press, for the handsome manner in which it has noticed and commended my labours.

*Brompton Barracks,
March 1857.*

PREFACE TO THE FIRST EDITION.

IN 1836, soon after Lieutenant Robert Dashwood, R.E., was appointed Acting Adjutant of the Royal Sappers and Miners at Woolwich, he was directed by Brigade-Major, now Colonel Matson, to prepare a list of officers of the Royal Engineers who had commanded, from time to time, the different companies of the corps. I assisted him in the duty; but while he was in the midst of his work, he was prematurely cut off by death, and the task of completing the statement devolved on me. It now forms a referential record at the head-quarter office.

Led in its progress to consult old documents and returns, I conceived the idea of making myself acquainted with the whole history of the corps. With this view, after daily fulfilling the routine duty of the office, I spent all my leisure intervals in bringing to light old books and papers, which for years had been buried in disused depositories and stores.

Whilst thus engaged, two Acting Adjutants, Lieutenants F. A. Yorke and T. Webb, R.E., were successively appointed to the corps at Woolwich. Both officers entered with some spirit into the attempt to trace a history of its services; but before they had proceeded to any great length, were interrupted in their labours by removal to other stations in consequence of promotion. Adjutant Yorke, however, succeeded so far, that he drew up a brief account of the formation of the sappers,

commencing with the Gibraltar company in 1772, and detailed its subsequent augmentations and reductions. This statement also forms a permanent record in the office; and Captain Webb made fair progress with an outline account of its active services. To both officers it was my good fortune to afford such aid as they required, in the collection of information for their respective efforts.

In 1811, when medals were granted to the veterans of the last war, Brigade-Major, now Colonel Sandham, observed the readiness with which I spoke of historical events in which the corps was concerned, and of the services of particular individuals who had belonged to it. He also saw the facility with which I supplied the information required to establish the claims of the several applicants for medals and clasps. This induced him, after some little conversation on the subject, to direct me to prepare for publication a history of the corps. Much fragmentary matter I had already accumulated, for twelve years had been consumed by me in wading through books and documents in quest of dates and occurrences. Nevertheless, it was not without serious misgivings that I set myself officially to the task, and the researches and labours embodied in the following pages are the result.

In the intervals of important and onerous public duty, the materials for the memoir have been collected and the work methodized and written. Necessarily severe was the application required under such circumstances; but by steady perseverance, even at times when my health was scarcely able to bear up against the exertion it needed, I have succeeded, without omitting any service that I know of, in completing the history to the siege of Sebastopol.

The work certainly is one of no pretension, and on this score may be regarded as having cost but little toil in its preparation;

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but I may observe, that from the absence of many particular records, the unaccountable neglect in furnishing others, and the striking imperfections in many of the remaining papers, arising from complexity, vagueness, obliteration, or decay, more than ordinary difficulty, research, and trouble were experienced, in gathering the materials essential to give anything like a reasonable delineation of the events narrated in the Memoir. Paucity of detail in numbers, want of description with reference to particular occurrences, and gaps in many years from the loss of muster-rolls and official documents, run through a period of nearly half a century, from 1772 to 1815: and strange as it may appear, even the casualties in action so carefully reported in other corps, have, from some inexplicable cause, either been omitted altogether in the war despatches or given inaccurately. In later years, however, the connexion between the officers of the Royal Engineers and the soldiers of the Royal Sappers and Miners has been so fully established, that attention to these important minutiae forms a decided feature in the improved command of the corps.

In employments of a purely civil character in which the Royal Sappers and Miners have shared, care has been taken to explain, as fully as the records and collateral evidence would admit, the nature of its duties; and, likewise, to multiply authorities to prove the estimation in which it was held for its services and conduct. This has been mainly done, to offer a practical reply to an association, incorporated within the last twelve years, which, in the course of a futile agitation, endeavoured by injurious statements to lessen the corps in public esteem.

All mention of the Royal Engineers in this memoir has been studiously suppressed, except when such was unavoidable to give identity to the different duties and services of the Royal

Sappers and Miners, and also, when their direct and particular connexion with the corps in certain situations, rendered allusion to them justifiable. This course was suggested to me by an officer of high rank, for the obvious reason that, as the Royal Engineers is a body entirely distinct from the Sappers and Miners, and possesses its own annals, any reference to, or particularization of, its services in a work professedly confined to the corps, would not only be extraneous, but tend to lessen its value, and weaken its interest with those for whose information it was especially written.

Here, however, it should be observed, that the Royal Sappers and Miners, though a separate and integral body of itself, is nevertheless, and has been from the commencement, officered by the Royal Engineers; and whatever excellence or advancement is traced in its career and public usefulness, whether as soldiers or mechanics, is fairly, in a great degree, attributable to the officers; for, in every circumstance of service and situation, they have liberally opened up for them new channels of employment to engage their faculties and energies, and have afforded them at all times scope and facilities to develop their mental and physical resources, and to fit them to perform with credit, not only the circumscribed duties of soldiers, but the more extended requirements of sappers, artizans, and professional men.

By the omission of all but special reference to the officers, room has thus been given for mentioning many non-commissioned officers and privates, who have attracted public attention and gained encomium for their meritorious services; some for their skill and ingenuity; others for their integrity and devotion; and others for their acquirements, their vigorous exertions and labours; their ardour, their endurance, and their valour. While the recognition of such examples cannot fail to incite

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others to emulate the military virtues of their more distinguished predecessors and comrades, it is earnestly hoped, that every member of the corps will be led to feel a personal interest in its reputation and honour, and a pride in its discipline and loyalty; its usefulness and efficiency in peace; its heroism and achievements in war.

The drawings were executed on stone by George B. Campion, Esq., master of landscape drawing at the Royal Military Academy, Woolwich. In illustrations like those in the present volumes, it was scarcely possible to delineate with exactness the complicated ornament which make up the *ensemble* of a soldier's uniform. Notwithstanding this disadvantage, the costume has been well defined, and much interest given to the embellishments, by the introduction of accessories, characteristic of the duties and employments of the corps.

My respectful acknowledgments are due to Sir John Burgoyne, the Inspector-General of Fortifications, for making the subject of my exertions known in a circular from his own hand, to the officers of the Royal Engineers; and in offering him the expression of my gratitude, I think it right with a feeling of sincere thankfulness to mention, that the success which has attended that kind appeal, has been more, perhaps, than I could reasonably expect. Several of the officers have afforded me much encouragement in the work, well by suggestion and advice, as by the liberality of their contributions; but, wanting the liberty to publish their names, I am precluded from making a record, to which it would have been my pride to give publicity.

To my own corps I am also indebted for many pleasing proofs of concern, as evinced in their anxiety to see the undertaking prosper. Nearly 200 copies have been demanded by the non-commissioned officers, including a few of the privates,

and when the price of the work is considered, the generosity of my patrons is as striking as noble.

To S. W. Fullom, Esq., I here offer the expression of my grateful thanks for his amiable and disinterested counsel, cheerfully accorded on the many occasions I had to seek it; and for kindly assisting me in looking over the sheets as the work passed through the press.

I now submit the volumes to my corps and the profession, and am not without hope that they may also be acceptable to a portion of the public. As far as the sources of my information and research have extended, the memoir will be found truthful and impartial. It was my aim to execute it with an integrity that would place me beyond impeachment: I therefore feel some confidence that indulgence will be shown for its defects, and also for whatever errors, through inadvertency, may have crept into the work.

THOMAS CONNOLLY.

*Royal Sappers and Miners' Barracks,
Woolwich, March 1855.*

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HISTORY

OF THE

ROYAL SAPPERS AND MINERS.

1772—1779.

Origin of Corps—Its establishment and pay—Engineers to command it—Its designation—Working pay—Recruiting—Dismissal of civil artificers—Names of officers—Non-commissioned officers—First augmentation—Consequent promotions—Names of other officers joined—King's Bastion—Second augmentation.

BEFORE the year 1772, the works at Gibraltar were mainly executed by civil mechanics from the Continent and England, who were not engaged for any term of years, but were hired like ordinary artificers, and could leave the Rock whenever they felt disposed. Not being amenable to military discipline, they were indolent and disorderly, and wholly regardless of authority. The only means of punishing them was by reprimand, suspension, or dismissal, and these means were quite ineffectual to check irregularities. The dismissal of mechanics and replacing them by others was always attended with considerable inconvenience and expense, and often failed to secure an equivalent advantage. Consequently, the works progressed very slowly, imposing much additional trouble and anxiety upon the officers. Even the better class of artificers—locally termed "guinea men" from their high wages—who had something at stake in their situations, could not be relied upon. It therefore

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became necessary that steps should be taken to put a stop to the evil, and to secure the services of a sufficient number of steady, obedient mechanics, upon whom dependence could, at all times, be placed, for the proper execution of the works.

With this view, Lieutenant-Colonel William Green, the chief engineer at the fortress, suggested the formation of a company of *military* artificers as the only expedient. Of the value of this suggestion some experience had been derived, from the occasional occupation on the works, of mechanics belonging to the different regiments in garrison. Indeed, ever since the taking of Gibraltar, in 1704, soldiers had so been employed, particularly artillerymen, whose services to the fortress were always found to be beneficial. There was every reason, therefore, to expect that, when the department became entirely military in its character, corresponding results on a large scale would ensue. Besides which it was considered, that the employment of a military company on the works, organized expressly for the purpose, would produce a great saving of expense to the public; and also, that the men would be ready to participate in any military operation for the defence of the place, either as artificers or soldiers, should our relations with other countries render it desirable.

Influenced by these considerations, Colonel Green submitted the suggestion to the Governor and Lieutenant-Governor of Gibraltar. Too well aware themselves of the disadvantages of the system of *civil* labour in carrying on the works of the fortress, they were favourable to the trial of any experiment that promised success; and in recommending the plan to the attention of the Secretary of State, they expressed their decided opinion that many advantages would certainly arise to the service and the fortress by its adoption. The royal consent was accordingly given to the measure in a Warrant, under the sign manual, dated 6th March, 1772; and thus originated the corps, whose history is attempted to be traced in these pages.

The Warrant authorized the raising and forming of a company of artificers to consist of the following numbers and ranks, with the regimental pay annexed to each rank:—

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1 Sergeant and as adjutant ¹	3 0 a-day.
3 Sergeants, each	1 6 „
3 Corporals „	1 2 „
60 Privates, or working men skilled in the following trades:—Stone-cutters, masons, miners, lime-burners, carpenters, smiths, gardeners, or wheelers, each	0 10 „
1 Drummer	0 10 „
<hr/> 68 Total.	

And officers of the corps of engineers were appointed to command this new body, to which was given the name of “The Soldier-Artificer Company.”²

Each non-commissioned officer and man was to receive as a remuneration for his labour a sum not exceeding two reals³ a day in addition to his regimental pay; but this extra allowance was only to be given for such days as he was actually employed on the works.

The recruiting for the company was a service of but little difficulty, as permission was granted to fill it with men from the

¹ The rank of sergeant and adjutant—an odd combination certainly—was not adopted. The senior non-commissioned officer was styled sergeant-major. The authority for this are the muster rolls and returns of the company. But it is not a little remarkable that, in opposition to the fact, evidence should exist of the best kind for veracity, to oppose the averment. The error appears on a tablet built in Charles the Fifth's wall adjoining Hargrave's parade at Gibraltar, to the memory of the widow of the first sergeant-major of the corps. Thus runs the epitaph:—

To the Memory of MARTHA, wife of
THOMAS BRIDGES, Sergeant, and as Adjutant
to His Majesty's Artificers' Company.
She departed this life, 4th February, 1773,
Aged 38 years.

A more loving wife or friend sincere
Never will be buried here—
Charitable she was to all,
Altho' her income it was small.

Excuse the stanza. Perhaps the sergeant-major was a tetchy man, obstinate in maintaining his rights, and took this private opportunity of asserting his warranted rank and publishing the military anomaly in imperishable marble.

² The Warrant does not designate the company by such a title. It is there called “The Military Company of Artificers.” How the change took place, does not appear.

³ A real is equal to $4\frac{1}{4}$ English.

regiments then serving in the garrison ; and although the company was restricted to the taking of properly qualified mechanics of good character, yet, at the end of the year, after supplying the places occasioned by casualties, there were only eighteen rank and file wanting to complete. As vacancies occurred, such of the soldiers of the garrison as came up to the established criteria, and wished to be transferred into the company, were allowed the indulgence ; and this mode was the only one followed, for filling up the soldier-artificers, for many years after their formation.

The whole of the civil mechanics were not discharged from the department on account of this measure. Such of them were retained as were considered, from their qualifications and conduct, to be useful in the fortress, and they were placed under the superintendence of the non-commissioned officers of the company, who were appointed foremen of the different trades. The foreign artificers were, with few exceptions, dismissed ; and twenty English "contracted artificers," or "guinea men," were sent home. Previously, however, such of the good men of the number as were willing to be "entertained" in the company were permitted the option of enlisting, but none availed themselves of the offer.

The officers of engineers who were first attached to the company were the following :—

Lieutenant-Colonel William Green, captain.
 Captain John Phipps, Esq.
 Capt.-Lieut. and Captain Theophilus Lefance, Esq.
 Lieutenant John Eveleigh.

And they were desired to take under their command and inspection the non-commissioned officers and private men of the company, and to pay particular attention to their good conduct and regular behaviour.⁴

⁴ The order upon this subject is given at length, as it touches upon other matters besides the discipline of the company.

Chief Engineer's Orders, Gibraltar, 31st May, 1772.

"By the Governor's orders of the 20th May, the company of soldier-artificers now raising and forming under the command of the Chief Engineer as captain, Captain Phipps, Captain-Lieutenant Lefance, and Lieutenant Eveleigh,

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On the 30th June, the date on which the company was first mustered, the non-commissioned officers were—

Sergeant-major . . . Thomas Bridges.^a
 Sergeant David Young, *Carpenter*.
 Sergeant Henry Ince, *Miner*.

To these were added, on the 31st December—

Sergeant Edward Maedonald.
 Corporal Robert Blair, and
 Corporal Peter Fraser.

and soon afterwards—

Corporal Robert Brand,

who completed the non-commissioned officers to the full number authorised by the warrant.

are appointed officers to the said company, and are, therefore, conformable to their respective ranks, henceforth to take under their command the conduct and inspection of the non-commissioned officers and private men of the said company, and to pay all sort of military attentions to their good order and regular behaviour, according to the rules and discipline of war;^a also to the particuler standing orders, as well as to the accustomed regulations of the garrison relative to all the required and expected duties of a soldier and an artificer, both when on, as well as when off, duty. Captain Phipps is also appointed to keep the accounts and to see the company duly paid their full military subsistence. The company to be paid conformable to His Majesty's Warrant dated March 6th, 1772, upon the same footing as the rest of the troops in garrison, viz., at seventy pence sterling the Mexico or Cobb, agreeable to which, the non-commissioned officers and men are to be paid weekly as follows, the deduction for the surgeon excepted:—

Sergeant-major	5 dollars, 3 reals, 3¼ quarts.
Sergeants—each	2 „ 5 „ 9½ „
Corporals—each	2 „ 0 „ 12½ „
Privates and drummer—each .	1 „ 4 „ 0

One-halfpenny sterling a-week to be stopped from each private and drummer for the surgeon, and the non-commissioned officers to be stopped in proportion to their respective pays.”

^a The more particular duties of the Sergeant-major, as described in the Chief Engineer's Order of 31st May, 1772, were “to carry all the general orders to the Chief Engineer, and the officers of the company, through the means of the other sergeants; also to make known the general orders to the rest of the non-commissioned officers and private men.” These he was required to attend to, “in lieu of an adjutant.” By the royal warrant, he should have been appointed to that rank, and not designated “sergeant-major.” No reason can be traced

^a No provision was made this year for extending the Mutiny Act to the company; nor, indeed, was it noticed in any subsequent Act till 1788, when its introduction gave rise to much discussion in the House of Commons. The idea of subjecting artificers to martial law was attacked with satirical bitterness by the eloquent Sheridan.

At the time the soldier-artificers were raised, the extensive works ordered to be executed by his Majesty in October, 1770, were in progress, and furnished an excellent opportunity for testing their capabilities and merits. The advantage of the change, and the consequent benefits accruing to the fortress, were soon apparent. Scarcely had the company been in existence a year, before Major-General Boyd, the Lieutenant-Governor, impressed with the conviction of its usefulness, represented, in several communications to Lord Rochford, the Secretary of State, the expediency of augmenting it; and he was the more urgent for its sanction as the new works in hand—which were absolutely essential for the defence of the place—required to be hastened with all possible despatch. The recommendation, coming from so high an authority, met with ready attention, and a Warrant dated 25th March, 1774, was accordingly issued for adding twenty-five men to the company. Its establishment was then fixed as follows:—

Sergeant-major	1
Sergeants	4
Corporals	4
Drummer	1
Private artificers	83
	—
Total	93

To the former list of non-commissioned officers were now added—

John Richmond, sergeant.
John Brown,^o corporal.

Ensign William Skinner joined the company 20th May, and Ensign William Booth 23rd June.

for altering the title. The *first* adjutant was an officer of engineers—Lieutenant Eveleigh. He was appointed 15th June, 1773. Bridges enlisted into the 30th regiment in 1751, from which he was transferred to the corps as Sergeant-major, and being reduced during the siege (28th September, 1781), was discharged from the company 10th October, 1781.

^o In Hay's 'Western Barbary,' chap. x., Murray's edit., there is a very pleasing anecdote of the "half-Irish Sultan," Mulai Yezed, in which the name of Brown of the Royal Sappers and Miners, properly Soldier-Artificers, is introduced. To controvert a particular point to which it refers, the anecdote, in an abridged form, is subjoined.

Sidi Mahomed, soon after his elevation to the throne of Morocco, about the

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No sooner was the company completed to its new establishment than the engineers proceeded with greater spirit in the erection of the King's Bastion, the foundation stone of which was laid in 1773 by General Boyd.⁷ This work, which was of material consequence for the safety of the fortress, caused the General much concern, and he employed his best efforts for its

middle of the last century, was desirous of completing the defences of Fez, and knowing the superiority of the English in engineering, he applied to the British Government for the aid of some person skilled in the art. The request was acceded to, and an experienced sergeant of the Sappers and Miners having been selected as a fit person, was placed at the disposal of his Majesty. Sidi Mahomed received him with much kindness, and allotted a suitable house for his reception. The sergeant continued in the service of the Sultan for some time after he had completed the works at Fez, and at length died, leaving his wife without issue. After his interment, the widow, who was a pretty Irish-woman, sought an interview with the Sultan, in order to obtain a pension and the means of returning to her own country. His Majesty was much struck by her fair and comely appearance, treated her with condescension and benevolence, and expressed in endearing overtures his attachment to her. Under no promises of future greatness could she be induced to relinquish the faith of her fathers for the creed of Islam, and to take an exalted station in the imperial haram. Sidi Mahomed, old as he was, was too much fascinated to yield so choice a prize on a mere question of belief, and making the fullest sacrifices to satisfy her religious scruples, the poor, friendless, Irish widow, became the Sultana of Morocco!

Corporal Brown, afterwards promoted to be sergeant, is the non-commissioned officer alluded to. He was a mason by trade, and joining the artificers on the 2nd January, 1773, he seemingly soon acquired the reputation of being an able foreman and an indispensable man. It was in 1776 he was sent to Fez, not in the middle of the century as stated in the anecdote, and he died there early in 1781. That year, or probably later, Widow Brown became the Sultana of Sidi Mahomet, and Mulai Yezzed, the reputed son of the widow by the Sultan, *was then 31 years old!* The age of Mulai may be gleaned from Hay's tale, but more directly seen in Dr. Lempriere's 'Journey through the Barbary States.' According to the latter author, who was at Tetuan in 1790, Mulai was the "offspring of an English renegado," and then about 40 years of age. The Sultan died at a patriarchal age in 1790, and Mulai Yezzed succeeded him.

⁷ General Boyd, attended by General Green, the chief engineer, and many officers of the garrison, laid the foundation stone of this bastion, with the ceremony usual on such occasions. When he had finished it, he made this remarkable speech. "This is the first stone of a work which I name the King's Bastion; may it be as gallantly defended, as I know it will be ably executed; and may I live to see it resist the united efforts of France and Spain."—Drinkwater's Siege of Gibraltar, p. 290, 1st edit. The desire of the worthy general was realized. He not only lived to see what he wished, but materially to assist in the operations of the siege.

completion.⁸ But, unavoidable delay in some official arrangements at home, coupled with a little misunderstanding and the loss of many civil mechanics, greatly retarded the work.

This led General Boyd in 1775 to apply for another augmentation to the soldier-artificers, which was the more necessary as three regiments, furnishing a number of mechanics for the fortifications, were about to leave the Rock; and also as the foreign artificers—several of whom had been re-engaged since the pressure of the works—were like birds of passage, abandoning the fortress when they pleased. This the soldier-artificers could not do. To their attention and assiduity, therefore, the progress of the bastion and other works of the garrison were mainly attributable; and General Boyd, in a letter to Lord Rochford, dated 5th October, 1775, gave them full credit for their services. "We can," wrote the General, "depend only upon the artificer company for constant work, and on soldiers occasionally. Had it not been for the artificer company, we should not have made half the progress in the King's Bastion, as well as in the other works of the garrison."

On the 16th January, 1776, His Majesty sanctioned an addition to the company of one sergeant, one corporal, one drummer, and twenty privates, all masons, who were to be reduced again when the Hanoverian troops should leave the fortress.⁹ With

⁸ To carry on the work with vigour, an opening was made in the sea-line, which, as long as it continued so, made the fortress defenceless in that part. Similar openings were made in the line some years before by a storm, which, being observed by Monsieur Crillon, who commanded at St. Roque, he proposed a scheme for an attempt on the Rock. Remembering this, the General always kept an anxious eye upon the gap; but he concealed his fears, lest they should fill the people with alarm, and the French or Spaniards with notions of invasion. He would not post any additional guards or picquets there for its protection, but gave private directions that all the guns and howitzers that could be brought into position in that part should be attended to. He, however, did not conceal his uneasiness from the Secretary of State; and in urging upon Lord Rochford the necessity for his being furnished with the means for completing the bastion, he quaintly remarked, "there is an idea of glory, my lord, in the thought of being killed in defending a breach made by the enemy, but to be knocked o' th' head in the defence of one of our own making would be a ridiculous death."

⁹ When the Hanoverian troops left Gibraltar, the company had the best character for efficiency and utility, and its numbers therefore were not reduced.

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this increase the company consisted of 116 non-commissioned officers and men.

Steadily the works advanced ; soon the King's Bastion¹⁰ was finished, and the fortress was now in such a state of defence as greatly to alleviate the apprehension, which, a few years before, caused General Boyd so much anxiety. Though not exactly all that could be desired to oppose the onslaught of a determined and daring adversary, it was yet capable of a long and obstinate resistance ; and, from the political phases of the period, it did not seem at all unlikely that its strength would soon be tried, and the prowess and fortitude of the garrison tested.

¹⁰ At this bastion the company worked, by express orders, from gun-fire in the morning to gun-fire in the evening, as also on Sundays. All the work was of cut stone, and skilfully executed. A model of it, exquisitely wrought in polished stone, is in the Rotunda at Woolwich. It formerly belonged to George III. In 1820, George IV. presented it to the Royal Military Repository.

1779—1782.

Jealousy of Spain—Declares war with England—Strength of the garrison at Gibraltar—Preparations for defence and employment of the company—Siege commenced—Privations of the garrison—Grand sortie and conduct of the company—Its subsequent exertions—Origin of the subterranean galleries—Their extraordinary prosecution—Princess Anne's battery—Third augmentation—Names of non-commissioned officers.

GIBRALTAR, ever since its capture by the English in 1704, had been a source of much jealousy and uneasiness to Spain, and her desire to restore it to her dominions was manifested in the frequent attempts she made with that view. Invariably she was repelled by the indomitable bravery of the garrison; but a slave to her purpose, she did not desist from her efforts, and in the absence of any real occasion for disagreement with England, scrupled not to create one, in order that she might attack, and if possible, regain the fortress.

A favourable opportunity for the purpose at length arrived. Soon after the convention of Saratoga in 1777, the Americans entered into an alliance with France, which was the cause of a rupture between the latter nation and Great Britain. Hostilities had been carried on for six months, when Spain insinuated herself into the dispute under pacific pretensions. Her proposals, however, were of such a nature as rendered it impossible for the British Government to accept them without lessening the national honour; and being rejected, the refusal was made the pretext for war. It was accordingly declared by Spain on the 16th June, and her eager attention was at once turned to Gibraltar. On the 21st of the same month she took the first step of a hostile nature, by closing the communication between Spain and the fortress.

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At this time the garrison consisted of an army of 5,382 officers and men under General Elliott. Lieut.-General Boyd was second in command. Of this force the engineers and artificers amounted to the following numbers under Colonel Green:—

Officers	8
Sergeants	6
Drummers	2
Rank and File	106 ¹
	—
Total	122

No particular demonstration on the part of the Spaniards immediately followed the closing of the communication; but General Elliott, anticipating an early attack upon the Rock, made arrangements to meet it. All was activity and preparation within the fortress; and the engineers with the artificers were constantly occupied in strengthening the defences. For better accomplishing this paramount service, the company was divided into three portions on the 23rd August, and directed to instruct the line workmen in the duties required of them. To prevent misunderstanding with regard to the *line* non-commissioned officers—who might under certain circumstances become litigious—the Chief Engineer issued orders to the effect, that all such soldiers coming into the king's works, were to take directions from the non-commissioned officers of the company in the execution of their professional duty.²

On the 12th September, General Elliott commenced operations by opening a fire on the enemy, which was so unexpected, that the latter were surprised and dispersed. On recovering from the panic, they scarcely ventured, or indeed cared, to retaliate; for their object obviously was, not to subject themselves to a costly expenditure of ammunition, shot, &c., but to distress the garrison by famine, and thereby obtain an easy surrender. In this, however, they were disappointed; for the enduring

¹ The company wanted two privates to complete.

² As foreseen by the Chief Engineer, disputes soon arose between the non-commissioned officers of the company and the line, with regard to superintendence and direction. The fact having come to the Brigadier's knowledge, he renewed, on the 10th July, 1781, his former order in a more imperative tone.

hardihood of the garrison, and the occasional arrival of relief, frustrated their object, and compelled the Spaniards to have recourse to the more expensive and difficult method of besieging the place.³

At this period the privations of the soldiers in the fortress were of so severe a nature, that many of them were constrained to seek expedients from unusual resources to supply their wants; and in this way, thistles, dandelion, and other wild herbs, the produce of a barren rock, were used to satisfy their cravings. The following enumeration of some of the necessaries of life, with their prices affixed, will afford an idea of the extent of the scarcity:—

	<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>	
Mutton or beef	2	6	to	3	6 per lb. sometimes higher.
Salt beef or pork	1	0	to	1	3 per lb.
Biscuit crumbs	0	10	to	1	0 per lb.
Milk and water				1	3 a pint.
Eggs				0	6 each.
A small cabbage				1	6
A small bunch of outward leaves				0	6

Thus curtailed in their provisions, the wonder is, that the men were at all capable of supporting life, and keeping their opponents in check. But notwithstanding this embarrassing privation, their energy and courage were by no means weakened, nor their spirit and ardour depressed.

In November, 1781, the Spaniards were very zealous in completing their defences; so much so that towards the latter part of the month their batteries presented an appearance at once stupendous and formidable. This proud bulwark naturally arrested the Governor's attention, and as naturally engendered the determination to assault and destroy it. On the 26th November, he desired a selection to be made from the troops for this purpose. To each of the right and centre columns a detachment of the company—in all twelve non-commissioned officers as overseers, and forty privates—was attached, under

³ The strength of the company, including officers, when the provision supplies arrived, under Admiral Rodney, in February, 1780, and again under Admiral Darby, in April, 1781, was, on both occasions, stated to be 124. See 'An authentic and accurate Journal of the late Siege of Gibraltar,' pp. 22, 170.

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Lieutenants Skinner and Johnson of the Engineers; and 160 working men from the line were directed to assist them. To the left column a hundred sailors were told off to do the duty of pioneers. The soldier-artificers were supplied with hammers, axes, crow-bars, fire-faggots, and other burning materials. Upon the setting of the moon at three o'clock on the morning of the 27th November the sortie was made. The moment Lieut.-Colonel Hugo, who had charge of the right column, took possession of the parallel, Lieutenant Johnson with the artificers and pioneers commenced with great promptitude and dexterity to dismantle the works. Similar daring efforts succeeded the rush of Lieutenant Skinner's artificers and workmen into the St. Carlo's Battery with the column of Lieut.-Colonel Dachenhausen; but the number of the soldier-artificers attached to the sortie, whose ardour and labours were everywhere apparent, being both inconsiderable and insufficient to effect the demolition with the expedition required, the Governor sent back to the garrison for the remainder of the company to come and assist in the operation.⁴ Hurrying to the spot to share in the struggle, they were soon distributed through the batteries; and the efficiency of their exertions was sensibly seen, in the rapidity with which the works were razed and in flames. Only one of the company was wounded.⁵

General Elliott in his despatch on this sortie, observes, "The pioneers," meaning artificers, "and artillerymen, made wonderful exertions, and spread their fire with such amazing rapidity, that in half an hour, two mortar batteries of ten 13-inch mortars, and three batteries of six guns each, with all the lines of approach, communication, traverses, &c. were in flames and reduced to ashes. Their mortars and cannon were spiked, and

⁴ Captain Luttrell, in some remarks in the House of Commons in 1788, relative to the expediency of raising a corps of military artificers, stated, "that at Gibraltar, where a similar body had been kept up during the siege, they had been of infinite service. When our troops had, in a sortie, possessed themselves of some of the enemy's works, they could not destroy them until they had sent back to the garrison for the corps of artificers, who soon demolished them."—Gent. Mag. 58, part 2, 1788.

⁵ London Gazette, 12,256. 25 to 29 December, 1781.

their beds, carriages, and platforms destroyed. Their magazines blew up one after another, as the fire approached them." ⁶

Shortly after the sortie the repairs to the defences at the north front and other works of the fortress, found full employment for the company. Leisure could not be permitted, and the necessary intervals of rest were frequently interrupted by demands for their assistance, particularly in caissoning the batteries at Willis's.⁷ Sickness also set in about this time; nearly 700 of the garrison were in hospital; the working parties were curtailed; and officers' servants and others, unused to hard labour and unskilled in the use of tools, were sent to the works to lessen the fatigue to which their less-favoured comrades were constantly subjected. Much extra duty and exertion were thus necessarily thrown upon the company, and though frequently exposed to imminent danger, they worked, both by night and day, with cheerfulness and zeal. In the sickness that prevailed, they did not share so much as might be supposed from the laborious nature of their duties, sixteen only being returned sick, leaving eighty-one available for the service of the works.

On a fine day in May 1782, the Governor, attended by the Chief Engineer and staff, made an inspection of the batteries at the north front. Great havoc had been made in some of them by the enemy's fire; and for the present they were abandoned whilst the artificers were restoring them. Meditating for a few moments over the ruins, he said aloud, "I will give a thousand dollars to any one who can suggest how I am to get a flanking fire upon the enemy's works." A pause followed ⁸ the exulting exclamation, when sergeant-major Ince of the company, who was in attendance upon the Chief Engineer, stepped forward and suggested the idea of forming galleries in the rock to effect

⁶ London Gazette, 12,256. 25 to 29 December, 1781.

⁷ To narrate the different services performed by the company during the siege, would not only be tedious, but necessarily incomplete, from no detailed record of them being preserved. A reference, however, to 'Drinkwater's History,' though particularization is not even there attempted, will afford a tolerable idea of their labours.

the desired object. The General at once saw the propriety of the scheme, and directed it to be carried into execution.⁸

Upon orders being issued by the Chief Engineer, twelve good miners of the company were selected for this novel and difficult service, and sergeant-major Ince was nominated to take the executive direction of the work. On the 25th of May, he commenced to mine a gallery from a place above Farrington's Battery (Willis'), to communicate, *through the rock*, to the notch or projection in the scarp under the Royal Battery. The gallery was to be six feet high and six feet wide. The successful progress of this preliminary work was followed by a desire to extend the excavation from the cave at the head of the King's lines, to the cave at the end of the Queen's lines, of the same dimensions as the former gallery. A body of well-instructed miners was expressly appointed for the duty,⁹ and on

⁸ Whether the sergeant-major obtained the thousand dollars as a douceur from the General is a question never likely to be satisfactorily answered. The probability is, that he did not receive the reward for his suggestion in this form, but some daily allowance commensurate with his skill and the importance of the duty. I was informed by the late Quarter-master-sergeant Britton Francis, who possessed a remarkable memory, and whose father was in the company before him, that Ince contracted for the work, and—such was the story current in his day—received for all the excavations, one guinea per running foot! Judging from an expression in a letter from the Duke of Richmond to Captain Eveleigh, the Commanding Engineer at Gibraltar, dated 4th August, 1784, this tradition is an extravagant exaggeration. His Grace observes, "I am told that the excavation of the galleries is now constructed for, all expenses included, at one rial per foot cube;" and he adds, "I am very glad to find that a work which promises to add such effectual defences to the place, can be carried on at so cheap a rate; and I make no doubt, that great improvements will still be made by the Governor in this system of defences and lodgment for stores and troop, under the rock."

⁹ The Chief Engineer's orders for the performance of this service were as follows:—"22nd May, 1782. A gallery 6 feet high, and 6 feet wide, through the rock, leading towards the notch nearly under the Royal Battery, to communicate with a proposed battery to be established at the said notch, is immediately to be undertaken and commenced upon by 12 miners, under the executive direction of sergeant-major Ince." Again: "5th July, 1782. A gallery of communication, 6 feet 6 inches high, and 6 feet wide, through the intermediate rock, between the cave at the head of the King's lines, and the cave near the west end of the Queen's lines, is forthwith to be commenced upon by a body of miners and labourers expressly appointed for that service."—See also 'Drinkwater's Siege,' Murray's edit., 1846, pp. 112 and 117.

the 6th July, they began this new subterranean passage. On the 15th, the first "embrasure was opened in the face of the rock communicating with the gallery above Farrington's." To effect this, "the mine was loaded with an unusual quantity of powder, and the explosion was so amazingly loud, that almost the whole of the enemy's camp turned out at the report: but what," adds the chronicler, "must their surprise have been, when they observed whence the smoke issued!"¹⁰ The gallery was now widened to admit of the placement of a gun with sufficient room for its recoil, and when finished, a 24-pounder was mounted in it.¹¹ Before the ensuing September, five heavy guns were placed in the gallery; and in little more than twelve months from the day it was commenced, it was pushed to the notch, where a battery, as originally proposed, was afterwards established and distinguished, on account of its extensive capacity, by the name of "St. George's Hall."¹²

At Princess Anne's Battery (Willis'), on the 11th June, a shell from the enemy fell through one of the magazines, and, bursting, the powder instantly ignited and blew up. The whole rock shook with the violence of the explosion, which, tearing up the magazine, threw its massive fragments to an almost incredible distance into the sea. Three merlons on the west flank of the battery, with several men who had run behind them for shelter, were blown into the Prince's lines beneath, which, with the Queen's lower down the rock, were almost filled with the rubbish ejected from the upper battery, as also with men dreadfully scorched and mangled. The loss among the workmen was very

¹⁰ 'Drinkwater's Siege,' Murray's edit., 1846, p. 118.

¹¹ Drinkwater observes, page 118, that "the original intention of this opening was to communicate air to the workmen, who, before, were almost suffocated with the smoke which remained after blowing the different mines; but on examining the aperture more closely, an idea was conceived of mounting a gun to bear on all the enemy's batteries, excepting Fort Barbara." To ascribe it to this accidental circumstance is natural enough, but there is reason to suppose, the statement excusably differs from the fact. The galleries were begun with the express object of arming them with ordnance to play on the enemy's works; and the formation of the embrasure alluded to, was simply the earnest of a settled scheme; the first hostile step in its development.

¹² 'Drinkwater's Siege,' Murray's edit., 1846, note, p. 118.

severe. Fourteen were killed and fifteen wounded.¹³ Private George Brown, a mason of the company, was amongst the former.

In July the company could only muster ninety-two men of all ranks, including the wounded and sick, having lost twenty-two men during the siege by death, six of whom had been killed. This was the more unfortunate, as the siege was daily assuming a more serious aspect, the enemy collecting in greater force, and the effect of the cannonade upon the defences more telling and ruinous. Naturally the Governor's attention was called to the deficiency; and as his chief dependence rested upon the soldier-artificers for the execution and direction of the more important works, he was not only anxious for their completion to the authorized establishment, but convinced of the desirableness of augmenting them. In this view he was the more confirmed, by the representations of Major-General Green, the chief engineer, and Lieutenant-General Boyd. As soon, therefore, as an opportunity offered, he urgently requested the Duke of Richmond, then Master-General of the Ordnance, to fill up the company with mechanics from England, and also to make a liberal increase to its establishment. His Grace accordingly submitted the recommendation to His Majesty, and a Warrant, dated 31st August, 1782, was issued ordering the company to be increased with 118 men. Its establishment now amounted to —

1 Sergeant-major.
10 Sergeants.
10 Corporals.
209 Working-men.
4 Drummers.

Total 234

To carry out the wishes of General Elliott, the Duke of Richmond employed parties in England and Scotland to enlist the required number, which for the most part consisted of carpenters, sawyers, and smiths. With great spirit and success the recruiting was conducted; and in less than a month 141

¹³ 'Drinkwater's Siege,' Murray's edit., 1846, p. 113.

mechanics—more than enough to meet both the deficiency and the authorized increase—were embarked for the Rock on board the transports which accompanied the relieving fleet under Lord Hood. Twenty landed on the 15th October; a similar number next day, and the remaining 101 on the 21st. By this increase the carpenters were 66 in number, the sawyers 31, and the smiths 57. The masons at this time were 30 strong.

The non-commissioned officers,¹⁴ as they stood immediately after this augmentation, were as follows:—

Sergeant-major—Henry Ince.

Sergeants:—

David Young, *carpenter*.

Edward Macdonald,¹⁵

Robert Blyth,¹⁶ *mason*.

¹⁴ It is not intended to give the names of the non-commissioned officers entire at any future period. In this instance they have been mentioned, not so much for the interest of the general reader, as to preserve them. With those whose names have already been noted, these constitute the first race of non-commissioned officers in the corps.

¹⁵ By the Chief Engineer's Order of 27th October, 1781, sergeant Macdonald, an active and good non-commissioned officer, was appointed to inspect and take care of all the drains throughout the fortress in the room of sergeant-major Bridges, as also to keep the keys of the gratings, and to see them locked, to prevent ingress or egress by their means. This duty was considered a very important one, both from the facility the drains afforded for the entrance of the enemy and for desertions from the place, and also from the health of the garrison being in a great measure affected by their state. Not unfrequently during heavy rains, the gravel on the rock, washed down by the torrent, would rush into the drains and choke them up. To clear them, the company of artificers was invariably called upon, often at night; and on one occasion, in April, 1813, private William Liddle, who was foremost in one of the great drains, after unlocking the grating, was carried down the sewer with the flood into the sea, and drowned.

¹⁶ Blyth served fifteen years in the 2nd Foot, and joined the company 14th June, 1773. He was promoted to be sergeant on the 18th April, 1781, in succession to sergeant Brown who died at Fez, and whose widow became the Sultana of Morocco. By his industry and frugality he amassed considerable property, and expended about 20,000 dollars in buildings at the fortress. He was well known as a zealous freemason, and erected a wine-house at the corner of the Eleventh, since called South Parade, in which the meetings or lodges of the fraternity were held free of expense. He was much respected by the inhabitants, and became very popular among them. On the 31st January, 1800, he was discharged from the corps, after a service of nearly forty-two

Sergants—continued.

Alexander Grigor.

James Smith, *smith*.Thomas Jackson, *smith*.

years, and died at the Rock about 1804. Blyth had a nephew in the Tripoline navy, of whom a few particulars may not be uninteresting. His name was Peter Lisle. When quite a youth, Peter was wrecked at Zoara, on the coast of Tripoli. He was one of three only who escaped. For a time he endured great hardships, but at length succeeded in getting on board a British merchantman. In 1792 he was at Gibraltar, on board the 'Embsden' letter of marque, Lynch and Ross, owners. This vessel afterwards went to Tripoli with two consuls on board; and Lisle, then chief mate, was placed in charge of the cargo, some of which was corn. On arriving at Tripoli, the barrels containing the corn were found to have been plundered, and Lisle was called upon to account for the deficiency. This he could not do; a quarrel ensued between the captain and himself, and resigning his situation, he landed, and entered the service of the Bashaw. Having been chief mate of an English vessel was a strong recommendation in his favour, and he was at once appointed gunner of the castle. Associated with a strange people, he readily conformed to their manners and customs, embraced Mahommedan tenets—at least in appearance—and assumed the name of Mourad Reis. About 1794 he was nominated captain of a xebec mounting eighteen guns; and in the course of time, by his naval skill and abilities, became the High Admiral of the Tripoline Fleet and Minister of Marine. He married one of the daughters of the Bashaw, Sidi Yusuf, had a fine family, and enjoyed an ample income. Besides a house in the city, he had a villa and gardens in the Meshiah among the date-groves, which exhibited evidence of great taste and care, and were enriched with many trees of various species brought by him from different places at which he touched in Europe. He was a prudent and sagacious counsellor, gave excellent advice to the Bashaw, which was always based on good common sense—a quality not superabundant in the Divan—and was of great service to Lord Exmouth during his Algerine expedition. His appearance was venerable, he dressed richly, commanded much respect, and when addressing British officers—whom he always treated with great courtesy and hospitality—spoke with a broad Scotch accent, and sometimes entertained them with a relation of his own stirring adventures. He was unpopular at times, as great politicians sometimes are. Blaquiere says (1813), "Poor Peter was no longer an object of consideration with any party." During the stay of Captain Lyon at Tripoli in 1818, Peter was in banishment, but the consul and chief people gave him an excellent character. Later, however, he again rose into confidence, for when Captain Beechey was there in 1821, Mourad Reis was much considered by his Highness, and acted as interpreter on the occasion of the Captain's audience with his Highness the Bashaw. He also proved of great service to Captain W. H. Smyth, R.N. On the fall of the Bashaw—Yusuf Karamanli—he retreated to Sfax in Tunis, since which his fate is uncertain. When in the zenith of his power and greatness he paid occasional visits to Gibraltar. On entering the bay, he always fired a salute of four guns in honour of his uncle, serjeant Blyth, whom he treated with marked respect.

Sergeants—continued.

Robert Brand, *mason*.
 Robert Daniel.
 Joseph Makin, *mason*.
 Thomas Finch,¹⁷ *carpenter*.

Corporals :—

Robert Newell, *mason*.
 Hugh Sirrige, *carpenter*.
 Joseph Chambers,¹⁸ *mason*.
 James Carcy, *carpenter*.
 Joseph Woodhead,¹⁹ *mason*.

This practice, however, he at length discontinued, owing to a shot, fired by mistake from one of his guns, having struck the wall of a ramp just above Hargrave's Parade whilst he was paying his relative the usual affectionate compliment.

¹⁷ Finch joined the company on the 21st October, 1782, at the request of the Duke of Richmond, in whose service he had been employed at Goodwood. Anxious to secure him for the company, his Grace promised not only to make him a sergeant *at once*, but to give him a written protection to preserve to him as long as he remained, irrespective of his conduct, the pay of that rank. Under these circumstances Finch accepted the protective credential, enlisted, and sailed with Lord Hood for the Rock. Holding such a charter, it was not to be wondered at if he sometimes overstepped the line of prudence. Not by any means particular in his appearance, nor scrupulous in his conduct or habits, he was not unfrequently brought before his officers; but no matter how flagrant his offence, the only punishment that could be awarded to him was suspension for a month or two from rank, but not from pay. Captain Evelegh, of the engineers, finding that Finch was becoming rather troublesome, and his sentence of ban little effect, endeavoured to obtain the Duke's warrant from its possessor, but he refused to surrender it, observing to the captain, "If you get hold of it, good-bye to my rank and pay." Finch, however, was a first-rate carpenter and foreman, and these qualifications more than counterbalanced his occasional delinquencies. He was discharged from the corps on the 13th April, 1802.

¹⁸ Chambers joined the company 21st September, 1772, from the 2nd Regiment of Foot, in which he had served two years. In 1791 he was promoted to be sergeant-major, on the discharge of Ince. In the summer of 1796 he was sent to Woolwich in a deranged state of mind, and on the 1st December of that year was discharged. Soon afterwards he was domiciled in a madhouse, where, his malady increasing, he was—it has been reported—smothered according to the cruel practice then in vogue with regard to incurable cases.

¹⁹ Woodhead joined the company 16th May, 1774, from the 12th Regiment, in which he had served seven years and a quarter. In November, 1791, he was promoted to be sergeant, and was discharged 17th July, 1807, on a pension of 2s. 7d. a-day, after a service of upwards of forty years. At Gibraltar he was found to be invaluable in the construction and repairs of the sea-line wall. He possessed a good share of intelligence; was a strong, portly, blustering mason, and well adapted for the heavy and laborious duties for which he was

*Corporals—continued.*John Morrison, *mason.*John Harrison, *mason.*John Fraser, *carpenter.*Thomas Harrenden, *carpenter.*Antonio Francia,⁸⁰ *mason.*

And the officers were, in addition to those mentioned at pp. 4 and 5, Lieutenants William M'Kerras, John Johnston, and Lewis Hay.

always selected. At Woolwich he was the military foreman of masons for many years, and was intrusted by Captain Hayter, then Commanding Royal Engineer, with the building of the wharf wall in the Royal Arsenal—a work highly creditable to the Engineer Department, and to Woodhead as the executive overseer.

⁸⁰ Afterwards anglicised to Anthony Francis, was wounded by a shell at Willis's. He and his brother Dominick were natives of Portugal, and the only foreigners in the company. Antonio was a Catholic; and as it was desired to preserve the Protestant character of the corps, a simple but effectual plan was taken to win his adherence to the Church of England. He asked leave to be married. The indulgence was refused unless he became a Protestant. *La Fiancée* was also a Catholic; but as a great event in their lives—which promised them no end of happiness—was likely to be indefinitely postponed by a stubborn acquiescence to a creed for which, probably, they felt but little interest, both renounced the belief of their fathers, and were married as members of the national faith. Their family were baptized and educated as Protestants, but the old man on his death-bed, returned to Mother-Church and died a Catholic. Three of his sons, now old men, fill comfortable appointments at Gibraltar. Their cousins, merchants at the Rock, own the plain called the "Spanish Race-course," above a mile beyond the Lines. One, Mr. Francis Francia, is British Consul at San Roque. Midway between the village of Campo and the consulate stands his farm, which is cultivated with enlightened taste, and enriched with rare exotics in fruits and flowers.—Kelaart's Botany and Topography of Gibraltar and its neighbourhood, pp. 179, 183.

1782—1783.

Siege continued—Magnitude of the works—Chevaux-de-frise from Landport Glacis across the inundation—Précis of other works—Firing red-hot shot—Damage done to the works of the garrison, and exertions of the company in restoring them—Grand attack, and burning of the battering flotilla—Reluctance of the enemy to quit the contest—Kilns for heating shot—Orange Bastion—Subterranean galleries—Discovery of the enemy mining under the Rock—Ultior dependence of the enemy—Peace—Conduct of the company during the siege—Casualties.

IN August the siege daily wore a more significant appearance, and the enemy was diligent in concentrating his resources—unlimited both in means and materials—to make an extraordinary attack upon the fortress. To cope with these preparations General Elliott was no less alert. All was ardour and cheerfulness within the garrison, and every one waited impatiently for an opportunity to end the strife, which had held thousands close prisoners to their posts for more than three years.

At this time the defensive works were very extensive, and many important alterations had yet to be made in several of the batteries, to afford more effectual cover to the artillery. The workmen consequently were greatly increased. Daily, nearly 2,000 men of the line were handed over to the engineers for the service of the fortifications; and the soldier-artificers were employed in their greatest force—two only being in hospital—to instruct and oversee them. In the more difficult works requiring experience, and the exercise of skill and ability, the company always laboured themselves.

In the most vulnerable part of the fortress, from the foot of Landport Glacis adjoining Waterport, to the sloping palisades

on the causeway across the inundation, the greater part of the carpenters of the company were occupied in fixing a chevaux-de-frise. They completed the work without the least interference from the enemy—a surprising instance of his inattention or forbearance.

While the chevaux-de-frise was in course of erection, covered ways were being constructed at the different lines on the north front, large and lofty traverses were raised along the line wall, the flank of the Princess Anne's Battery was rebuilt, the subterranean passages were pushed forward with vigour, and a covered way from the Grand Parade to the Orange Bastion was completed. Green's Lodge and the Royal Battery were also caissoned with ship-timber, and considerable alterations were made at Willis's. Indeed nothing was omitted to render the fortress capable of sustaining any attack to which it might be subjected from the enemy's immense and well-armed batteries.

These works and many others of a similar nature were in progress when the firing of red-hot shot from the north front, under General Boyd's directions, commenced upon the enemy's batteries. The effect of this destructive expedient was astounding, and the demolition of the enemy's lines in great part soon followed. Panic-stricken or confused, the besiegers returned but a tardy fire, and the injury sustained by it was of little moment.

The bold attack of the garrison, however, aroused the Spaniards, who, quickly repairing their works, opened, on the next day, a warm and powerful fire upon the Rock from 170 guns of large calibre. Nine line-of-battle ships also poured in their broadsides, in which they were assisted by fifteen gun and mortar boats. Considerable injury was thus done to the north front, as also to the Montague and Orange Bastions; the obstructions at Landport were likewise in great measure demolished, and many other works were partially razed. The engineers with the artificers and workmen were unremitting in their exertions, both during the night and in the day-time, to restore the defences where their importance, from their exposed

situation, rendered immediate reparation desirable. At Landport, notwithstanding the sharp firing of the enemy, the carpenters of the company were constantly detached to repair the fresh-recurring breaches, which, Drinkwater states, "were kept in a better state than might have been expected."

This attack and retaliation, however, were as yet only preliminary to the greater one which was to follow. The interval was filled up by discharges of cannon, averaging 4,000 rounds in the twenty-four hours. On the 12th September the combined fleets of France and Spain arrived before the Rock with ten floating batteries, bearing 212 guns; while their land batteries, strong and terrible, mounted 200 heavy guns, and were protected by an army of 40,000 men.

In their several stations the battering flotilla were moored, and the fleet anchored in less than ten minutes. The first ship having cast her anchors, that moment the garrison artillery began to throw its burning missiles. A tremendous rejoinder from the enemy succeeded. Upwards of 400 pieces of the heaviest artillery were disgorging their dreadful contents at the same instant. Of these the garrison only employed 96. For hours the balance of the contest was equal, the battering ships seemed invulnerable; but, at length, the red-hot shot gave evidence of their efficacy in the sheets of resistless flame that burst in all directions from the flotilla. By the 14th the whole of the floating batteries were burnt: their magazines blew up one after another; and it was a miracle, that the loss of the enemy by drowning did not exceed the numbers saved by the merciful efforts of the garrison.

Notwithstanding this appalling reverse the enemy were still reluctant to quit the contest. Many proofs they had had of the unconquerable spirit of the besieged even whilst suffering from pinching privation, and warring against such overwhelming odds; but they still clung to the hope of compelling the surrender of their invincible adversaries, though their repeated defeats should have taught them a far different lesson.

This obstinacy, of course, necessarily caused other and more effectual preparations to be made in the fortress, to meet and

withstand any future attacks. Red-hot shot was considered to be the grand specific. To supply it in sufficient quantities, the company of artificers erected kilns in various parts of the garrison. Each kiln was capable of heating 100 shots in little more than an hour. By this means, as Drinkwater writes, "the artificers were enabled to supply the artillery with a constant succession for the ordnance."

The struggle continued for some time much less terrific than has just been stated. From 1,000 to 2,000 rounds, however, were poured into the garrison in the twenty-four hours, and were followed up with more or less briskness for a few months, according to the varying caprice of the assailants. During this cannonade, the artificers under the engineers were constantly engaged in the diversified works of the fortress, and they began to rebuild the whole flank of the Orange Bastion on the sea-line, 120 feet in length. All the available masons and miners of the company were appointed to this important work, and were greatly strengthened on the arrival of the 141 mechanics under Lord Hood. In the face of the enemy's artillery, the artificers continued fearlessly to rear the flank, and at last completed it in about three months, to the amazement and satisfaction of the Governor and the garrison. The erection of such a work, in solid masonry, and under such circumstances, is perhaps unprecedented in any siege, and is alike highly honourable to the engineers and to the company.

Nor was the subterranean gallery under Farringdon's Battery prosecuted with less zeal under serjeant-major Ince. Five embrasures by this time had been opened in the front of the Rock facing the neutral ground. The miners exerted themselves with an energy that was conspicuous and commendable. This singular work seemed to be the Governor's hobby; he expected much from it, and ordered a similar Battery for two guns to be cut in the Rock, near Croutchet's Battery, above the Prince of Hesse's Bastion. Its completion, however, was not effected until after the siege.

To the schemes of the enemy there appeared to be no end; neither did they lack hope nor want confidence. They had

failed to obtain the submission of the garrison by famine; equally so, by a protracted bombardment; nor was their tremendous attack by a bomb-proof flotilla, assisted by their formidable land batteries, attended with better success. They now attempted a fourth stratagem, to mine a cave in the Rock by which to blow up the north front, and thus make a breach for their easy entrance into the fortress. Chimerical as the project might appear, it was conducted with some spirit, and occasioned the garrison much employment. Information of the infatuated design was, in the first instance, given by a deserter from the enemy, which, however, was cautiously received; and as it was impracticable to perceive the miners at work, doubts still existed whether the enemy had actually embarked in the scheme. These doubts were at length removed by sergeant Thomas Jackson,¹ of the artificer company, by whose enterprising efforts the movements of the enemy were rendered indisputable. It was his duty to reconnoitre² the north front, in addition to other services for which he was held responsible. Anxious to ascertain the cause of so much mysterious activity at the Devil's Tower, he descended the steep and rugged rock by means of ropes and ladders. The attempt was as bold as it was hazardous. Stopped by an opening very near to the base of the cliff he explored the entrance, and hearing the hum of voices and the busy strokes of hammers and picks he was well assured of the purpose for which the excavation was intended. Climbing the steep again, he reported what he had discovered. A stricter watch was therefore kept upon the Tower to prevent communication between it and the Rock. Hand-grenades and weighty fragments of stone were frequently

¹ Joined the company August, 1776, from the 56th Foot, in which he had served eleven years. Discharged about 1789.

² Reconnoitering appears to have been a duty that devolved upon sergeants of the company. On the 25th December, 1782, two soldiers attempted to desert from Mount Misery; one "got down, though the rope broke, which accident was the cause of the other being retaken. A few days after a sergeant of the artificers was ordered to reconnoitre the place where this deserter descended, and he got down far enough to discover the unfortunate man dashed to pieces at the foot of the precipice."—"Drinkwater." Murray's edit., 1846, p. 100.

hurled over the precipice to terrify the workmen below, and choke up the entrance to the gallery; and though these means did not make the intrepid miners relinquish their project, they yet greatly interrupted its progress. The notion of the engineer who proposed the mine must have been the result of desperation, for what must have been its nature to crumble in its explosion a huge mass of compact rock, nearly 1,400 feet of perpendicular height, into a roadway, by which to enter the fortress as through a breach?

Since the flotilla had been burnt and the fleet had disappeared, it was evident that the enemy now depended for a triumph on their gun-boats and land-batteries, and also the mine at the Devil's Tower. For a time they warmly plied the fortress with shot and shell, to which the garrison responded with considerable animation. Intervals followed, induced by indecision or caprice, in which the firing from the enemy was very desultory and inefficacious; but that from the garrison was always well sustained. The soldiers of the Rock seemed to rise in spirit and activity as the enemy declined in these qualities. With the latter, the barometer of their hopes fell with their energies. Still they fruitlessly laboured on, the mine under the Rock being the principal object of their attention, until relieved from the disgrace of another defeat, by the arrival of news from home of the signing of preliminaries for a general peace. The intelligence was communicated to the garrison on the 2nd February, 1783, and on the 5th, the last shot in the conflict was fired from the fortress. Thus terminated a siege, extending over a period of nearly four years, which, when all the circumstances connected with it are taken into account, can scarcely find its parallel in the chronicles of ancient or modern warfare.

During the whole of this memorable defence, the company of artificers proved themselves to be good and brave soldiers; and no less conspicuous for their skill, usefulness, and zeal on the works. With their conduct and exertions in the performance of their various professional duties, their officers were always well pleased; and, not unfrequently, the Governor, and General

Boyd, in witnessing their services, encouraged and flattered them with expressions of their admiration. In later days, when the expediency of raising a *corps* of military artificers was discussed in the House of Commons, Captain Luttrell stated, "that during the siege, the corps at Gibraltar had been found of infinite service."³

The following is a detail of the casualties that occurred in the company at this siege:—

	Officers.	Sergeants.	Rank and File.	Total.
Killed ⁴	0	1	6	7
Wounded, severely . . .	0	0	7	7
Wounded, but recovered .	2	3	30	35
Dead by sickness . . .	0	0	23	23
	—	—	—	—
Total	2	4	66	72

Besides which, two men having plundered the King's stores, were executed for the offence at the Convent in Irish Town, on the 29th May, 1781.⁵

It is, however, satisfactory to mention, that of the forty-three desertions recorded to have taken place from the garrison, none were from the artificer company. One regiment was decreased eleven men from this cause, and another nine.

³ 'Gentleman's Magazine,' 58, part 2, 1788.

⁴ Sergeant John Richmond—date unknown.

Corporal Charles Tabb }
Mason Adam Parsons } 25th November, 1781.

Mason Adam Sharp—5th March, 1782.

Mason George Brown—11th June, 1782.

Nailor Robert Shepherd—16th January, 1783.

The name of the other man killed cannot be ascertained, as the documents of the company from the commencement of the siege to the 30th September, 1781, are lost.

⁵ The names of the criminals were Artificers Samuel Whitaker and Simon Pratts.

1783.

Duc de Crillon's compliments respecting the works—Subterranean galleries—Their supposed inefficiency—Henry's illness—Quickness of sight of two boys of the company—Employment of the boys during the siege—Thomas Richmond and John Brand—Models constructed by them.

THE cessation of hostilities brought the commanders of the two powers together, and a most interesting interview took place between them. During the visit of the Duc de Crillon, he was shown all the marvels of the Rock; but the fortifications especially engaged his attention. Having been conducted to the batteries on the heights, his Grace made some remarks on the formidable appearance of the lower defences, and on the good state of the batteries in so short a period. "These," writes Drinkwater, "produced some compliments to the chief engineer;" and, continues the historian, "when conducted into the gallery above Farringdon's Battery—now called Windsor—his Grace was particularly astonished, especially when informed of its extent, which at that time was between 500 and 600 feet. Turning to his suite, after exploring the extremity, he exclaimed, these works are worthy of the Romans."¹

For many years the galleries thus enlogized by the Duke were in course of construction, and are formed, as already stated, by deep excavations in the solid rock. Passing round the north face in two tiers,² mounting about forty pieces of heavy ordnance, they command the approach to the fortress from the neutral ground, and render it almost impregnable on that side. Large magazines and spacious halls—in like manner hewn out of the rock—are attached to them. The work, as a whole,

¹ Drinkwater's 'Siege of Gibraltar.' Murray's edit., 1846, p. 163.

² Called Lower, or Union Galleries; and Upper, or Windsor Galleries.

executed principally by the jumper and blasting, is curious and even marvellous, bearing also unequivocal evidence of ingenuity and of immense labour. Than these subterranean passages and chambers, no better testimony need scarcely be desired of the successful superintendence of sergeant-major Ince and of the skill and exertions of the company.

Notwithstanding the formidable character of these defences, doubts seem to exist as to their real efficiency in a siege. These doubts have arisen from the idea that the report of the explosion would not only be deafening, but that the smoke would return into the galleries and suffocate the men.³ No experiments have ever been made with the view of ascertaining these particulars: speculation is therefore properly admissible. Once, indeed, in 1804, they were fired in salvo to dispel, if possible, the then raging fever;⁴ and at distant intervals since, *some* of the guns have been discharged; but no complaint was ever made—at least became public—of the inutility of these galleries from the causes stated. To expect a loud report is certainly natural, but much less so the recoil of the smoke, as a strong current of air is always passing in the galleries, and rushing with some force through the embrasures. No matter how sultry the day, how still the air, or how fiercely the sun may beam upon the Rock, in these galleries a strong breeze is constantly felt; and the fresher the wind from the outside, whether from the north-east, and blowing directly into the embrasures, or sweeping round the Rock, the stronger is the current within the galleries to force back or disperse the smoke. But little, therefore, of the vapour can find its way back, and that little must be *much less* annoying to the gunners than in an open field when, firing smartly in the teeth of the wind, the whole volume turns back and beclouds them as long as the cannonade continues. However, should the alleged defect be found on trial to exist, there is no reason to fear but that the

³ Walsh's 'Campaigns in Egypt,' 1803, p. 5. Wilkie, 'On British Colonies considered as Military Posts,' in United Service Journal, Part ii., 1840, p. 379.

⁴ Maule's 'Campaigns of North Holland and Egypt,' &c., p. 303.

military engineer will readily adopt some effectual contrivance for removing the annoyance, and for obtaining all that power and efficiency which the galleries were designed to possess and should be capable of commanding.

Since these excavations—these vaults of solitude—which excite some degree of awe from their magnitude, and the proud array of ordnance that arm them—have always been highly praised by military men, and been visited both by officers and others as a species of marvel at the fortress, it will not be out of place to introduce the projector—Henry Ince—to notice. He was born in 1737 at Penzance in Cornwall, was brought up to the trade of a nailor, and afterwards acquired some experience as a miner. Early in 1755 he enlisted into the 2nd Foot, and served some time with it at Gibraltar, where he had been much employed on the works in mining and blasting rock. After a service of seventeen and a half years in the 2nd regiment, he joined the company, then forming, on the 26th June, 1772. The same day he was promoted to be sergeant. Having showed superior intelligence in the execution of his duties as a foreman, and distinguished himself by his diligence and gallantry during the siege, he was, in September, 1781, selected for the rank of sergeant-major. In the following year he suggested the formation of the galleries, and was honoured by being directed to conduct the work himself. This he continued to do until it was finished. As “overseer of the mines,” he had the executive charge of all blasting, mining, battery building, &c., at the fortress, and was found to be invaluable. He was active, prompt, and persevering, very short in stature, but wiry and hardy in constitution; was greatly esteemed by his officers, and frequently the subject of commendation from the highest authorities at Gibraltar. In February, 1787, when the Duke of Richmond was endeavouring to economize the ordnance expenditure at the Rock, the emoluments of sergeant-major Ince claimed his attention: but remembering his fair fame, his Grace thus wrote concerning him:—“I do not object to sergeant-major Henry Ince being continued as overseer of mines at 4s. per day, as I understand, from all accounts, that he is a meri-

torious man, and that he distinguished himself during the siege; but, as such allowance, *in addition to his pay*, is very great, I desire it may not be considered as a precedent; and whoever succeeds him must only receive *2s. 10d.* per day, like the foremen in other branches, if he should be appointed a foreman." In 1791, after a period of thirty-six years' active service, he was discharged from the company, but was still continued on the works as an overseer. On the 2nd February, 1796, he was commissioned as ensign in the Royal Garrison Battalion, and on the 24th March, 1801, was promoted to be lieutenant. In 1802 the regiment was disbanded. All this time, however, Ince was attached to the department as assistant-engineer; but at length, having worn himself out in the service of the fortress, he returned to Penzance, and died in June, 1809, at the age of seventy-two.⁵

Among the various stirring incidents narrated by Drinkwater, is the following, relative to the peculiar advantage of the boys of the soldier-artificer company during the siege.

"In the course of the day," 25th March, 1782, "a shot came through one of the capped embrasures on Princess Amelia's Battery (Willis's), took off the legs of two men belonging to the

⁵ Ince had a farm at the top of the Rock, which is still called by his name. He had an only son, a clerk in the Commissariat department at Gibraltar, under Commissary-general Sweetlove, who, together with his wife, died in the fever of 1804, leaving an infant son, who was brought up by his grandmother. The eldest daughter of Lieutenant Ince was married at Gibraltar to Lieutenant R. Stapleton, of the 60th Rifles, who exchanged with Lieutenant Croker into the 13th Foot, and then sold out.

One day Mr. Ince was trotting at an easy pace up the Rock, when the Duke of Kent, overtaking him, observed, "That horse, Mr. Ince, is too old for you." "I like to ride easy, your Royal Highness," was the subaltern's meek reply. "Right, but you shall have another, more in keeping with your worth and your duties;" and soon afterwards the Duke presented him with a very valuable steed. The old overseer, however, was unable to manage the animal, and he rode again to the works on his own quiet nag. The Duke, meeting him soon after, inquired how it was he was not riding the new horse, when Ince replied, he was unable sufficiently to curb his spirit and tranquillize his pace. Ince then prayed his Royal Highness to honour his servant by receiving the noble creature into his stud again. "No, no, overseer," rejoined the Duke; "if you can't ride him easily, *put him into your pocket!*" The overseer readily understood his Royal Highness, and exchanged the beautiful steed for his worth in doubloons.

72nd and 73rd regiments, one leg of a soldier of the 73rd, and wounded another man in both legs; thus four men had seven legs taken off and wounded by one shot. The boy, who was usually stationed on the works where a large party was employed to inform the men when the enemy's fire was directed to that place, had been reproving them for their carelessness in not attending to him, and had just turned his head toward the enemy, when he observed this shot, and instantly called for them to take care; his caution was, however, too late; the shot entered the embrasure, and had the above-recited fatal effect. It is somewhat singular that this boy should be possessed of such uncommon quickness of sight as to see the enemy's shot almost immediately after they quitted the guns. He was not, however, the only one in the garrison possessing this qualification; another boy, of about the same age, was as celebrated, if not his superior. Both of them belonged to the artificer company, and were constantly placed on some part of the works to observe the enemy's fire; their names were Richmond (not Richardson, as stated by Drinkwater) and Brand; the former was reported to have the best eye."⁶ Joseph Parsons,⁷ another youth of the company, was also employed as a *looker-out* on the works; and though his name has escaped the notice of the historian, he was nevertheless no less efficient.

It was an object that every one in the fortress should be rendered useful in some way or other, and the boys of the company—out of sympathy for their youth—were, for some time after the commencement of the siege employed on the works at Earopa quarry, then but little annoyed by the enemy's fire. At length, inured to labour, and taught by events to expect danger, it was considered of greater advantage to occupy their time at the different batteries; and on the 15th February, 1782, the Chief Engineer directed their removal to the works and fortifications,⁸ with the view of looking out for the

⁶ 'Drinkwater.' Murray's edit., 1846, p. 108.

⁷ Parsons joined the company in February, 1779, and was discharged, as a private artificer, 1st January, 1809, on 1s. 4d. a-day.

⁸ Order Book—Chief Engineer's.

enemy's projectiles, and giving warning of their approach. On the 21st June following, such of the boys as were masons in the company were engaged under Mr. Hutchinson, a civil foreman, in rounding stones, agreeably to the instructions of Major Lewis of the artillery. These stones, according to Drinkwater, were "cut to fit the calibre of a 13-inch mortar, with a hole drilled in the centre, which being filled with a sufficient quantity of powder, were fired with a short fuse to burst over the enemy's works." It was an unusual mode of annoyance, and for its novelty was employed for some time; but not effecting the damage that was desired, it was ultimately laid aside.⁹ On the failure of this experiment, the boys returned to the perilous posts assigned to them on the batteries to look out. At this duty they continued as long as the siege lasted, and doubtless, by their vigilance in its execution, they were the means of saving many valuable lives, or otherwise preventing casualty.

Of the two boys who have been so favourably noticed by Drinkwater, it may not be unacceptable to devote a small space here to their brief but honourable history. Their names were Thomas Richmond¹⁰ and John Brand; the former was known at the Rock by the familiar sobriquet of *shell*, being the better looker-out; and the latter by the name of *shot*. Richmond was trained as a carpenter; Brand as a mason. Their fathers were sergeants in the company.¹¹ Richmond's was killed at the siege. As might be expected, the beneficial services of these boys at the batteries acquired for them no common celebrity and esteem.

The siege being over, the youths were sent to Mr. Geddes's school, at that time the principal seminary at Gibraltar. This gentleman paid every attention to their instruction and improvement, and, as a consequence, they progressed rapidly in

⁹ 'Order-Book' (Chief Engineer's) of 21st June, 1782; and 'Drinkwater,' Murray's edit., 1846, p. 118.

¹⁰ Not Richardson, as Drinkwater has it, p. 108.

¹¹ Brand's father, a mason by trade and a Perthshire man, was the first artificer enrolled in the company.

their studies. Being found quick, intelligent, and ingenious, some officers of the company patronized them, and placed them in the drawing-room under their own eye, with the view of making them competent to fill better situations. Brand in time became corporal, and Richmond lance-corporal, which ranks they held on the 8th May, 1789, when they were discharged from the corps, and appointed by the Commander-in-Chief assistant-draughtsmen.¹²

Having made considerable proficiency in their trades, they were employed for some years previous to their discharge as modellers, which art they continued to follow with great tact, skill, and perseverance, until they quitted the fortress. After several trial models of various subjects, these young men commenced the gigantic task of modelling Gibraltar, at which they worked with unwearied application for nearly three years. Succeeding so well in this their first great and public undertaking, Brand¹³ was directed to make a model in polished stone of the King's Bastion, and Richmond¹⁴ a model of the north front of Gibraltar. Nearly the whole of the years 1790 and 1791 were spent in perfecting them; and for these noble specimens of art they were favoured with the flattering congratulations of the highest authorities at the fortress. The better to exemplify the appreciation entertained of the models, and of the merits and talents of the modellers, they were recommended to the Duke of Richmond for commissions. His Grace immediately ordered them to proceed to Woolwich, to undergo some slight preparatory training. That training was short—a few months sufficed, and then they were honoured with appointments as second lieutenants in the royal engineers. Their commissions were dated 17th January, 1793.¹⁵ Soon the young subalterns,

¹² 'Order-Book' (Chief Engineer's), 8th May, 1789.

¹³ Assisted by sergeant James Shirres, an ingenious artizan and modeller. This non-commissioned officer, after serving at the capture of Minorca, was made a sergeant-major of the company that served there, 2nd May, 1800, and on the 31st December, 1804, was appointed overseer in the royal engineer department at Plymouth.

¹⁴ Assisted by Antonio Marques, a Minorean artificer.

¹⁵ 'London Gazette,' 13,494. 15 to 19 January, 1793.

rich in intelligence and full of promise, were sent abroad; but before the close of the year, both fell a prey to the prevailing yellow fever in the West Indies.¹⁶

The three models alluded to were brought to England in 1793 by desire of General O'Hara. The large model of the entire Rock was deposited in the museum in the Royal Arsenal, and the other two were presented to His Majesty George III. Private Joseph Bethell had charge of the first model,¹⁷ and Private Thomas Hague¹⁸ of the other two. The large model,

¹⁶ The education of these youths is highly creditable to the officers of engineers. Many similar instances of boys in the corps acquiring distinction by their talents, have subsequently occurred, the honour of which, in great measure, is due to the officers. Assistance and encouragement they never fail to give in cases where their efforts are likely to meet with success, and numbers have thus qualified themselves to fill important situations with efficiency and credit, in their own profession, and afterwards in civil life. Richmond and Brand, however, are the only instances in which commissions have been given from the ranks of the artificers, or sappers and miners, into the corps of engineers.

¹⁷ Drinkwater says (p. 108), "that one of the works of these young men, while pursuing their studies at Woolwich, was to finish the large model of the rock of Gibraltar." The historian has certainly been misled here: the model was finished before it left the fortress, and did not reach the Arsenal until after its makers had been commissioned, and left England for the West Indies. The placement and adjustment of its several parts were intrusted to a military artificer named Bethell. He was to have been assisted by another private, who accompanied him for the purpose, from Gibraltar; but having broken his leg at Woolwich, his services were thus lost. Private John McNaughton, a carpenter of the Woolwich company, was put to the model in his place. I knew McNaughton well, and he assured me that the model was not touched by any hands but his own and Bethell's, and that on no occasion were the modellers present during its fixation. McNaughton seems to have been an excellent artificer, and always an active soldier. During the mutiny of Parker, he was employed in repairing Tilbury Fort, and in erecting temporary defences below Gravesend. He afterwards served under the great Abercrombie in Egypt; next was employed in constructing the towers on the Sussex coast, at the time of the projected invasion of Napoleon; and, lastly, was many years in Newfoundland. He was discharged 24th January, 1815, on s. d. a-day, and died at Woolwich in April, 1853, aged 84.

¹⁸ Hague was a tall, intelligent mechanic, a fine modeller, and a smart soldier. On account of these qualities, he was selected to take charge of the models for George III. Having put them together on their tables at Buckingham Palace, His Majesty, the Queen, and royal family, with other illustrious personages of the court, came to see them. Hague was cited before them to explain the model, and to point out the defences which, from their prominence in the late siege, had acquired historic identity. His observations were listened

from being lodged in a public place open to visitors, was well known. It was an object of considerable attraction, "and was much admired," so Drinkwater writes, "for beauty of execution and minute correctness."¹⁹ A visitor to the Arsenal in those days corroborates the just encomium of the historian, and thus records his impressions:—

"I walked yesterday morning to Woolwich Warren, that immense repository of military arts, the *palladium* of our empire, where one wonder succeeds another so rapidly, that the mind of a visitor is kept in a continual gaze of admiration. Should I be asked what has made the strongest impression on mine, it is a magnificent view of the rock of Gibraltar, which was made there, formed of the very rock itself, on a scale of twenty-five feet to an inch, and presents a most perfect view of it in every point of perspective."²⁰

Nine years after its placement, the museum in the arsenal was fired by an incendiary, and this celebrated model was unfortunately destroyed.²¹ The other two models, which held

to with attention, and His Majesty awarded him a gratifying proof of his royal approbation. Soon afterwards Hague returned to Gibraltar, and on the 31st March, 1815, was discharged and pensioned at 1s. 8d. a-day. He was subsequently employed as a modeller in the grand store; was married in 1827; and died at the Rock about 1833, upwards of 100 years old.

¹⁹ 'Drinkwater.' Murray's edit., 1846, p. 108.

²⁰ To this the visitor adds a description of the model, which is adjoined here, on account of the model itself having long since been destroyed. "First then," says the writer, "are the Spanish lines; then the perpendicular rock, rising bold from the neck of the neutral ground, which is not many feet above high-water mark. On the east, or left hand, is the Mediterranean Sea; and on the west, within the mole or pier, is the Bay of Gibraltar, in which the largest ships in the British Navy may ride safe. The garrison, town, and forts, are to the westward, whence the rock rises with a more gradual acclivity to the summit,—the east side of which is also perpendicular, and inhabited by monkeys. On the highest point is the Levant Battery, which is nearly three times and one half the height of St. Paul's church, or 1375 feet above the level of the sea. The southern extremity of the model of this rock towards Europa Point, being too large for the room, and less important, is cut off. This description ought to fill a volume."—Gentleman's Magazine, part 2, 1798, p. 648.

²¹ This was on the 22nd May, 1802. The account given at the time of this disgraceful act is as follows:—"A dreadful fire broke out at Woolwich, and from the investigation which has taken place into this calamitous circumstance, there is but too much reason to believe that this disaster was not the mere effect

a place in Buckingham Palace for about twenty-seven years, were presented in 1820 by George IV. to the Royal Military Repository at Woolwich. They are now daily exhibited in the Rotunda, and are, perhaps, about the best specimens of workmanship and ingenuity in the place. That of the King's Bastion is finely wrought, and is really beautiful; that of the north front, bold and masterly. Both claim the particular attention of visitors, exciting at once their surprise and admiration.

of accident. The fire broke out, at one and the same time, in three different places, besides which a great mass of combustible materials have been discovered. The loss to Government will be immense. The damage done to the Model-room is particularly to be lamented, as several choice works of art have been destroyed, without the power of reparation; however, the injury done to the beautiful model of the rock of Gibraltar is not so great as was at first represented, it having sustained but a slight damage, which can be easily repaired, and the whole restored to its original state.'—Dodsley's Annual Register, 1802, p. 404. The journalist is wrong in his remarks concerning the state of the model after the fire. It was completely destroyed, and not even the fragments are now in existence. Some persons, indeed, with whom I have conversed, bear out the chronicler in his record, and affirm that the model *was* repaired, and *is now* in the Rotunda; but they have given me a fair inference of the mistaken character of their recollections, by uniformly referring to the model of the *north front*, executed by Richmond and Marques, which, at the very time that the fire occurred, formed one of the curiosities of Buckingham Palace. Drinkwater (p. 108, Murray's edit.) attests the fact of its destruction; and in this he is borne out by the 'Repository Detail of Arms, &c., printed in 1822. In that catalogue (at p. 9—21) is a list of the arms, models, &c., of the *original* institution preserved from the fire of 1802, and collected by Sir William Congreve, but no mention is made of the model in question. This, then, is the best attainable evidence of the certainty of its demolition, coupled with the acknowledgment, at page 52 of the same catalogue, that the "North end of Gibraltar," the model mistaken for the one destroyed in the Arsenal, was presented to the Repository by George IV. Had the large model of the Rock been preserved, Sir William Congreve would most certainly have noted it in the detail.

1783.

State of the fortress—Execution of the works depended upon the company—
Casualties filled up by transfers from the line—Composition—Reeruiting—
Relieved from all duties, garrison and regimental—Anniversary of the de-
struction of the Spanish battering flotilla.

FOR about six months previously to the termination of hostilities, the siege had been carried on with fearful vigour, and the destruction it occasioned, revealed to a mournful extent the efficiency of the enemy's cannonade. The tiers of batteries on the north front, the whole of the fortifications along the sea face, and indeed every work of a permanent character, were considerably damaged or thrown down. The town too was little better than a vast ruin, and its houses were levelled to the rock, or were left standing in tottering fragments, or at best in their shells, despoiled and untenanted, as so many monuments of an unbounded calamity. The inhabitants, driven shelterless into the streets, were compelled either to leave the fortress, or to locate themselves under canvas amid the general desolation; or to seek a comfortless retreat in the dark and gloomy caverns of the rock. Such was the wreck to which Gibraltar was reduced at the close of the siege, and the work of restoration, therefore, was both extensive and pressing.

The reconstruction or repair of the fortifications and other public works at the fortress, in great part depended upon the company; and the more so, since the numbers of the line competent to work as tradesmen were inconsiderable. Assistance from the civil population of the place was neither given nor expected, as the works in the town secured to them abundance of employment and excellent wages. Policy, therefore, dictated

the expediency of paying particular regard both to the numerical and physical efficiency of the company.

At the close of the siege, there were twenty-nine rank and file wanting to complete the soldier-artificers, which number was increased to thirty-nine by the end of May. To supply this deficiency, the Governor ordered the transfer of an equal number of artificers from regiments in the garrison; and on the 31st July, the company was complete. Still, there were many of the men who, from wounds received at the siege, or from privation and hardship, or from exposure in camp, in summer, to the excessive heat of the sun, and in the autumn, to the heavy rains, were unequal to the exertion required from them on the works. Among them were the best masons and carpenters of the company, who were stated to have been "expended" during the siege. Accordingly, on the 31st of August, sixty-seven men, good "old servants, and those that had lost the use of their limbs in the service," were discharged and "recommended," whose vacancies were at once filled up by volunteers from the line.

After this desirable pruning, the composition of the company stood as under:—

1	Sergeant-major.
10	Sergeants.
10	Corporals.
4	Drummers.
38	Masons.
33	Smiths.
54	Carpenters.
21	Sawyers.
32	Miners.
6	Wheelers.
5	File-cutters.
4	Nailors.
3	Gardeners.
7	Lime-burners.
3	Coopers.
1	Painter.
1	Collar-maker.
1	Brazier.

—
Total 234

As far as circumstances permitted, the strength of the com-

pany was never allowed to sink beneath its establishment, for whenever a casualty occurred, it was immediately filled up. Not only was the Chief Engineer anxious on this point, but the Governor and Lieut.-Governor felt equal concern, and were ready to give effect to any measure which should yield the required result. If, at Gibraltar, the recruiting failed from the want of the proper classes of mechanics to join the company, the Duke of Richmond found means in England and Scotland to meet the case. His Grace was both an admirer and an advocate of the military system of carrying on the works, and took peculiar interest in the recruiting, even to superintending the service, and acting in some cases as the recruiting sergeant. Hence the company, seldom short of its complement of men, invariably afforded a force of more than 220 non-commissioned officers and artificers to be employed constantly in restoring the fortifications, &c.: the sick at this period averaged about eight a day.

To obtain the full benefit of their services, and to expedite the works, the soldier-artificers were excused from all garrison routine—as well as from their own regimental guards and fatigues—and freed from all interferences likely to interrupt them in the performance of their working duties. Even the cleaning of their rooms, the care of their arms and accoutrements, and the cooking of their messes, were attended to by soldiers of the line. Every encouragement was thus given to the company to work well and assiduously, and every liberty that could possibly be conceded, not excepting a partial abandonment of discipline, was granted to them. Nevertheless, to impress them with the recollection that their civil employments and privileges did not make them any the less soldiers, they were paraded generally under arms, on the Sunday; and to heighten the effect of their military appearance, wore accoutrements which had belonged to a disbanded Newfoundland regiment, purchased for them at the economical outlay of 7s. a set. Perhaps no body of men subject to the articles of war were ever permitted to live and work under a milder surveillance; and it might be added, that none could have rendered

services more in keeping with the indulgences bestowed. They did their duty with zeal, and the works progressed to the satisfaction of the engineers and the authorities.

The remembrance of the late siege was not likely soon to be effaced from the memory of those who participated in it; and hence the company, regarding themselves in a peculiar sense as the fencibles of the fortress, and as having contributed largely to its defence, commemorated the event by means of a ball and supper. The festival was held at the "Three Anchors Inn," on the 13th of September—the anniversary of the destruction of the battering flotilla—on which occasion Lord Heathfield, and Sir Robert Boyd, the Lieutenant-Governor, with their respective staff-officers, dined with the company, and retired after drinking one or two complimentary toasts in praise of their gallantry at the siege, and their useful services on the fortifications and works.¹

¹ This anniversary supper was held by the non-commissioned officers annually, on the date named, at the *Three Anchors*. After the first year, the tickets of admission were 16s. 6d. each, or 5 dollars and 4 reals, which provided, in the language of one who used to have a seat at the table, "a sumptuous entertainment." At that time the dollar was 3s., and the real 4½d. Each ticket admitted a married non-commissioned officer and his family, or a single one and his friend. The privates took no part in the celebration. On each occasion, the Governor, Lieutenant-Governor, &c., honoured the company with their presence, and made gratifying allusions to their services at the siege. The night of the festival used to be familiarly termed *Junk-ship night*, both by the inhabitants and the soldiers. The custom was perpetuated till the year 1804, when, from the fearful epidemic that prevailed, it was necessarily omitted, and was never again held. It was a common opinion that the Duke of Kent interdicted these loyal anniversaries, but such was not the case. The last one was held in September, 1803, after his Royal Highness had been recalled from Gibraltar.

1786—1787.

Company divided into two—Numerous discharges—Cause of the men becoming so soon ineffective—Fourth augmentation—Labourers—Recruiting, reinforcements—Dismissal of foreign artificers—Wreck of brig 'Mercury'—Uniform dress—Working ditto—Names of officers—Privileges—Cave under the signal house.

ON the 30th June the Duke of Richmond divided the company into two, owing to the professional duties of the Chief Engineer rendering it impracticable for him to pay proper attention to the discipline and interior management of so large a body. The two senior officers at the fortress were appointed to take immediate charge of these companies, and each was authorized to receive an allowance of 56*l.* 10*s.* per annum in lieu of all charges for repair of arms, &c.¹ The Chief Engineer, nevertheless, continued in command of both companies. In the estimates, however, annually presented to Parliament, the corps was not recognized as being formed into two companies, possibly with a view to prevent the members of the House of Commons being drawn into a profitless debate upon a fancied attempt to increase the corps; a debate which, very likely, would not have been productive of compliments to his Grace, as by his extensive but lately rejected schemes for national defence he had made himself in some respects obnoxious to the House and to the country.

By this time there were many men in the corps, who from length of service and other causes were no longer fit for the

¹ This sum seems to be a sort of standing equivalent, and has existed without alteration, through all the changes of advanced or reduced prices in material and labour, to the present day.

duties of the department; and there were others, also, who from continued misconduct were worthless and burdensome. Captain Eveleigh, returning to England about this period, lost no time in making the Duke of Richmond acquainted with the state of the companies, and of advising the discharge of all who were inadequate to their pay. His Grace at once acquiesced, and the companies being well weeded, eighty-two men were discharged during the winter and ensuing spring.

In so young a corps, scarcely fourteen years embodied, it might occasion some surprise why so many men became ineffective in so short a time. The reason is obvious. At all periods since the formation of the corps, the demands for mechanics of good qualification were urgent. Under thirty years of age men could seldom be had from the line, whose services were worth acceptance, being either irregular in conduct, or possessing but little pretension to ability as tradesmen. Mechanics were therefore generally received at thirty-five to forty-five, and oftentimes at the bald age of fifty. Neither age nor height was an insuperable disqualification, provided the candidate for transfer or enlistment possessed sufficient stamina for a few years' hard wear and tear. It was not therefore to be expected that they could serve long in the companies, more especially, as, the works of the fortress being always important and pressing, the men were obliged to labour zealously to meet the exigency, exposed to all the fitful and depressing changes of wind and temperature.

In the course of the interview with the Duke of Richmond, Captain Eveleigh proposed that an augmentation of 41 labourers should be made to the companies. Of the necessity for this his Grace was not so well persuaded, for knowing the ready disposition of the Governor of Gibraltar to provide men, at all times, for the services of the works, he felt assured that no difficulty would be found in obtaining any number required from the line, on a proper representation of their need being made. He would not therefore sanction the measure; but, as his Grace was aware, from the extent of the works in progress, that the demand for mechanics was very great, and as he was moreover

much averse to the employment of civil artificers, he considered it would be a far greater public benefit to increase the corps with mechanics than labourers. He therefore, in September, took upon himself the responsibility of augmenting the companies with forty-one masons and bricklayers, which fixed the strength of the corps as under :—

1	Sergeant-major.
10	Sergeants.
10	Corporals.
4	Drummers.
250	Private artificers.

—
Total 275

Each company was to consist of 137 non-commissioned officers and men.

His Grace, moreover, ordered that such of the artificers as were not sufficiently skilful at their trades, to the number of forty, were to be employed as labourers, if required, but he did not contemplate that any such could be found in the corps. From this slight innovation, however, soon after followed the authorized enlistment of *labourers* as a part of the establishment,—a measure not in any sense welcomed by the old artificers, who conceived they were losing caste and position by the association.

Means for obtaining transfers and recruits at Gibraltar were now considerably straitened. The Duke of Richmond, therefore, undertook to furnish the number authorized to be added to the corps, and to supply the constantly-recurring casualties. Upon this duty his Grace employed several officers of engineers in the manufacturing districts of England and Scotland. Captain Rudyerd was the chief recruiting officer in North Britain, and he seems to have been the most successful in obtaining recruits. Married men² with families were not

² The regulation with regard to the wives and families of recruits going to Gibraltar, as established by the Duke of Richmond, is sufficiently curious, by comparison with the present very limited system, to be mentioned here. On the 9th September, 1786, the Duke arranged that to every 20 men, 10 women and 10 children should be allowed to accompany them. If there were more than that number with the party, 10s were to be drawn, and those who did not

debarred from enlistment, if their personal appearance and talents as tradesmen were favourable. More attention was now paid to age than heretofore; and none were received over thirty-five years old, unless under extraordinary circumstances. The bounty allowed to each candidate was 13*l.* 13*s.* 6*d.*

Five batches³ of recruits, numbering in the whole 183 artificers, were sent to the Rock in rapid succession; but as they were long in arriving, it was considered expedient to hire civil artificers from Portugal and Italy to expedite the works. However desirable it might have been to adopt this course, the Duke of Richmond disapproved of it. He had always a great aversion to the engagement of civil artificers, whether from England or from places on the Continent, arising from the great expense attending their employment and their general irregular conduct. His Grace, therefore, ordered that the foreign artificers should be discharged on the arrival of the recruits, which was accordingly done.

Of the second party of recruits, it may be permitted to take a more than passing notice. It was composed of 58 men, all mechanics, "in the prime of life," under charge of sergeant Sherriff, accompanied by their wives, 28 in number, and 12 children—in all 101 persons. They embarked at Leith on the 21st September, on board the brig 'Mercury,' Thomas Davidson, master. The crew consisted of 11 men. The ship sailed

gain prizes were to find their own passages; the lots were not to divide families, but were to be drawn by the men until the number allowed was completed. If encouragement had been given to any men to hope that their families would be provided with passages, the bargain was to be faithfully adhered to.

³ Of the following strength:—

21	men	15th Sept. 1786,	embarked on board the 'New Euphrates,' and landed 6th Oct.
58	„	21st Sept, 1786,	embarked at Leith, on board the brig 'Mercury.' Wrecked 24th Sept.
25	„	6th Nov. 1786,	embarked in the 'Adventure,' landed.
35	„	23rd Mar. 1787;	landed.
44	„	15th and 16 Apr. 1787;	landed.
<hr/>			
Total	183	„	About 100 of this number were bricklayers and masons, the crafts most required at the Rock.

with a fair wind ; but on the 23rd, when nearing the coast of Flanders, she was greatly buffeted by a boisterous gale. At three o'clock on the morning of the 24th, Sunday, the steeple of Ostend was recognised, and, accordingly, the course of the vessel was shaped towards the chops of the channel. A storm now set in, and as danger was apprehended, the captain and crew were anxious and vigilant. Skill and exertion, however, were of no avail, for at seven o'clock in the evening she struck upon a sand-bank, about six miles off Dunkirk. The wind continued blowing hard to the north, while the sea, "running mountains high," dashed the frail bark to and fro with a fury that broke her masts, destroyed her bulwarks, and tore her sails to shreds. At nine o'clock she went to pieces, and melancholy to add, all on board perished but three. The survivors were John Patterson, ship's carpenter ; Walter Montgomery, blacksmith ; and Daniel Thomson, mason. The two latter were recruits. On fragments of the wreck they floated all night, and at ten o'clock next morning, Patterson and Montgomery, just ready to relinquish their hold from cold and exhaustion, were picked up by a pilot-boat and taken on shore at Dunkirk. The other sufferer, Thomson, was found some hours after in the surge, helpless and shivering, clinging to a spar. At once he was conveyed to Mardyck, three miles to the westward of Dunkirk, where he only lived a few days. Of Walter Montgomery nothing further is known. As at the time he was reported to be very ill, and not likely to recover, he probably died at the place where he was given an asylum.⁴

No information can be obtained relative to the dress of the companies until 1786.⁵ Then, the uniform was a plain red

⁴ 'Morning Chronicle,' 10th October, 1786, and periodical press generally. In most of the papers Daniel Thomson is, by mistake, named Daniel Campbell.

⁵ Fifteen bodies were washed ashore between Nieuport and Ostend, on the 27th and 28th September, and it is not a little remarkable that, of this small number, no less than fourteen should have been those of women.—'General Advertiser,' 'Public Advertiser,' 9th October, 1786.

⁶ I have been informed that previously to 1786, the coat was somewhat similar in colour, cut, and ornament to that shown in Plate I., but that the breeches were blue instead of white. The black leggings were banded above the knee. The working dress consisted of a long duck frock, and mosquito

coat, double-breasted, with two rows of large flat brass buttons down the front, placed at equal distances of two inches apart. The buttons were one inch and a quarter in diameter, and bore the Ordnance device of three guns and three balls. The left breast buttoned over the right at the pit of the chest, from which upwards the coat turned back in the form of lappels. The cuffs and collar were orange-yellow, laced round with narrow red ferreting. The collar was turned over like the common roll collar, and was ornamented with a red rectangular loop at each side. Down the front of the coat to the end of the skirts, narrow yellow ferreting was sewn, as well as upon the inside edges of the skirts, which were very broad, descending to the leggings, and were buttoned back at the bottom to show the white shalloon lining. Small plaited frills about five inches long, were worn at the breast, to the right; and full ruffles at the wrists. Over the black leather stock, a white false collar fell down about an inch. The waistcoat was white cloth, bound with yellow ferreting, and came well down over the abdomen. At the bottom, it was cut so that the angle or corner of each front separated about seven inches. The pocket-holes were slashed; each slash was two inches deep, and bound round. The buttons were small and flat, similar in device to the coat-buttons. The breeches were white, of a texture like kerseymere, and secured below the knee with three small buttons. The leggings were black cloth, reaching to the knee and strapped under the shoe; they buttoned on the outside, and were fastened to a small button above the calf of the leg. The buttons were like those worn on the waistcoat. The hat was cocked, the same as that commonly worn; the cock was in the front, directly over the nose, with a cockade to the right of it supporting a black feather. In other respects it was quite plain. The arms and accoutrements consisted of white leather cross-belts, black cartouch-box with frog, and musket and bayonet.⁶

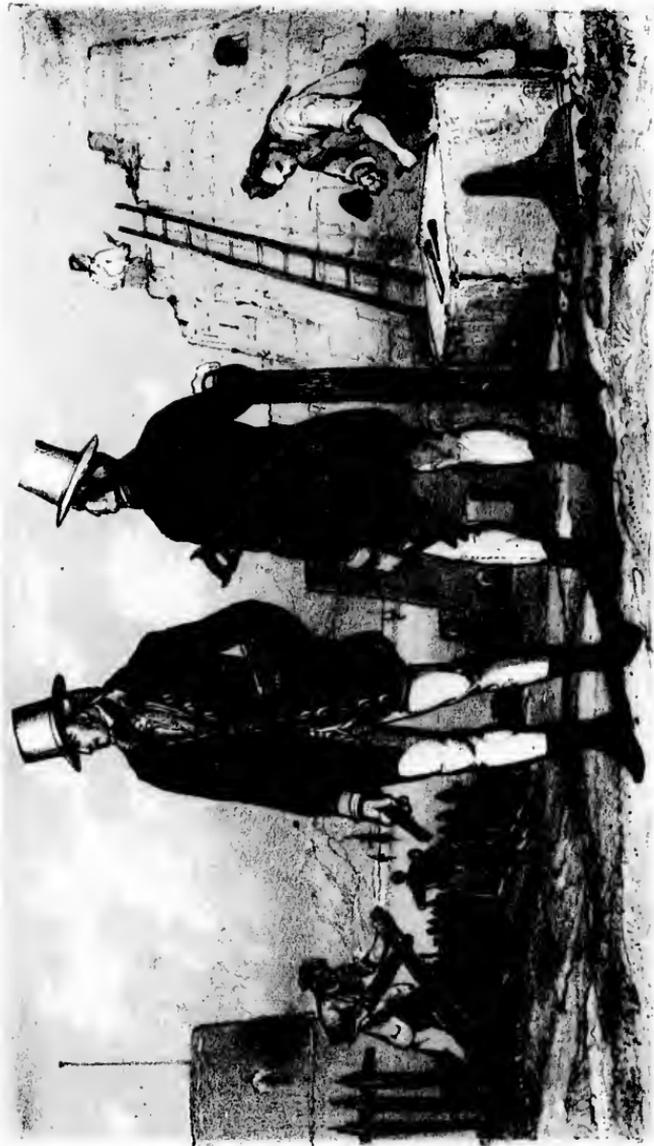
trowsers with gaiters attached. Everything was white even to the felt round hat, which at this period had the military symbols of a yellow band and yellow edge to the brim. Serge pantaloons were worn in winter.

⁶ The sergeant-major and sergeants were armed with carbines and bayonets.

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SOLDIER AFTER THE "OPPAR"

PLATE II



Painted by Mullins and B. Weston

WORKING DRESS 1786

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The breast-plate was ornamented with the Ordnance device; above the balls was the word *REGIMENT*; below the guns *SETTLERS*. The bayonets and swords, silver-mounted, with a plain guard of one button, lassel, white leather. The distinctions with regard to dress were as follows: the sergeants had clothing of a summer colour, their breeches and waist-coats were kerseymer, and lace on their coats was gold; they also wore a shoulder-knot with tassels, under their coats, and laced shoulder-knots; the other ranks wore linen or cotton ferreting; but the corporals had gold fringed shoulder-knots, and the lance corporals one gold knot on the right shoulder.* (Plate I.)

The working-dress was a plain long red jacket in winter, and a linen one in summer, with a single row of large brass buttons, wide at one, decreasing to the other. It opened to the hips, opened from the chest upwards, and had the collar and waist buttoned downwards to show the waist-stay. Connected to the body on each side was a huge pocket covered with a broad cloth. The collar and cuffs were of yellow cloth, the former turned over or rolled, and at the small of the back were two large buttons. Under the jacket a waistcoat was worn in summer linen, in winter dannel—of the same cut as the regimental one, but not laced or ferreted. Similar in material were the pantaloons; and to these were attached a pair of leathern gaiters of linen or cloth, corresponding with the season. They reached a little above the ankle, and buttoned on the outside. No particular regard was paid to the neck covering. Stockings of leather, or velvet, or silk, or black handkerchiefs, were in use, as they were used. A white hat completed the suit. It was about six inches high, had a straight pole with yellow band or an inch wide, and a broad brim edged with yellow tape or leather.

* This novel way of distinguishing the non-commissioned officers was a frequent misconception and mistake in the garrison. When the bayonet belt only, strangers regarded the corporals as the next rank to the lance-corporals the next. Sometimes when taking arms, the bayonet belt was presented to them, and guards often bestowed the compliment due to field officers! This military error continued with greater or less observance, until the adoption of the present regulations.

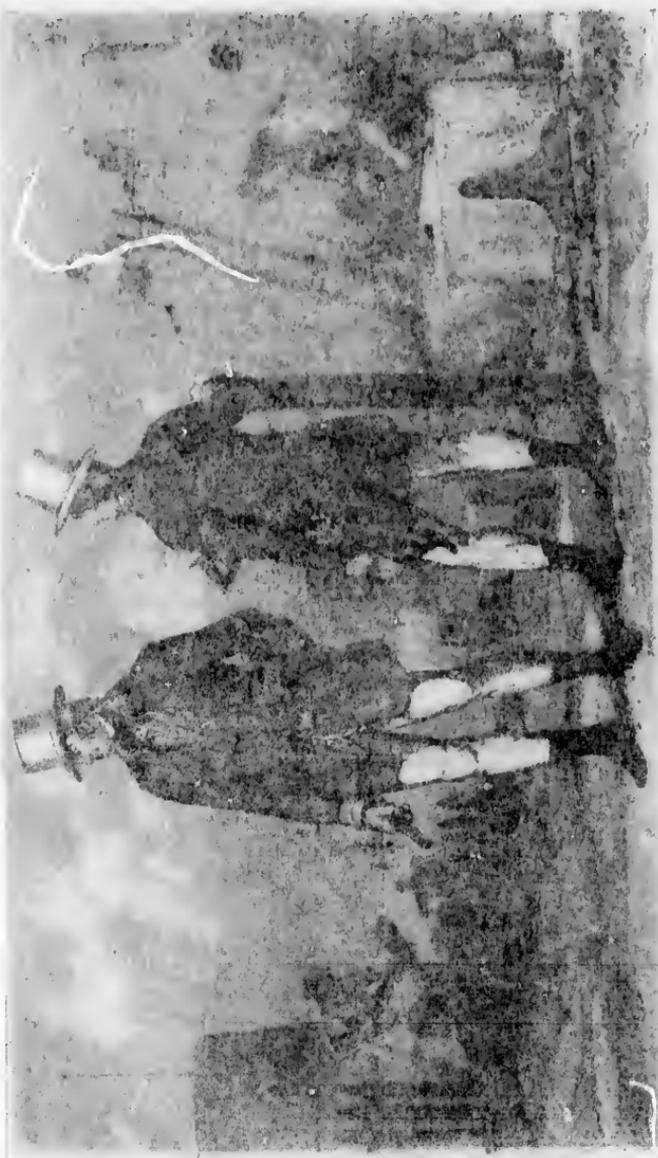


Photo by the artist's staff.

WORLD'S PRESS

1786

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The breast-plate was oval, bearing the Ordnance device: above the balls was the word GIBRALTAR; below the guns SOLDIER-ARTIFICERS. The sergeants had swords, silver-mounted, with a plain guard of one bar only; tassel, white leather. The distinctions with regard to ranks were as follows: the sergeants had clothing of a superior fabric; their breeches and waistcoats were kerseymere; the lace on their coats was gold; they also wore a crimson sash with tassels, under their coats, and laced shoulder-straps. All the other ranks wore linen or cotton ferreting; but the corporals had gold fringed shoulder-knots, and the lance corporals one gold knot on the right shoulder.⁷ (Plate I.)

The working-dress was a plain long red jacket in winter, and a linen one in summer, with a single row of large brass buttons, wide apart, down the front. It descended to the hips, opened from the chest upwards to show the shirt, and from that point downwards to show the waistcoat. Convenient to the hand on each side was a huge pocket covered with a broad slash. The collar and cuffs were of yellow cloth, the former turned over or rolled, and at the small of the back were two large buttons. Under the jacket a waistcoat was worn—in summer linen, in winter flannel—of the same cut as the regimental one, but not laced or ferreted. Similar in material were the pantaloons; and to these were attached a pair of black gaiters, of linen or cloth, corresponding with the season. They reached a little above the ankle, and buttoned on the outside. No particular regard was paid to the neck covering. Stocks of leather, or velvet, or silk, or black handkerchiefs, were indiscriminately used. A white hat completed the suit. It was about six inches high, had a straight pole with yellow band of an inch in width, and a broad brim edged with yellow tape or ferreting.

⁷ This novel way of distinguishing the non-commissioned officers led to frequent misconception and mistake in the garrison. When dressed with the bayonet belt only, strangers regarded the corporals as the highest rank, and lance-corporals the next. Sometimes when taking an excursion into Spain, sentries have presented arms to them, and guards even have turned out to pay the compliment due to field officers! This military blunder continued, with greater or less observance, until the adoption of chevrons, about 1805.

Plate II. The description of working-dress worn by the non-commissioned officers has not been ascertained, nor can any record be discovered of the precise uniform dress adopted for the drummers, or of the peculiar badge that distinguished the sergeant-major from other sergeants.

The only complete record that has turned up to research, showing the names of the officers who were attached to the companies since the year 1772, is a return for 1787, by which it seems the following officers did duty with them :—

Captain Robert Pringle, chief engineer.
 Captain William Campbell Skinner, died 24th April, 1787.
 First Lieutenant, Thomas Skinner.
 First Lieutenant, William Kerstiman. Joined 25th May, 1787.
 Second Lieutenant, Thomas Smart.
 Second Lieutenant, Samuel T. Dickens.
 Draughtsman, James Evans.⁹

About this time, it appearing to be of some consequence to cut and form a ditch immediately under the Crillon Battery, situated on the south flank of the King's, Prince's, and Queen's Lines, a strong party was set to work by order of the Chief Engineer. They executed their laborious task in a comparatively short period, which elicited the warmest praises of General O'Hara. To mark his sense of their services, however, in a form more gratifying than words, he gave permission to the companies to pass to the neutral ground, and out of garrison, on Sundays and all holidays without a written pass, or restraint of any kind. With this privilege was also conceded the liberty to appear on such occasions in whatever apparel their fancy suggested, except in their uniform coats. It was not uncommon, therefore, for the non-commissioned officers and the respectable portion of the privates, to stroll about the garrison or ramble into Spain, dressed in black silk or satin breeches, white silk stockings, and silver knee or shoe-buckles, drab beaver hats, and scarlet jackets, tastefully trimmed with white kerseymere.

Governor O'Hara was a constant visitor at the works, and

⁹ These officers were also present with the corps in 1788; but after that year until 1797 no record has been discovered.

took much interest in their progress. Even as early as the morning gun-fire, he was perambulating the fortifications and batteries, and worming his way among the mechanics. Almost to the last man, he could call each by name, and knew the best artificers too well ever to forget them. Familiar with their zeal and exertions, he regretted sometimes to find that a few men were absent from the works undergoing sentences of confinement to the barracks. This induced the General to relax a little in strictness towards the companies. None of the men would he suffer to be punished for intoxication, or other slight offences committed when off duty or on the works, in order that he might have them all employed. This slackening the reins would, no doubt, be looked upon now-a-days as a monstrous and culpable dereliction, however plausible might be the object intended to be gained by it. To justify or condemn the act is obviously out of place here. It is simply mentioned as a fact; and while it remains a singularity in military jurisprudence, the main point that originated it must not be overlooked, viz., the estimation in which the Governor held the corps for their services in the restoration or improvement of the works of the fortress.⁹

In enlarging the works of the garrison, the military artificers frequently opened up cavities in the promontory which were mostly of sufficient interest to excite the curiosity of geologists; but one discovered in 1789, by some miners of the corps, while scarping the back of the Rock, attracted, at the time, unusual attention. It was situated about 160 feet from the foot of the cliff, on its eastern side, nearly under the Signal House, and its extent classed it among some of the largest within the area of the fortress. Removing the rank vegetation which had overgrown its mouth, a small chasm was bared, opening into a cave containing several chambers and grottoes, entered by narrow funnel-shaped crevices, some so low and winding that ingress

⁹ This laxity of discipline seems, in time, to have become general among the troops at the fortress, and the extent to which it was carried both by officers and men was little short of disgraceful.—'Wilkie's British Colonies considered as Military Posts,' in 'United Service Journal,' 2, 1840, p. 379.

could only be obtained by crawling through the long misty passages on all-fours. Seemingly, the roofs were supported by a number of pillars, which the dripping of ages had congealed into all shapes and sizes and into all degrees of hardness, from patches of soft silvered powder to the bold indurated columnar stalactite. On the floors, at different heights, were stalagmites, some peering up like needles, and others, swollen and grotesque, rose from frothlike cushions of delicate finish, which, "on being rudely touched, dissolved instantly into water." The hall at the extremity was divided into two oblong recesses, floored by a "deep layer of vegetable earth," where not a clump of the lowliest weed or a blade of grass was seen to show that vigour was in the earth.¹⁰ Nothing seemed capable of living there but a colony of bats, some flapping about on lazy wing, and others torpid; no process to be active, but the cold one of petrification, which, in nature's own confused method, had elaborated throughout the cavern, columns and pinnacles and cushions, puffs and concretions, some as fleecy as snow, others as crisp as hoarfrost, and others of an opal hue as transparent as crystal. All was rich, beautiful, and sparkling. It was a marvel to adventurers, but unfit for habitation; yet, in later years, this hole of the mountain was possessed by a Spanish goat-herd, who reached his solitude by the same threadlike but dangerous tracks as his goats. There might the recluse have lived till his bones fell among the petrifications, but he was at length expelled from its gloomy precincts on account of his contraband iniquities.

¹⁰ Martine's British Colonies, 1835, p. 51-53.

1779—1788.

Colonel Debbieg's proposal for organizing a corps of artificers—Rejected—Employment of artillerymen on the works at home—Duke of Richmond's "Extensive plans of fortification"—Formation of corps ordered—Singularity of the House of Commons on the subject—Mr. Sheridan calls attention to it—Insertion of corps for first time in the Mutiny Bill—Debate upon it in both Houses of Parliament.

WHEN Spain declared war with England in June, 1779, Lieutenant-Colonel Hugh Debbieg of the engineers, seems to have been impressed with the necessity of raising a corps of artificers for service in this country. He had made several excursions through Kent and a part of Sussex, no doubt with the object of ascertaining the probabilities that existed for resisting any attempt at invasion. Whether such was his intention or not, these professional tours appear to have assisted his views greatly, in all that was essential to prepare the country to repel aggression. He therefore made large demands for cutting tools; conceiving, as he states, "very extensive ideas of their use in all cases," and recommended the formation of a corps of artificers. In his letter to General Lord Amherst, of the 30th July, 1779, he wrote: "I must take the liberty of mentioning how very advantageous to the service it would be, if a corps of artificers was to be selected from the army. The present establishment of pioneers to each regiment will prove in no case sufficient or equal to the purpose of advancing an army through such a country as this."

As if to show that his proposal was no crude idea, nor the dreamy suggestion of some needlessly-alarmed engineer, the Colonel dipped a little into the history of the subject, to claim

respect for it on the ground of its antiquity, and pointed out the way in which the measure could be effected. He says, "The great attention of the ancients to this particular was wonderful, and the highest point of perfection in the Roman legion was, that when it made detachments, though ever so small, they carried with them a just proportion of the component parts of its excellent system—artificers of all denominations. Modern armies differ from those of the ancients scarcely in nothing but the arms they use; in all other points, we cannot imitate them too exactly. I am sensible the subject is not new to your lordship, and if it did not strike me as a thing absolutely necessary for the good of His Majesty's service, particularly at this time, I should not have troubled your lordship thereon.

"It is a most essential part of the soldiers' duty. I allow, to be as expert as possible at covering themselves with earthworks; but then, there is also a necessity for a band of leading men capable of instructing others, and of conducting works with more regularity than has been usually done where I have yet been upon service, as also with greater dispatch.

"I will not presume to point out to your lordship the means of establishing such a corps, nor how far two men per company would go towards making it numerous enough for the purpose from the militia alone; but I will venture to say, had such a body of men been constantly here, these lines (Chatham) would have been nearly completed; and you know what state they are in at present."

Colonel Debbieg's attempt to revive an old practice, constituting one of the military glories of the ancients, was certainly worthy of the best attention, involved as England was at the time in a struggle with France and Spain; and it would have been more so, had allusion been made to the beneficial services of the companies at Gibraltar. Omitting this is singular enough, and readily urges the supposition, that their name and duties were scarcely known beyond the scarp of the Rock, even to the engineers themselves. However, Lord Amherst, much as he may have appreciated the represented perfection of

the Roman legion in the organization of its detachments, was not by any means disposed to incur the responsibility of reproducing that system in the English army; and on the 11th August following communicated his sentiments on the subject to the Colonel. "Your idea," writes his lordship, "about forming a corps of artificers from the army, is a very good one, as far as that such a corps would be very desirable; but at a time when it is a material subject of consideration to increase the army by every possible means, the forming such a corps cannot be thought of. In the case of any service happening in this country, the general business of the pioneers must be done by the able-bodied men amongst the peasants of the country."

His lordship here confesses the desirableness of the measure, but at the same time repudiates it as inexpedient, because the army requires to be increased! No rejoinder or explanation appears to have been made by Colonel Debbieg; and the proposal, somewhat modified, was left to be iterated at a subsequent period by Charles, third Duke of Richmond.

On the appointment of the Shelburne administration in July, 1783, his Grace was nominated Master-General of the Ordnance. Immediately after his installation, he caused the fortifications to be examined, and finding they were in such a state as to need the intervention of the House of Commons to put them in repair and completeness, he demanded large sums of money for the purpose in the Ordnance estimates for 1783.

His Grace's projects were on a scale of great magnitude, and his estimates were necessarily large; but in order to curtail the amounts as much as possible, and thus win the concurrence of both parties to his plans, he proposed to employ a considerable part of the royal artillery as artificers and labourers in the arsenal at Woolwich, Purfleet, and the outports, giving them only half the wages then paid to civil mechanics for performing similar work, whereby it was computed that a saving of 12,000*l.* to 15,000*l.* a-year would be realized, and that the services of the ordnance being more regularly performed, the

regiment would have a body of artificers, always available for active duty in the event of a war, for which they would be much required.¹ There was nothing in this suggestion to excite alarm or particular remark. No new corps was recommended to be raised, but simply the adaptation of means already disposable (which would have to be maintained under any circumstances) to a twofold object, as also to lighten the existing pressure upon the finances of the State. The proposal, being merely incidental to the graver matter with which it was connected, gave rise to no discussion; and it is presumed, though no specific organization of artificers such as his Grace contemplated took place, that artillery soldiers were employed in great numbers at the different stations mentioned in his Grace's famous report.

With the change of ministry in April, 1783, the Duke of Richmond quitted his post as Master-General; but resumed it again in the following December on the formation of the Pitt Cabinet. The fortifications continued to be his Grace's hobby. Yearly he requested large sums for the erection of new works and the repair of old ones. Consequently, public attention was excited to review these apparently exorbitant items of expenditure, and, as may be expected, very little was done towards effecting his Grace's views. Money was voted for the purpose, but none was expended.

In 1785, his Grace's plans for national defence were more extensive than ever, and were brought forward as usual by Mr. Pitt. Though anxious to carry out the gigantic projects proposed, still, from the growing inquisitiveness of the country, and probably the misgivings of the Minister himself as to their maturity and utility, Mr. Pitt submitted them for the opinion of a Board of general and flag officers. Guided by their recommendation, he again introduced the subject for the consideration of the House, but on the 27th February, 1786, it was rejected by the casting voice of the Speaker as a "measure totally inexpedient and dangerous."

In no way discouraged, however, on the 17th May following,

¹ 'Journal, House of Commons,' 14th February, 1783; vol. xxxix. p. 208.

he ventured to submit a similar question to the House considerably reduced in its demands. But as the subject of the fortifications had long been before the public, had also been well investigated, and was extremely unpopular both in the House and out of it, it may occasion no wonder to state, that the Duke's favourite scheme was again set aside; and its noble projector, subjected to repeated and vexatious disappointments, was made a butt for the keen attacks and provoking taunts of individuals, who scrupled not to lay bare his Grace's engineering, and to question his Grace's professional attainments. In this last defeat, however, some little concession was made to Mr. Pitt, by which he was permitted to make an estimate for improving and completing the old works at Portsmouth and Plymouth dockyards, which on being presented was ultimately agreed to.²

In the diminished estimate for 1786 the amount asked

² If a particular acquaintance with the Duke's plan of defence, &c., be desired, it can be obtained by referring to a work entitled 'Observations on the Duke of Richmond's Extensive Plans of Fortification,' published first in 1785, and again in 1794. This work, which was brought before the public in an anonymous form, is known to have been written by Lieutenant James Glenie, of the engineers, who, after serving in the corps a few years, was compelled, as he says, p. 241, to leave it, "to avoid being ruined by the expense of continually moving from one station to another." The attack made by this gentleman appears to have been conducted with much force and talent, displaying an intimate acquaintance with the principles of his profession. It made a great impression on the public mind, and augmented to a considerable extent the popular ferment against the new fortifications. Several of the engineers joined in opinion against them, among whom was Colonel Debbieg, who, for some expressions that he ventured, reflecting upon the Duke's plans, was tried by a General Court-martial in 1789. In the concluding paragraph of the later edition of Mr. Glenie's essay, the author promised to take an early opportunity of delivering his sentiments at full length respecting the corps of royal military artificers and horse artillery, which, he stated, were unquestionably great impositions on the public; but the promised *exposé* I have not succeeded in procuring. If it never appeared, the gallant officer, very probably, prudently relinquished the idea, or suppressed the MS., from a conviction that it was as unnecessary as unmerited. It is certainly curious that Mr. Glenie and Colonel Debbieg, who were the most violent and persevering of the Duke's opponents, should have differed in opinion about the usefulness and importance of the corps of artificers. By the only evidence as yet discovered, it is obvious that Mr. Glenie would willingly have disbanded it; Colonel Debbieg, on the other hand, only a few years before aspired to the honour of originating it.

was quite inadequate to effect the purposes designed; and to enable his Grace the better to accomplish them, he suggested to Mr. Pitt the necessity of raising a corps of military artificers on the model of the companies employed at Gibraltar. Experience had demonstrated beyond all dispute their excellency as artificers and soldiers, and the economy of their services. He had watched and studied their discipline and advantage for some years, and with these incentives, he felt no hesitation in urging their immediate formation. Better reasons could scarcely have been desired by Mr. Pitt, who readily gave his assistance in obtaining a warrant from the King to sanction the measure. He did not attempt, however, to enlighten the House upon the matter before appealing to His Majesty, knowing that it would be treated with unmerited distrust, and probably crushed under a weight of prejudice and misconception. Strictly speaking, there was nothing unconstitutional in this manner of proceeding; it was warranted by many precedents, but it gave rise in a subsequent session of Parliament to some observations which required Mr. Pitt to explain his conduct in the affair. The warrant was signed on the 10th October, 1787.

The Ordnance estimates for that year were not brought forward until a late hour on the 10th December; and, as but little time was afforded for discussing their merits, and particularly the novel measure of embodying a corps of military artificers, a motion was made that their consideration should be adjourned to the next day. It was lost by a large majority, and the sums asked for were voted without debate.

In this vote was involved the formation of the corps. That a measure on so extraordinary a principle, and so hateful to the sentiments of the country generally, should have passed without scrutiny is remarkable; but Mr. Sheridan, on the 17th December following, thinking that the estimates were imprudently hurried through the House, introduced them again to notice. At the same time he endeavoured to bring the suggestion of raising a corps of mechanics into contempt. He called the project singular and extraordinary; ridiculed

the idea of putting the artificers under martial law, and thereby to abridge their liberty. Moreover, he did not conceive that men, capable of earning half-a-crown a-day, would enlist as soldiers and work in their respective occupations at one-third of that sum for the mere douceur of military discipline. Then, with regard to the economy of the measure, he remarked, "That in the report of 1783, the Master-General had stated, that by suffering some of the artificers at Woolwich, Sheerness, &c. to be put into companies, the artillery would never want artificers; and a saving of 15,000*l.* would be made to Government. Before, therefore, any new plan of raising a distinct corps of artificers was authorized, it would be proper to know what the saving made in consequence of the original plan had amounted to; because, if no great saving had been made, the plan now proposed would evidently be attended with additional expense to the public."³ Mr. Sheridan did not embody this subject in his motion. His remarks upon it were merely incidental to his speech on the intended fortifications in the West Indies, and elicited no discussion. The Chancellor of the Exchequer replied to Mr. Sheridan; but he spoke only to the motion, and made no allusion whatever to the new corps. Thus quietly did the Duke of Richmond gain a project, which there was reason to expect would not be granted without decided indications of repugnance and hostility.

The scheme, however, though it easily received the approval of the House of Commons, was doomed, ere long, to have a severe sifting. In both Houses the question was very roughly handled by the Opposition. Had it been brought forward as a specific measure at first, it would, in all probability, have been rejected or passed by a scanty majority; but being covered by a vaster and more momentous question, it escaped observation and slipped through the Commons concealed under the wings of its parent. The time, however, had arrived, when the subject, stripped of its covering, should be laid bare, and fairly and openly discussed; but after a warm debate, the project was again sanctioned, and the formation of the corps confirmed.

³ Dodsley's 'Annual Register,' 1788. Second edit., 1790, p. 96.

A summary of the debate, which originated in the introduction, for the first time, of the corps of artificers into the Mutiny Bill, and which is given in Dodsley's 'Annual Register' for 1788,⁴ is subjoined.

"On the 12th of March, the report of the Committee on the Mutiny Bill was brought up; and on reading the clause for incorporating in the army the newly-raised corps of military artificers, the same was strongly objected to as a dangerous innovation, and as militating against the most favoured principles of the constitution. The same system, it was said, might next be extended to shipwrights, and so on to every description of persons in the service of the executive government; and therefore the House was called upon to repel so alarming an innovation *in limine*. In defence of the measure it was urged, that it would be attended with an annual saving of 2,000*l.*, upon an expenditure of 22,000*l.*; and that it was necessary to extend the military law to the corps in question, as the only means of keeping them together, and preventing their desertion of the public service in time of war.

"This disposition to adopt a new principle of expediency and economy, upon a subject which went to the diminution of the liberties of the subject, instead of the old principle of actual necessity, was severely reprobated. Several country gentlemen declared, that if the House should agree to put 600 Englishmen under martial law, merely for the paltry consideration of saving 2,000*l.* per annum, they would betray their constituents, and would be devoid of those feelings for the constitution, which ought to make their distinguishing character. It was denied that any necessity for so extraordinary a surrender of the liberties of a part of the community was made out; it having never been asserted, nor being indeed true, in fact, that there was any difficulty in procuring artificers for the Ordnance service in time of war. The sense of the House being taken on the clause, there appeared, yeas 114, noes 67.⁵

⁴ Dodsley's 'Annual Register.' Second edit., 1790, pp. 121-123.

⁵ Clause LXXV. Public Acts, 28 Geo. III., vol. I., p. 369. This was not a specific clause to meet the case of the artificers, but the same which had existed,

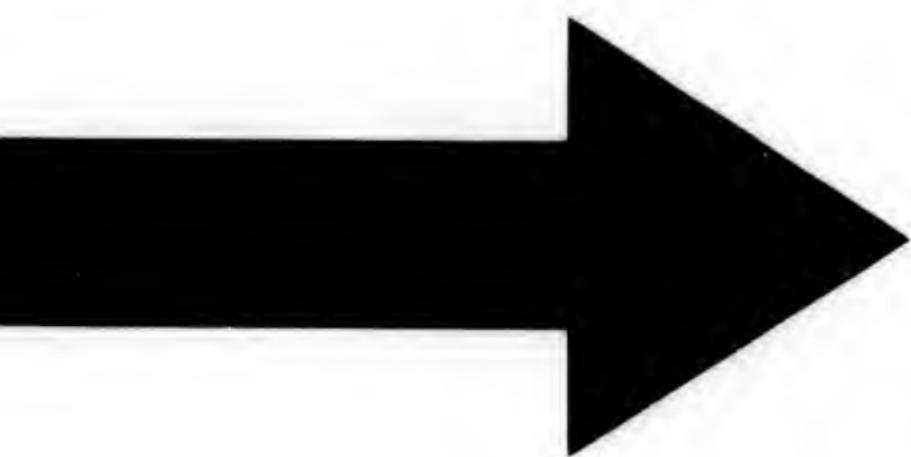
“The same subject was again discussed on the third reading of the Mutiny Bill, when it was asked, whether any part of the corps was already enlisted and embodied? This question being answered in the affirmative, it was strongly contended that the authors of the measure had been guilty of an illegal act, in raising a body of men without the consent of Parliament; and that it was a violent and arbitrary measure to subject those men to military law, who at the time of their enlisting, were evidently not included in the Mutiny Act. On the other hand, Mr. Pitt contended, that, by a liberal interpretation of the King's prerogative, government was authorized, on the late alarm of war, to raise the corps in question: and Sir Charles Gould, the Advocate-General, maintained, that every soldier enlisted, became, *ipso facto*, subject to be tried by martial law. The House again divided on the question, ayes 142, noes 70.

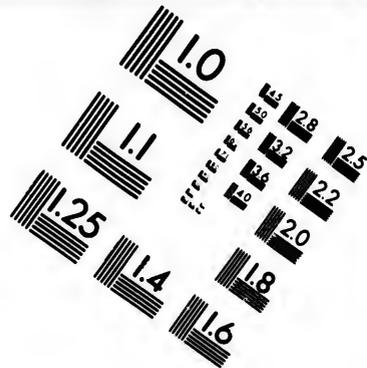
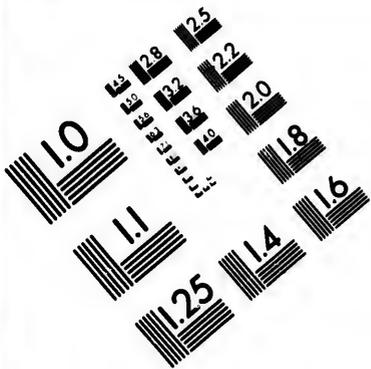
“Upon the commitment of the Bill in the Upper House, the Duke of Manchester rose and declared his intention of opposing the novel clauses that it contained. He was an avowed enemy, he said, to the extension of military law, unless in cases of absolute necessity; and that the present Bill went unnecessarily to extend that law, by making a number of artificers subject to its severe effects, who had hitherto enjoyed their liberty in common with their fellow-subjects. Could it be proved necessary for the defence of the kingdom, he should not entertain the least objection to the increase of the army; but in a time of profound peace, the adoption of a measure of so singular a nature as the present, called for jealousy and caution.

“The Duke of Richmond entered into a full explanation of the plan of which he had been the author. It had occurred to

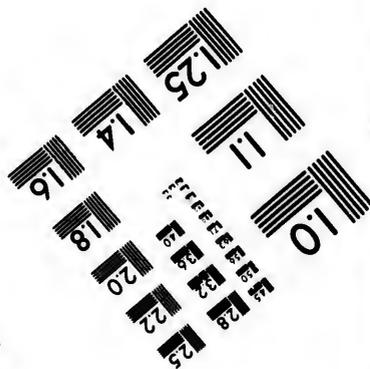
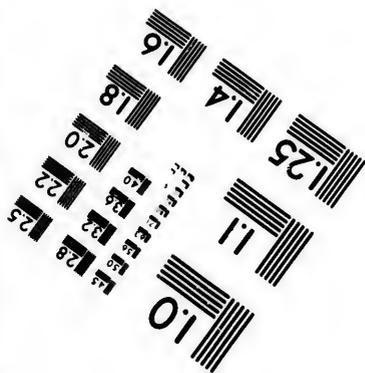
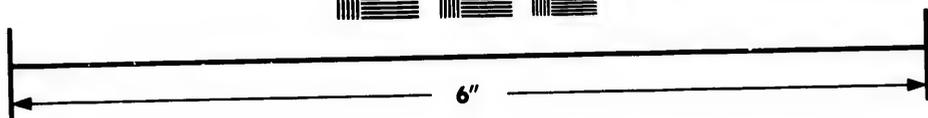
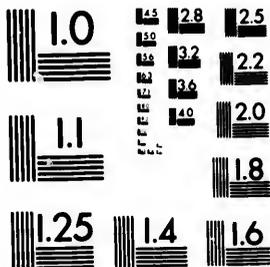
with possibly slight variations, since its first insertion in the Act. It merely included the corps by name, and made other necessary alterations to embrace classes of persons heretofore inadvertently omitted. Why it should have caused so much discussion, more especially with reference to the formation of the corps, is almost marvellous, since a more fitting opportunity was afforded for that purpose, when the Ordnance estimates were presented and passed in December of the previous year. What were Mr. Sheridan, Mr. Courtenay, and the other opponents of the Duke of Richmond's schemes about, to allow this measure to steal a successful march upon them?







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him, he said, that the formation of a regular corps of artificers, who would in future wars, be applicable to any service when wanted, either at home or abroad, could not but be attended with very beneficial consequences. In all the armies abroad, such a corps made part of those armies, and as their utility was unquestionable, he had concluded that there ought to be such a corps in our army, and therefore he had considered it as his duty to submit the proposition to His Majesty, who had approved of it, and it had been since laid before the House of Commons, and voted by that branch of the legislature. With regard to putting them in the Mutiny Bill, being a part of the army, enlisted regularly as soldiers, like other soldiers, they ought undoubtedly to become subjected to the same law, as the policy of the State had considered it as right that all soldiers should continue in such a state of subordination. At the same time, it was not to be considered as any hardship, since no species of trial, however popular it might be, was, he believed, more fair and candid than trials by court-martial. He added, that the corps of artificers proposed to be formed, was not only highly useful, but, at the same time, so far from being an additional expense, they would prove a saving, because the difference between getting such a number as heretofore, and having them formed into a regular corps as intended, would render the usual expense less by 2,000*l*.

“Lord Porchester objected principally to that part of the new establishment which subjected the artificers to the arbitrary punishment of the Master-General of the Ordnance. In one instance they might be reduced for want of skill, of which the Master-General was made the sole judge, to the rank of labourers, and thereby be deprived of one-third of their pay; and in another, he was also the sole judge of the quantum to which their pay should be reduced in cases of idleness or misbehaviour.

“Lord Carlisle ridiculed the strange reason given for adopting the new project, that it would be a saving of 2,000*l*. a year. If their lordships were to be governed by such arguments, they would be led into so absurd a matter as the calculation of what

the surrender of the rights of the subject was worth per man ; and if the rights and liberties of 600 artificers were worth just 2,000*l.*, they would see that the noble lord valued the rights of every individual exactly at 3*l.* 10*s.* each.

"Lord Cathcart and Lord Rawdon were of opinion, that the plan formed by the noble duke would be attended with many considerable military advantages ; and the question being at length put, the clause was carried without a division. The corps now, for the first time, was made legally amenable to the provisions of the Mutiny Act ; and, for a few years at least, was permitted to go on with its organization and duties without being again noticed or interrupted by the opposition in Parliament."⁶

⁶ In the protracted debates which occurred in 1788, on the Regency. Mr. Sheridan took occasion, when opposing the measure for reserving the patronage of the royal household, to attack the Minister—Mr. Pitt, and to wing from his bow another caustic shaft at the royal military artificers. Mr. Pitt, at some previous time, had charged a right honourable friend of Sheridan's, on quitting office, "with having left a fortress behind him." Sheridan admitted that the accusation was true ; "but then," continued he, in a vein of sparkling raillery, "like a coarse, clumsy workman, his right honourable friend had built his plan in open day, and retired with his friends, who served without pay. * * * Not so the right honourable gentleman over the way. Like a more crafty mason he had collected his materials with greater caution, and worked them up with abundantly more art. Perhaps he had taken the advice of the noble Duke—famous for fortification—and, with the aid of that able engineer, had provided a corps of royal military artificers, and thrown up impregnable ramparts to secure himself and his garrison. Upon this occasion the King's arms doubtless might be seen flying as a banner on the top of his fortress, and powerful indeed must prove the effect of the right honourable gentleman's thundering eloquence from without, and the support of the royal artificers from within, against his political adversaries."—*Sheridan's Dramatic Works. See Life, p. 138. Bohn's edit., 1848.*

The last reference to the military artificers in Parliament was made by Mr. Courtenay on the 21st April, 1790, when, moving for a committee to inquire into the expenditure of the public money by the Duke of Richmond from the 1st January, 1784, he stated, among a variety of matter, that the corps of which his Grace was the founder, "were neither soldiers nor artificers."—*Gentleman's Magazine, part 2, 1790, vol. 60, p. 720.* This was followed, in 1794, by Mr. Glenie, who, in a second edition of his 'Observations,' declared that the corps was unquestionably a great imposition on the public. With this announcement the party crusade against the royal military artificers terminated.

1787—1788.

Constitution of corps—Master artificers—Officers—Rank and post of the corps—Captains of companies, stations—Allowance to Captains, Adjutants—Recruiting—Labourers—"Richmond's whims"—Progress of recruiting—Articles of Agreement—Corps not to do garrison duty—Sergeant-majors—John Drew—Alexander Spence—Uniform dress—Working dress—Hearts o'pipe-clay—"The Queen's bounty"—Arms, &c.—Distinction of ranks—Jews' wish.

THE King's authority "for establishing a corps of royal military artificers," alluded to in the preceding chapter, was conveyed in a warrant, dated 10th October, 1787, to Charles Duke of Richmond. It was to consist of six companies of 100 men each. The constitution of each company, and the pay of its different ranks were fixed as follows:—

	<i>s. d.</i>		
1 Sergeant-major . . .	2	3	a-day
3 Sergeants . . . each	1	9	"
4 Corporals . . . each	1	7	"
2 Drummers . . .			
<i>Privates—</i>			
12 Carpenters . . .	} each	0	9 " .
10 Masons . . .			
10 Bricklayers . . .			
5 Smiths . . .			
5 Wheelers . . .			
4 Sawyers . . .			
8 Miners . . .			
2 Painters . . .			
2 Coopers . . .			
2 Collar-makers . . .			
30 Labourers . . . each	0	6	"

Working-pay, in addition, not exceeding 9d, a-day to each non-commissioned officer and man for the days actually employed on the works.

The sergeants consisted of a carpenter, a mason, and a smith, who were styled masters; and the corporals were a master bricklayer and a master wheeler, one foreman of miners and a

foreman of labourers.¹ The civil master artificers had the offer of enlisting and being appointed to these ranks. Those who refused were discharged as soon as the military establishment was complete.

Officers of the royal engineers were appointed to command the corps. All serving at the particular stations at which the companies were forming were attached to do duty with them.

When required to parade with other regiments, the corps was directed to take post next on the left of the royal artillery. The officers were to fall in with the corps.²

The Duke of Richmond located the companies at the principal dockyards or military stations, and ordered the following officers to command them:—

Woolwich—Colonel Robert Morse.
 Chatham—Colonel William Spry.
 Portsmouth—Colonel John Phipps.
 Gosport—Lieut.-Colonel James Monerief.
 Plymouth—Lieut.-Colonel Fred. George Mulcaster.

One company was ultimately divided between the islands of Guernsey and Jersey.³

The officers above named were the commanding royal engineers at the respective stations.⁴ To each was allowed the

¹ Thus the higher branches of promotion were reserved to the three first classes of tradesmen, and none but men of the latter trades were promoted to the rank of corporals. This rule, though enforced as much as practicable, was necessarily deviated from in the lapse of a few years for the benefit of the service.

² The authority for this was not embodied in the warrant for raising the corps, but conveyed in a letter to the Duke of Richmond, dated 10th October, 1787. With regard to the officers falling in with their companies, it was necessary to issue a special order, as, by a previous warrant of the 25th April, 1787, the royal engineers were to take rank with the royal artillery, and to be posted on the right or left of that regiment, according to the dates of their commissions. At Gibraltar, it was the custom of the companies with their officers, to take the right of the artillery; and they were always inserted first in the Governor's states and returns. This was a local arrangement occasioned, probably, on account of the companies being stationary at the fortresses.

³ The companies at Gibraltar, although similarly constituted, paid, and officered, remained a distinct and separate body until their incorporation with the corps in the year 1797.

⁴ From this arrangement, it sometimes occurred that even a *Major-General* was *captain* of a company.

sum of 56*l.* per annum for defraying certain incidental items connected with his company; and a lieutenant of engineers was appointed adjutant, with an extra allowance of 2*s.* a-day, to assist in conducting the drill and in maintaining discipline.

The recruiting was carried on by the captains of companies, assisted by seven other officers of engineers, with several transferred soldiers of the royal artillery, at Landguard Fort, Tynemouth, Dover, Guernsey, Edinburgh, Fort George, and Berwick. They were not restrained from putting into operation any measure which seemed to be best calculated for obtaining recruits. There was no standard as to height fixed; but labourers were not enlisted over twenty-five years of age, nor any artificer over thirty, unless he had been employed as a mechanic in the Ordnance department, and known to be an expert workman of good character. All recruits, however, whether previously under the Ordnance or not, were "to be strong able-bodied men, free from all infirmity, and duly qualified for their several trades and occupations." The miners were all got from Cornwall. The bounty given at first was five guineas to each attested recruit; which, on the 21st November, 1787, was reduced to the usual peace allowance of three guineas.

These general instructions for recruiting were soon afterwards⁵ much altered by the Duke of Richmond, who was anxious to make the corps as perfect as possible with regard to tradesmen. On the decision of his Grace all the men were afterwards enlisted as labourers at 6*d.* a-day. The bounty was continued at three guineas. Growing lads from sixteen to eighteen years of age, not under five feet four inches high, were preferred before all others, and were instructed in the trades most required by the corps. Over eighteen years of age none were taken less than five feet six inches.

This was a measure of just precaution, as several men had already enlisted as artificers, who upon a fair trial were found to know but little of their craft. The Duke now thought to insure his object by enlisting every man as a labourer, and after a few months' experience of his abilities, promoting him

⁵ In a letter bearing date 19th March, 1788.

to be an artificer, or retaining him as a labourer, until recommended for preferment. On promotion to artificers, each man received a bonus or reward of two guineas, an additional 3*d.* a-day pay, and was distinguished from a labourer by being allowed finer clothing and a gold-laced hat.⁶ "I think," wrote his Grace, "that this method, although the slowest, will in the end be the best means of acquiring a good corps of artificers." Whatever may have been the result of this change, it shows that the Duke was interested in the most trifling concerns of the corps; so much so indeed, that the men were aware of it, and familiarly styled his measures and arrangements "Richmond's whims."

Great exertions were made to give effect to the Duke's orders and wishes, particularly at Portsmouth and Plymouth, where the dockyards were to be fortified on a plan approved by his Grace. About three months after the date of the warrant, upwards of 100 men had been enrolled, besides several artificers transferred from the royal artillery to form the nucleus of each company. The growth of the corps was tardy at first and continued dilatory for a year and more; after which, however, as the prevailing prejudices began to die away, greater success was apparent.

As the enlistment of mechanics to work at their trades under military discipline was quite new to the country, the greatest care was taken to prevent misconception and complaint. The Duke of Richmond was sensible that both his plans for national defence, and for the establishment of a corps to accomplish them, were sources of suspicion and watchfulness on the part of the Opposition in Parliament; and hence he was cautious, particular, and explanatory, even to indulgence. The recruit was required to sign certain articles of agreement, showing fully his obligations to the service, and those of the public towards himself. Among the terms was prominently placed his engagement

⁶ For every labourer promoted, a guinea was granted to the master artificer, either civil or military, who had the credit of training him, as a compensation for his services and an encouragement to future exertion. This was sanctioned by his Grace in a letter dated 6th December, 1791.

“to be liable to all military duties, subject to the articles of war, and all other military discipline like other soldiers, and to serve in any part of the world to which his Majesty might order him.”⁷

To protect the companies from being unnecessarily interfered with, and to insure their constant employment on the works, directions were given to the commandants or governors of the different garrisons where they were stationed, not to call upon them to do any duty that would take them from the public works, except in cases of war, internal commotion, or any very urgent necessity. Such has been the abiding rule of all garrisons to the present day, and the corps is only expected to provide its own essential guards.

The sergeant-majors were selected from the royal artillery, first being recommended as competent to drill and pay a company, and able to enforce discipline and maintain order, which were the duties they were particularly required to attend to. None were tradesmen. Most, if not all, had been in the American war, had distinguished themselves in action, and were promoted into the corps as a reward for their services.⁸

⁷ This agreement was required to be attested by every recruit until about the year 1800, when it seems to have fallen into disuse.

⁸ John Drew was one of the sergeant-majors. He was the first soldier that entered the English corps of military artificers. On May 1st, 1795, he was commissioned to be second lieutenant in the invalid artillery, from which he retired in March, 1819, and died at Woolwich November 9, 1830. One of his daughters married the late Richard Byham, Esq., secretary to the honourable Board of Ordnance. A son—Richard Robinson Drew—attained the rank of Major in the royal artillery, and married Geriloma Barona, daughter of the late Marquis di Montebello. This lady died on the 4th September, 1854, and the Major survived her only four months. Both were interred in the family mausoleum at Messina. Though springing from a stock without any remarkable antecedents, good fortune seems to have attended the career of the offspring of the worthy sergeant-major; and much as his son may have added distinction to his race by his matrimonial alliance with a lady of high birth, it was still more honoured in the person of his granddaughter, who was wedded to the noble Prince di Castelcicala, the late Minister Plenipotentiary for Sicily.

Another of the sergeant-majors was Alexander Spence. He was born in 1726, and enlisted into the 20th Foot, January 16, 1756. After a service of 19 years in that regiment, and 14 as sergeant in the North Hants Militia, he joined the corps at the age of 61!! This is the period when men usually think

1787.

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ROYAL MILITARY ARTIFICES

Plate III



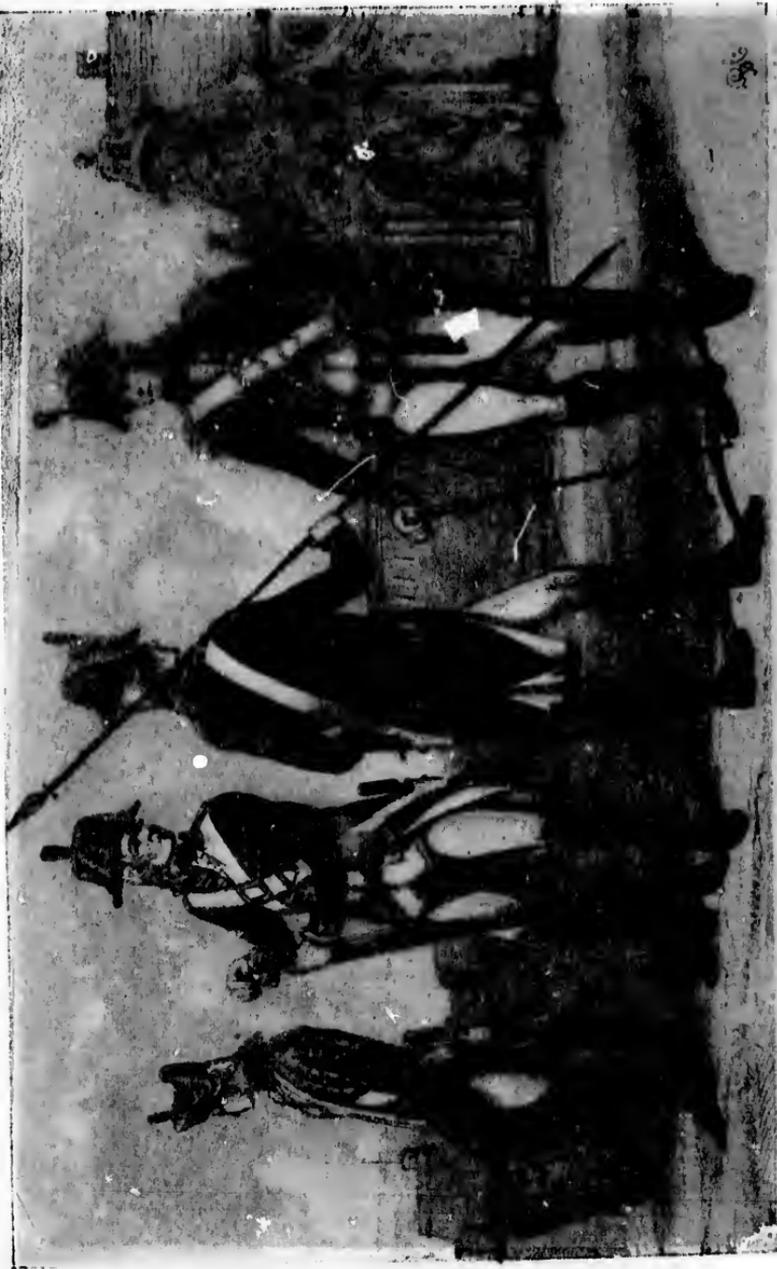
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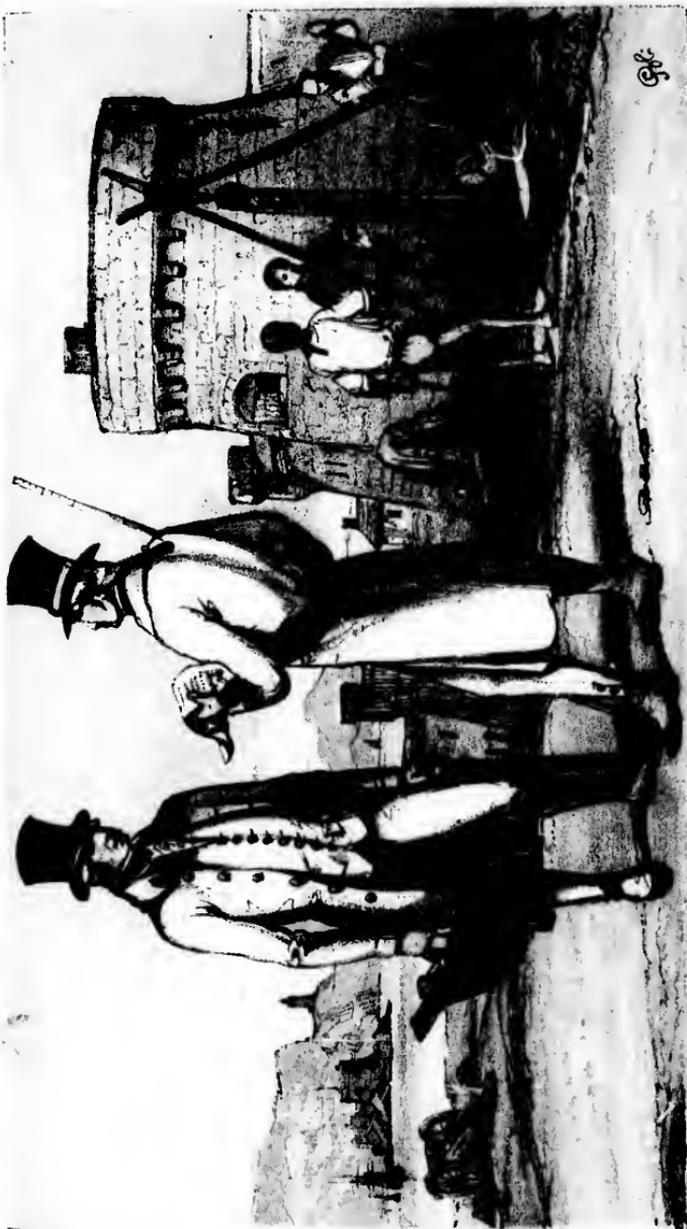
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ROYAL MILITARY ARTIFICERS



18





WORKING DRESS 1764

1764

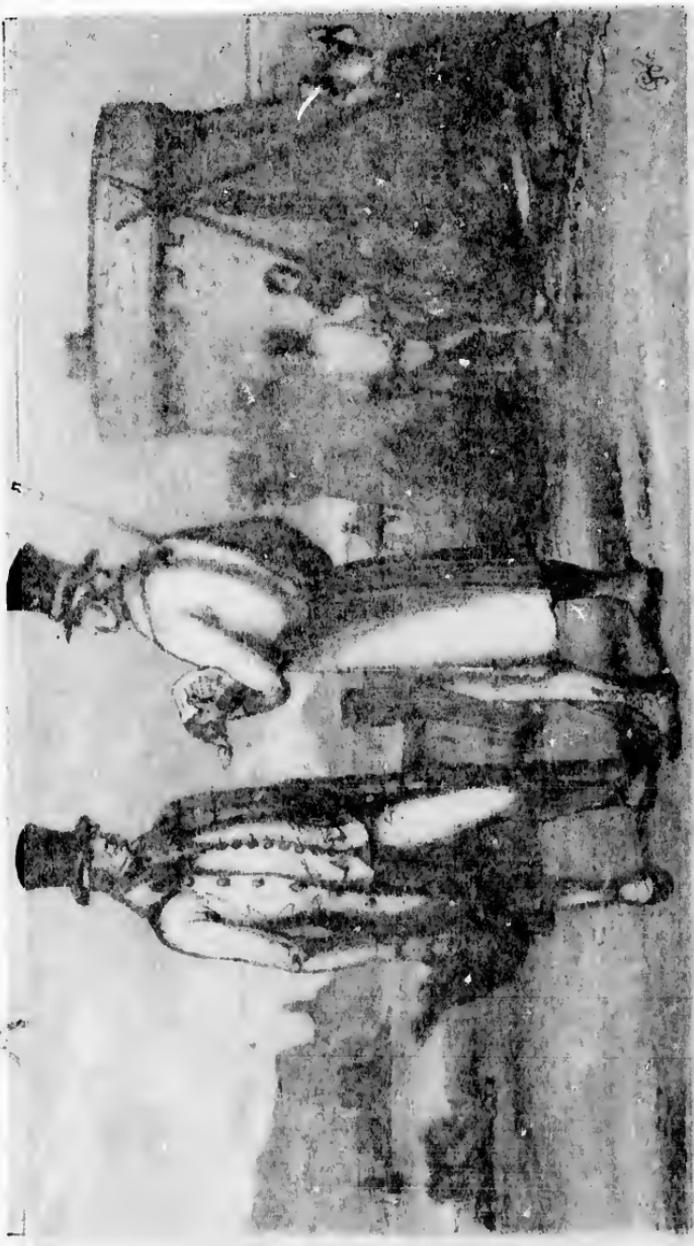
The uniform, which was issued every alternate year, consisted of a blue coat with long skirts, rolling collar, black cloth waistcoat, and shalloon lining to the skirts, and lappels at the neck, with the slashes on the cuffs and pocket-holes. The breeches were of white cloth, with rectangular loops, having a button at one end. The buttons were similar in size, material, and position to those already described as being regimental at Gibraltar. The stocks were of black leather with a false collar, and the gaiters of white cloth, and the gaiters of black cloth, as high as the knee, and were secured round the ankles with small buttons, eighteen in number, on the inside, to prevent them twisting they were steadied by a button at the end of the lace. The cocked hat, worn transverse, was lined with a faring of gold lace, a short red velvet band, and gold fringe and button. The coat was buttoned up to the throat. (Plate 1.)

The working dress was a plain white waistcoat, or canvas tunic, reaching nearly to the ankles, with a rolling collar, and brass buttons down the front, and plain black pantaloons, buttoned at the knees, and plain black felt hats. Leather stocks and gaiters were also worn. The hair was shaved and not powdered. (Plate 2.)

Two suits of this dress were furnished to every man annually—each suit lasted six months. They were also provided with a

respiring from active employment and preparing for the end of life. Not so, however, He was still a recruit, hale and hearty, and loved his country for a period of 21 years! If nature had allowed his course, he might have reached a great age, but disappointed in his expectations of receiving a share in the honors, he committed suicide, being shot through the heart.

On the evening for the issue of their regimental uniforms, the men were dressed in their best, and clean, pipe-smoked their fronts, and shaved their faces, and then they went to church as white as snow, and as clean as a whistle. The men were standing against each other during the service, and the music of the organ, and the sanctuaries with clouds of white smoke, and the light to the organ, and the organ, by which they were kept, in some cases, of the music.



WORKING DRESS 1781

Drawn by W. K. G. G. G.

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The uniform, which was issued every alternate year, consisted of a blue coat with long skirts, rolling collar, black cloth facings, white shalloon lining to the skirts, and lappels at the breast; which, with the slashes on the cuffs and pocket-holes, were laced with rectangular loops, having a button at one end of the loop. The buttons were similar in size, material, and device to those already described as being regimental at Gibraltar. At the breast frills were worn, and at the wrist small ruffles. The stock was of black leather with a false collar turned over it about a quarter of an inch. The breeches and waistcoats were of white cloth, and the gaiters of black cloth, which reached as high as the knee, and were secured round the leg by a row of small buttons, eighteen in number, on the outer seam. To prevent them twisting they were steadied by a button at the bend of the knee. The cocked hat, worn transversely, was ornamented with a binding of gold lace, a short red feather, horse-hair rosette, and gold loop and button. The hair was clubbed and powdered. Plate III.

The working dress was a plain white raven duck, or canvas frock, reaching nearly to the ankles, with a rolling collar, and brass buttons down the front; white duck waistcoat and pantaloons, tongued and buttoned at the bottom, and plain black felt hats.⁹ Leather stocks and frilled shirts were also worn. The hair was queued but not powdered. Plate IV.

Two suits of this dress were furnished to every man annually—each suit lasted six months. They were also provided with a

of retiring from active employment and preparing for the end of life. Not so Spence. He was still a recruit, hale and hearty, and served his country for a further period of 21 years! If nature had taken her course, he might have lived to a great age, but disappointed in his expectation of receiving a sub-lieutenancy in the corps, he committed suicide January 11, 1809, at the age of 83.

⁹ While waiting for the issue of their regimental costume, the men, to appear smart and clean, pipe-clayed their frocks, vests, and pantaloons, and marched on Sundays to church as white as snow, and "stiff as buckram." Unavoidably rubbing against each other during the service, the wash being thus set free, filled the sanctuary with clouds of white powder, which gave rise to the playful designation, by which they were known for some time, of "Hearts o'pipe-clay."

pair of serge breeches and a flannel waistcoat. Under what circumstances and on what occasions these articles were to be worn, was never determined, and the men were therefore at liberty to dispose of them as they pleased. To distinguish them from the necessary items of the working dress, they were denominated "The Queen's Bounty."

The arms of the rank and file were those common to the period—firelocks, pouches and cross belts of buff leather pipeclayed. The sergeants had pikes, and long narrow thrust-swords—the latter purchased at their own expense: the gripe was steel, with a single gilt guard; the scabbard was black leather, mounted with a gilt tip, top and boss, and the shoulder belt, with a frog to hold the sword, was pipeclayed like those of the privates. The sergent-majors wore swords and belts the same as the sergeants, but no pikes. The drummers were armed with brass-handled swords, short in the blade, but broader than the sergeants, and black scabbards with brass mounting. All ranks had a square breast-buckle to their belts; those of the superior ranks were gilt.

The distinctions in regard to rank were as follows:—*Labourers*, coarse clothing, yellow tape lace on their coatees and hats. *Artificers*, clothing of a much finer quality, same kind of tape lacing on their coatees, but gold lace on their hats. *Drummers*, same clothing as artificers, with this difference—instead of plain yellow tape, they had broad livery lace of a quality like tape, bearing the Ordnance arms of three guns and three balls, extending from the collar downwards in parallel stripes. *Corporals*, same as artificers in every respect, but, in addition, small gold-fringed knots on the shoulders.¹⁰ *Sergeants*, crimson sashes and swords, gold lace on coats, but no knots on shoulders: they wore laced straps only. *Sergeant-majors*, sashes and swords, gold lace on coatees, bullion epaulettes, and silk velvet facings.

¹⁰ A yellow silk knot was regimental; this the corporals were permitted to dispose of for a gold-fringed knot. In most of the companies the corporals wore knots on each shoulder. In the Woolwich company, one only was worn on the right shoulder.

In the working dress there was no apparent distinction between the labourers, artificers, and drummers. The corporals and sergeants were distinguished by black hats of the same shape as the privates, with a gold-lace band, about an inch broad, around the bottom of the pole, and their frocks, &c., were finer in fabric and whiter in colour. The serjeant-majors always appeared in uniform, for which purpose they were allowed a complete suit annually.

It may not be amiss to notice, in connection with the dress of the corps, an interesting offer that was made to the companies at Gibraltar, on the change of their uniform from red and yellow to blue and black. At the fortress the companies were much esteemed for their good conduct and civility, and the best understanding existed between them and the inhabitants. This feeling of respect was particularly shared by the Jews, who desired to express it in a manner that would be more convincing than a mere verbal assurance. On the new clothing arriving at the Rock, the Jews, regarding the alteration with satisfaction, agreed among themselves to provide for the companies, as a mark of their regard, whatever gold lace might be required for the clothing, free of cost, to be worn in place of the yellow tape; but it need hardly be mentioned, that the desired deviations of this kind from the established patterns of the corps could not be permitted.

1789—1792.

Appointment of Quartermaster and Colonel-Commandant—Distribution of corps, Captains of companies—Jealousy and ill-feeling of the civil artificers—Riot at Plymouth—Its casualties—Recruits wrecked on passage to Gibraltar—Song, "Bay of Biscay, O!"—Defence of the Tower of London against the Jacobins—Bagshot-heath encampment—Alterations in the uniform and working dress.

HERETOFORE the captains of the different companies communicated with the Master-General or his secretary direct. This led to much inconvenience, and tended to establish a distinctiveness of character and position for each company, that was neither contemplated nor desired. To prevent its continuance, the Duke of Richmond, on the 13th January, appointed Lieutenant William George Phipps, royal engineers, quartermaster to the corps; and on the 12th February, directed the chief royal engineer, Major-General Sir William Green, Bart.—who originated the companies at Gibraltar, and served with them at the fortress until November 1786—to be Colonel-Commandant. The former attended to all matters connected with the clothing, &c., and to the latter all the correspondence concerning the different companies was addressed.

The first complete returns of the corps which have yet been found occur in the month of February, immediately after Sir William Green's appointment. From these returns and other documents, the following information relative to the distribution of the corps, the strength of the different companies, and the names of the captains, have been collected, viz. :—

	Strength of Company.	Captains.
Woolwich . . .	47 . . .	Colonel Robert Morse.
Chatham . . .	47 . . .	Colonel William Spry.
Portsmouth . . .	72 . . .	Lieut-Colonel Fred. Geo. Mulcaster.
Gosport . . .	69 . . .	Lieut.-Colonel James Moncrief.
Plymouth . . .	104 . . .	Lieut.-Colonel Edward W. Durnford.
Guernsey . . .	6 . . .	Lieut.-Colonel Alexander Mercer.
Jersey		Formation not commenced.

The company at Plymouth was above the established strength, arising from the works there being more important than at any other station. In May the strength of the half company at Guernsey was twenty-three of all ranks, and at Jersey twenty-one.

Symptoms of discontent were frequently shown by the civil mechanics in the Government service at the authorized employment of the military artificers. They looked upon the measure as a political move, or as a dangerous experiment to ascertain how it would work; and then, if found to answer, to extend a like control to the other workmen in the Crown establishments. This notion they imbibed from the expressed apprehensions of some leading men of the liberal party in parliament; and, as a consequence, they were jealous of the military artificers, whom they treated with great disrespect. A species of rivalry was thus induced that rather increased than allayed the feeling of mutual animosity. The civilians were not sparing of their taunts, nor were the military artificers as temperate in their retorts as might have been wished. Quarrels naturally ensued, individual feuds were frequent, and in this way did the civilians endeavour to hold up the military artificers to ridicule and disgrace for the purpose of goading the Government to disband them; but how far they succeeded the existence of the corps at this day affords a satisfactory reply.

At one of the stations the bad feeling that existed between the civil and military artificers was exhibited in an altercation that originated between the latter and some sailors, in which the dock workmen interfered. This brought about a serious rupture, the particulars and consequences of which are given below

Matches for wrestling and cudgelling between soldiers and

sailors were arranged to take place in a field adjoining Stoke Church, near Plymouth, on the afternoon of the 4th June—the King's birthday—on which occasion the soldier-artificers, in common with the civilians, were granted a holiday. The victors were to be rewarded with buckskin breeches and silver cups. But few of the military would venture to take part in the amusements, so that the company and the sailors, and some mechanics of the dock-yard, were the principal actors. The men of the soldier-artificers who entered the lists were chiefly from Cornwall and adepts at wrestling. They only went, however, to witness the games—not to join in them; and it was not till they were challenged that they entered the arena. Having done so, they exerted themselves according to the fashion of their country, and succeeded in gaining almost the whole of the prizes; which, as was natural, they bore away with suitable demonstrations of pride and pleasure.

A dispute arose between a couple of rivals about the unfair award of a prize. It was given to a sailor, although fairly earned by a military-artificer. The misunderstanding would have been easily settled had it been left to the wrestlers themselves to decide; but the dock people interfered, and fomented the quarrel, directing their abuse in particular to the soldier-artificers. For a time the latter calmly submitted to these insults, and yielded the prize for the sake of peace; but roused at length to retaliate, they sought satisfaction in the ordinary way by fighting. Overpowered, however, by numbers, they were very severely treated and driven into barracks, where they remained for two or three hours. At last, breaking this self-imposed restraint, they again appeared in the town, having taken the precaution to prepare themselves with pick-handles and short sticks concealed about their persons, to resist any attempt at violence on the part of the civilians; and the better to cope with their opponents, they walked into the streets, when occasion required, in small parties or sections; which, however, had the unfortunate semblance of defiance, and excited the sailors and dockmen to renew their insolence.

Thus aggravated, the military artificers fell upon the civilians

and drove them pell-mell through the town. Intelligence of the resumed affray soon spread, and numbers of holiday folk joined the ranks of the rabble. Armed with bludgeons, staves, and broom-handles, the civilians paraded the streets, and finding a small party of the military artificers refreshing themselves at an inn, the rabble entered and furiously attacked them. Against such overwhelming odds the little party could not hold up, and being easily mastered, they were forcibly ejected from the house and pursued to the barracks.

What had happened was, as yet, merely a series of individual or sectional encounters—the preliminaries to something more serious. Galled by a second reverse, the military artificers now mustered in full strength, together with their non-commissioned officers, and sallied into the street, brandishing brooms, pick-handles, clumps of wood, and various other unilitary weapons. Some marines and a few other soldiers, sympathizing with the company, joined in the unhappy broil. By this time the civilians and sailors were also considerably strengthened, and every moment crowds were pouring in to swell the hostile mob.

The instant the two parties came in sight the conflict recommenced. Closely and warmly it continued for about an hour, when the civilians gave way, running in all directions from the field and leaving the military victors. The mob, soon rallied, and assembled more numerous than before, on the government ground between Cumberland and St. George's Squares, to make another and a final struggle for the ascendancy. Thither the military artificers with their partisans hurried. Nothing dismayed by the numbers collected to oppose them, they resumed the combat. Pokers, bars of iron, and bludgeons were used with merciless fury; stones of all sizes, broken bottles, and crockery-ware were thrown, and weapons even were pressed into the riot. The scene that ensued was frightful, and the civilians continued the contest with much rancour and obstinacy. They were routed once, but suddenly turning, they dashed at the soldiers again with a frenzy that deserved a better result. The effort exhausted

them ; the spirit of the soldiers was stirred afresh, and, plunging among the enraged but feeble throng, they spared none that had the daring to confront them. Beaten at every point by a handful of soldiers, the civilians faced about, and retreated precipitately from the contest by the nearest avenues. The military artificers and soldiers, flushed with success, would have pursued them, and repaid their insolence in a manner not soon to be forgotten ; but by the activity of Captain Jonathan Passingham, of the 38th Regiment, who paraded the town with the main guard from the lines, the intention was frustrated. The conflict lasted several hours, and many of each party were left for dead. Several, however, soon recovered, and it was then found that the casualties were—one military artificer killed, and two severely wounded ; and on the side of the sailors and dock men, one killed, two mortally wounded who died, and three severely wounded.¹ Of the less serious wounds and accidents, from which very few escaped, no notice appears to have been taken.

For three days the company was confined to barracks by order of the Commandant, to allay the popular excitement. But whatever may be thought of the part taken by the military artificers in this riot, certain it is that it taught the dock workmen a good lesson, and had the effect of repressing their insults and annoyances, and making their future demeanour more pacific and respectful.

Several recruits having enlisted in Scotland for the companies at Gibraltar, passage was provided for them on board a ship—the name of which cannot be confidently traced—and they landed or “joined” at the fortress on the 16th April, 1791. When in the Bay of Biscay the vessel encountered a white squall, accompanied by terrific thunder and lightning, which carried away her main and foremasts. Each moment, indeed, her final plunge was expected, and the passengers and crew, clinging to spars and boxes, shreds of sails, and fragments of the dismantled bulwarks, as the last and only chance for

¹ ‘Public Advertiser,’ June 11th, 1789.

their lives, awaited in suspense the time when the dread alternative must be taken. With the appearance of the morning, providentially came the desired calm. All hands immediately set to work to right the vessel; the jury-mast was rigged, and the shivered ship, once more under weigh, wore on with struggling throes, and made good her passage to the Rock. The wreck and its circumstances gave rise to a song, called "The Bay of Biscay, O!"

In January and February, 1792, the Woolwich company was employed at the Tower of London, constructing an earthen battery for four guns in front of the gates, and a wooden battery for four guns, projecting from the coping of the wall of the fortress facing the Minories, to sweep the ditch and the hill. These defensive measures were undertaken by Captain Holloway of the engineers, sergeant John Watson being the overseer, and

* There exists two ballads with this title, one justly celebrated in the royal navy, written by Andrew Cherry, and embodied in Dibdin's "Naval and National Songs," and the other by a homely mariner, named, it is said, John Williams. Both songs may have taken their origin from the vessel spoken of above. Be this as it may, without doubt, one or the other was written to record the distress and struggles of the ship which conveyed the artificers to Gibraltar.

The incidents of the affair related in the first edition of this history were made to correspond with the seaman's effusion, as there were reasons at the time for believing it referred to the vessel with the recruits on board; but, as on a closer review, there are doubts about its application, the details given in the former edition are omitted in this, leaving the question to be solved at a future day.

If the ballad of the seaman have reference to the ship in which the artificers sailed to the Rock, it differs in two known points from the facts of its voyage. The "Caroline" is the ship of the song, and she is said to have sailed from *Spithead on the fourteenth day of April*, whereas the party of recruits sailed apparently from *Scotland, and positively landed, or, to use the official word, "joined," at Gibraltar on the 16th April*.

The seaman's "Bay of Biscay, O!" is worked up in pure Grub-street dog-grel; but bad as it is, it has been rendered worse, particularly in the last verse, by the tampering of some grossly vulgar hand. In the lapse of years the precise wording of that Catnach composition has probably been lost, and the version that exists, filled up by the imperfections of tradition, may have had its dates and places disturbed. In a printed form the ballad, seemingly, cannot be obtained.

If the differences just shown be considered fatal to the relationship between the sailor's song and the vessel noticed in the narrative, then Cherry's very popular ballad belongs to the history of the sappers and miners.

were intended to oppose any attack on the Tower which might be attempted by the turbulent Jacobins.

The Prussian system of tactics being lately introduced into the army, it was ordered that a union of corps should take place to ascertain its efficiency. An encampment for the purpose was formed on Bagshot Heath, early in July, under the Duke of Richmond, the Master-General of the Ordnance. The regiments present were the 2nd, 3rd, 14th, and 29th Foot; two regiments of light dragoons, two battalions of artillery, and one company of military artificers, made up of men from the Woolwich, Chatham, Portsmouth, and Gosport, companies, under Lieutenant-Colonel Moncrief, royal engineers. The sergeant-majors of these four companies were present. A large quantity of intrenching implements and tradesmen's tools accompanied the party. The encampment lasted for about a month, the troops marching from one position to another, and manœuvring in a body, as if in actual warfare. During this time there were three grand field-days and two *sham* battles; at the whole of which his Majesty was present, as also, on some occasions, were the Prince of Wales and the Dukes of York and Gloucester. The company of artificers manœuvred with the troops when not otherwise required; but more generally they were employed in making bridges over small rivulets for the passage of the troops, throwing up occasional earthworks, as well as mining and constructing wooden redoubts. One of the mines was sprung on the 4th August, and created quite a spectacle. It raised the earth in a solid mass about thirty feet in diameter, throwing its contents to a considerable distance. Another mine was exploded on the 7th August, under one of the advanced redoubts, with equal success; but the third and last mine was the largest, and almost amazing in its effects. Of this mine some particulars have been preserved. Upon a round hill was erected one of Colonel Moncrief's square wooden redoubts, that the results of the mine under it might be better discerned. The artificers broke ground against the side of the hill, 152 feet from the redoubt, and about 20 feet below the summit of the hill. The

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Royal Military Artificers

Plate V



PLATE V. R.M.A.

Printed by W. & N. Barber

Royal Military Artificers.

Plate V



Printed by J. A. V. Wainwright.

first gallery was driven 112 feet in length, about 3 feet wide, and $3\frac{1}{2}$ feet high, from whence commenced a turning 22 inches wide and 3 feet high, which stretched under the redoubt. A second turning of 6 feet was made for the chamber, into which was put a wooden box of gunpowder lined with pitched canvas. The quantity of powder used was 72 lbs., and was exploded by means of a wooden trough containing a canvas pipe filled with powder. When fired, the whole redoubt was lifted up about 40 feet, and disappeared in fragments, dust, and smoke, leaving a large chasm where it stood, nearly 40 feet wide and 20 feet deep. It was a magnificent sight, and called forth the spontaneous acclamations of the throng that witnessed it, and the praises of the Duke of Richmond.³ These were the *first field services* in which any of the military artificers had been employed. They returned to their respective stations about the 8th August.⁴

This year the black felt round hat superseded the cocked hat. The drummers' livery lace was a mixture of black, red, and yellow worsted—the Ordnance device was not woven in it as formerly. It was sewn on the coats in the same style as the privates' lace. Worsted wings of the three colours intermixed were now worn by the drummers for the first time. The quality of the cloth in all ranks was somewhat deteriorated this year. Plate V.

To suit the seasons the working dress was considerably altered. In summer a plain raven duck jacket was substituted for the long frock of 1787. The duck waistcoat for summer was abolished. In winter a blue jacket with black cuffs and collar was worn, precisely similar in cut and make to the duck

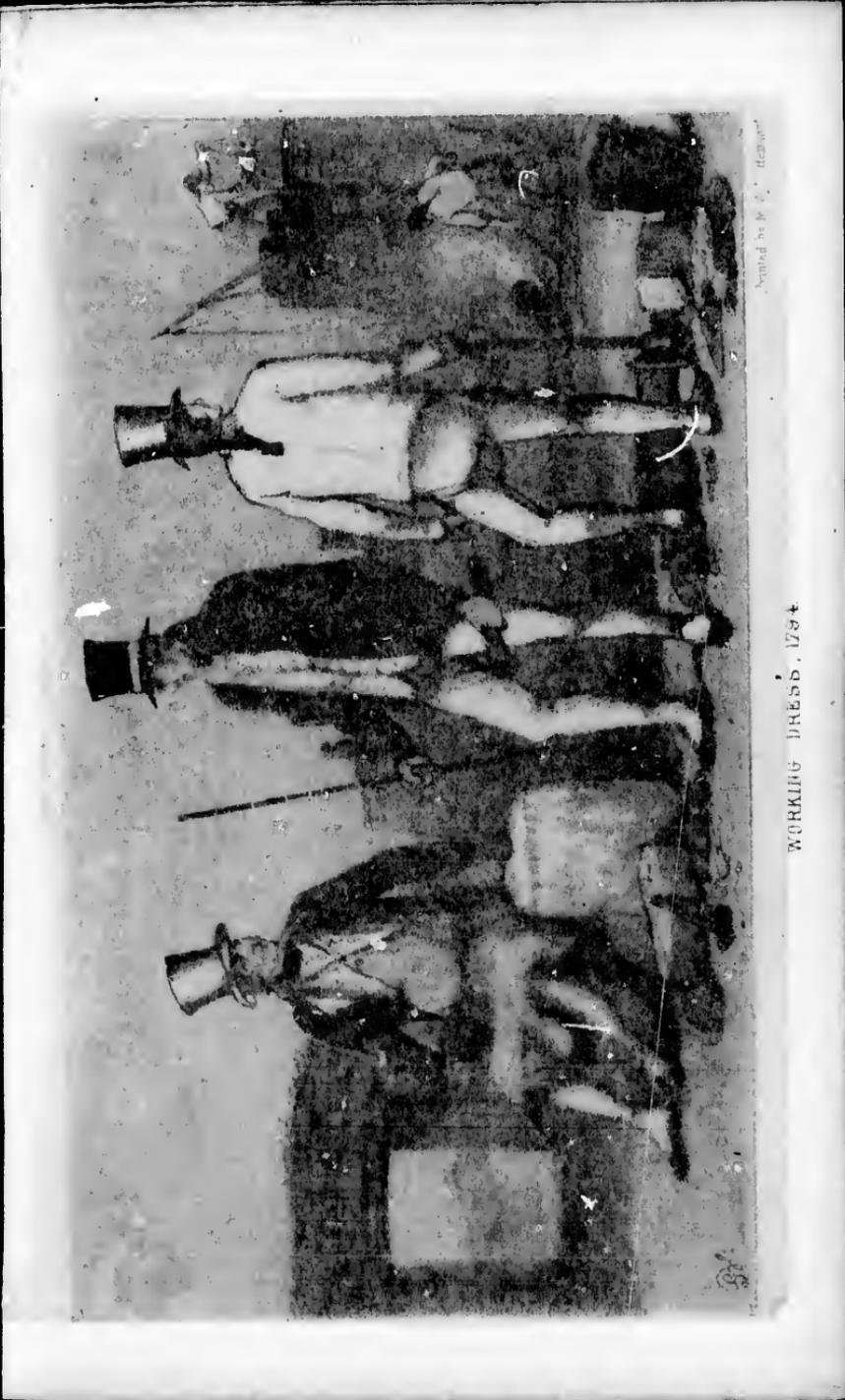
³ For full information concerning these experimental operations and manœuvres, see the 'Public Advertiser' for July 9th, August 7th, and August 16th, 1792.

⁴ To show how interested and considerate the Duke of Richmond was, in even trivial matters connected with the corps, it may be mentioned that on the 28th September, 1792, he ordered that six married private labourers, who had been at Bagshot Camp under his command, should each be paid half-a-guinea as a donation for the inconvenience and expense they were subjected to in being absent from their families.

jacket. With this jacket a flannel waistcoat was worn, and serge trowsers or pantaloons of the same form or style as the original pantaloons. To the "Queen's Bounty," consisting of a pair of serge breeches and an under serge waistcoat, was added a second serge waistcoat. The shirts were now worn quite plain in front; the hair continued to be queued; and the sergeants and corporals to be undistinguished in rank in the working dress. Plate VI.

1792.

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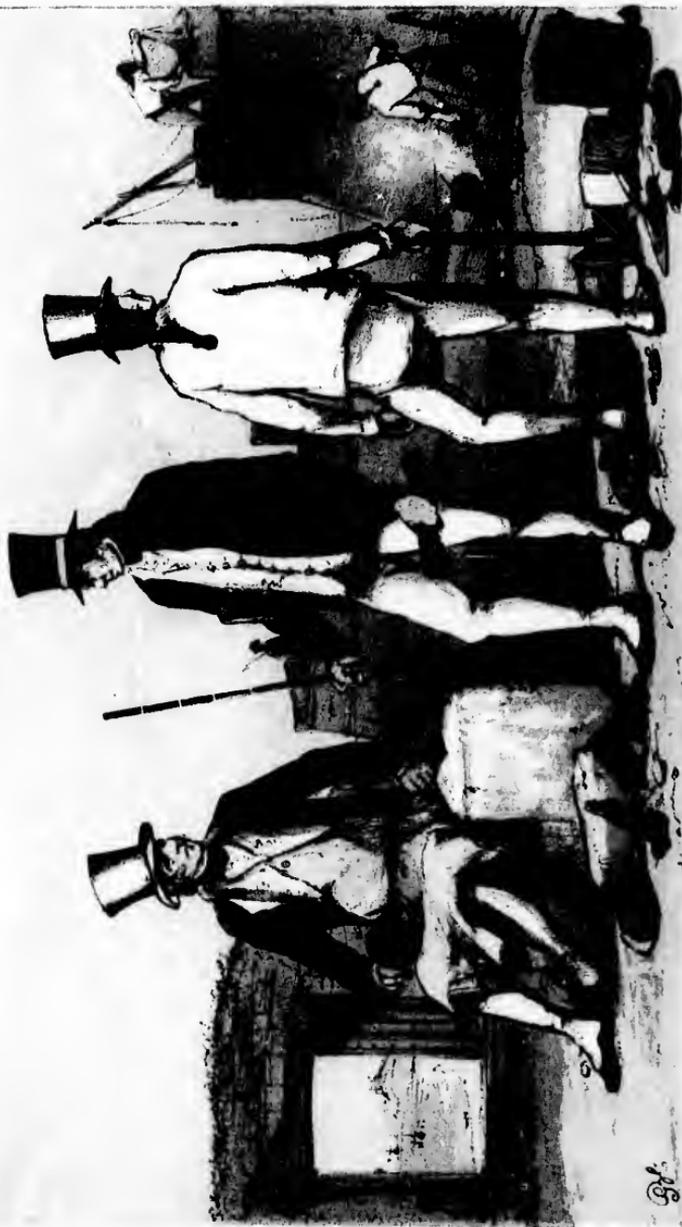
WORKING DRESS, 1784

jacket. With the under-sergeant waistcoat was worn, and serge trousers of the same form or style as the under-sergeant waistcoat. The "Queen's Bounty," consisting of a collar of serge, and an under serge waistcoat, was worn with the under-sergeant waistcoat. The shirts were now worn with the under-sergeant waistcoat. The hair continued to be queued; and the rank was to be undistinguished in rank in the uniform.

1792.

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Boys, Manby Antislavery



Printed by M. & P. Hanhart.

WORKING DRESS. 1794

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1793.

War with France—Artificers demanded for foreign service—Consequent effects—Detachment to West Indies—Fever at Antigua—Detachment to Flanders—Siege of Valenciennes—Waterdown Camp—Reinforcement to Flanders—Siege of Dunkirk—Nieuport—Another reinforcement to Flanders—Toulon—Private Samuel Myers at Fort Mulgrave—Formation of four companies for service abroad—Establishment and strength of corps.

LOUIS XVI. having been dragged to the scaffold and beheaded, the event became the subject of grave consideration in the British Cabinet, resulting in the dismissal of the French ambassador in London, and in the declaration of war by the Convention against Great Britain. Immediately following this publication of hostilities, British troops were sent to Holland to co-operate with those of the Stadtholder against the common enemy, as well to the West Indies for the reduction of the French settlements there.

The new position into which England was thrown by the declaration of war, gave prominence to a feature in the royal military artificers, which had almost been lost sight of;—that was, the liability of the men to serve in any part of the world wherever their services might be required. Although every care was taken to prevent misconception on this point, by obtaining from every recruit a signed agreement, expressive of his willingness to comply with this condition, still, it was regarded by all, as a mere formal arrangement, never to be acted upon; and in this notion they were afterwards strengthened by the fact, that when candidates were desired for service at Gibraltar, none were sent there unless with their own free consent. Now, however, their forgotten agreements were shown to be binding,

and, accordingly, men were demanded from the English companies for active service in Flanders and the West Indies.

As may be supposed, the order occasioned no little surprise and regret, as at this period, the military artificers were living under circumstances of the most favourable character—treated indeed more like citizens than soldiers. Many were married and had families; some few had property in land and houses; and all, or nearly all, had profitable engagements in civil life, which they were permitted by their officers to follow, after the demands of the service had been attended to. To avoid therefore the chance of being separated from such advantages, several obtained their discharges by providing substitutes at considerable cost, whilst a far greater number took the very dishonourable alternative of deserting. During the year 1793, the desertions were, perhaps, more in number than in any other year since the formation of the corps.

The Plymouth company was called upon to furnish one corporal and seventeen private miners for the service of the Engineer department in the West Indies, who, embarking in February, in due time, arrived at Grenada. Divided between that island and Antigua, they had scarcely commenced their duties before the unhealthiness of the climate began to be felt among them. Fever, the prevailing scourge of the islands, seized them, and ere the close of the year, all, except private William Trevethick, had died! He survived his comrades about two and a half years; and with his decease was completed the extermination, by fever, of the first foreign detachment of the corps.

At Antigua, it should be mentioned, that the malady was conveyed on shore through the unconscious imprudence of one of the party. He had gone on board a vessel called the 'Experiment,' which had just arrived in English Harbour in great distress, having lost nearly all her hands by fever. Of the existence of the disease in the ship the artificer was not aware, and he slept in a blanket belonging to one of the dead men. Seized with the disorder, he died in a few hours, and his wearing apparel and blanket, being taken to the Ordnance

quarters as his property, the infection was thus communicated to the rest of the detachment; next to the artillery, and from them it spread to the 31st regiment, committing fearful ravages in its course.¹

Five non-commissioned officers, 30 artificers, 50 labourers, and 1 drummer; total 86, collected from the different stations and formed into a company at Woolwich, under Captain Gother Mann, R.E., embarked at the royal arsenal on the 16th of March, to join the army in the Low Countries under the Duke of York, taking with them an abundant assortment of intrenching and tradesmen's tools. Most of the men had been encamped, in 1792, at Bagshot Heath, and were in some measure acquainted with the art of field fortification and military mining. Colonel Moncrief, who had greatly distinguished himself during the American war, was appointed chief engineer to the expedition.

Of the company's landing, and its early services in Holland, nothing is known, but at the siege of Valenciennes it played an important part. All the non-commissioned officers, and most of the more skilful of the miners, acted as foremen, and from 300 to 400 men were frequently placed under the executive charge of one military artificer. Those of the company not considered fit for overseers, were distributed singly among the working parties to stimulate them by their example to equal zeal and exertion. In the more difficult services of the siege, or when occasion required, the labourers, miners, and artificers, of the company worked in twos or in greater numbers. The working party from the line was seldom less than 14,000 a day.

In the final assault of the fortress, on the 25th of July, a portion of the company under Captain Sutherland, R.E., was attached to the left column appointed to attack the salient angle of the ravelin of the hornwork. Three globes of compression which had been pushed under the works to be stormed, were exploded at short intervals, after nine o'clock, with complete success. Breaches being thus formed for the columns to enter the works, they did so with great ardour and forced the

¹ Sonthey's 'Chron., Hist. West Indies,' iii., p. 72.

enemy to fly into the fortress. While these external operations were in course of accomplishment, the miners bravely rushed from the ditch into the enemy's subterranean galleries, took the workmen in them, and saved the mine from being sprung. To these underground manœuvres and the promptitude and gallantry of the detachment of artificers and line workmen in preventing the explosion of the enemy's mines, the fall of Valenciennes was chiefly indebted. It capitulated on the 28th of July. Sir James Murray, in a despatch, dated 26th July, 1793, thus writes—"A detachment of the company of artificers, under Captain Sutherland, accompanied the column to the ravelin of the hornwork, and performed the duty allotted to them with great activity and resolution." One labourer—private Robert Freeman—was killed.²

General Dundas, about this period, introduced the system of drill so long distinguished by his name; and to test its efficiency a camp was formed on the 1st of July, at Waterdown, under the Duke of Richmond. The troops, both horse and foot, numbered 7,000. To this camp was attached, by the Duke's order, four non-commissioned officers, thirty-six privates, and one drummer of the military artificers, under Lieutenant George Bridges, R.E., who took with them a proportion of field implements and artificers' tools. For three weeks, the season being exceedingly fine, the drill was briskly carried on; but was succeeded by an interval of idleness and discomfort occasioned by heavy and continuous rain. On the 4th of August, the troops moved to Ashdown Forest, where they manœuvred for a week and finally marched to Brighton: there they drilled for a fortnight, producing some grand military displays in the presence of the Prince of Wales, and returned to their stations on the 22nd of August. In the purely military evolutions of the camp the artificers took no part; but when the troops were moving they always preceded them to construct temporary bridges over the rivulets and ditches that intercepted the march, and to cut away obstacles to afford an easier road for the

² 'London Gazette Extraordinary,' August 1, 1793.

passage of the artillery. The materials for the bridges were cut on the spot, formed into faggots, and hastily thrown over the streams in view of the troops. At Brighton, the party was daily occupied in bridge-making, and became very expert in that description of field service.³

A few days previous to the dispersion of the camp, the Duke of Richmond ordered another selection of four non-commissioned officers and ninety-eight artificers and labourers, to be made from the English companies to reinforce the corps in Flanders; and in order that the party should be formed of the most efficient men, his Grace desired as many as could be spared to be taken for the service from the Brighton detachment. To press as lightly as possible upon individual interests, volunteering was freely allowed, and the remainder were obtained by casting lots. The companies at Woolwich, Portsmouth, and Gosport, were also required to provide their quota; and being collected at head-quarters, they sailed late in August, and in a few days arrived at Ostend. With this reinforcement, the military artificers in the Low Countries amounted to 7 non-commissioned officers, 41 artificers, 104 labourers, and 1 drummer; total 153.

Immediately on landing, they were marched to join the company then before Dunkirk, and were employed in the operations for the reduction of that fortress until the 7th of September, when the Duke of York was compelled to abandon his position. On returning to the Artillery Park, the artificers exerted them-

³ During the formation of one of the bridges, Mrs. Fitzherbert (who had paid a visit to the Prince of Wales at Brighton) was riding by alone. Sergeant John Johnston, who was in charge of the party, recognizing the favourite, very politely touched his cap in compliment to her, and she immediately pulled up. After asking a variety of questions concerning the work, she praised the men for their exertions, and desired that each should receive an extra day's pay. For this purpose she gave the sergeant sufficient money, and taking a note of his name, commended him for his civility and promised to remember him. Very shortly after he received the offer of an ensigncy in a regiment in the West Indies, and sailing thither in November, received his commission in the 29th Foot, 1st May, 1796. It was supposed that Mrs. Fitzherbert, true to her promise, had exerted her influence and obtained this appointment for him. George Ross, the other sergeant present with the party, was commissioned as Lieutenant in the Carnarvon Militia, in October, 1796.

selves in spiking all the guns that could not be carried with the army and in disabling their carriages, as well as in throwing about 500 barrels of gunpowder into the river and destroying nearly all the intrenching tools. In this siege, three artificers were killed—privates William Drummond, John Fairbairn, and John Wilson; and one was missing—private Thomas Howell; but of the number wounded, no record can be found. Colonel Moncrief, the chief engineer, was dangerously wounded in repulsing a sortie by the enemy on the 6th of September, and died a few days after at Ostend, where he was interred under the flagstaff by some of his own company.

A portion of the corps was employed in October in the defence of Nieuport, but in what manner cannot now be ascertained. Indeed, from the paucity of information, either verbal or documentary, rendering it impracticable to trace, with anything like distinctness, the services and movements of the military artificers during the remainder of this and the subsequent campaigns in the Low Countries, unsatisfactory gaps will necessarily appear in this narrative at times, when the most interesting details might have been expected.

Whilst the siege of Nieuport was progressing, Sir Charles Grey with his expedition arrived at Ostend, and learning the critical situation of the garrison determined to relieve it; but no sooner had he made arrangements for doing so, than the enemy retired and left the fortress and the field in quiet possession of the allies. To Sir Charles Grey's force was attached 2 non-commissioned officers and 28 artificers, under Colonel Elias Durnford, royal engineers, drafted from England, with which number the corps in Flanders was augmented to 182 of all ranks. Winter setting in soon after, and the sluice in the Low Countries being suspended for the season, a company was recalled from thence, and, on arrival at Spithead, sailed with the fleet for active service in the West Indies.

In September, a detachment of 1 sergeant—Edward Smith—2 corporals, and about 20 privates, were selected from Captain Nepean's company at Gibraltar, and sailed with the armament under General O'Hara for Toulon on board H.M. ships

'Egmont' and 'Terrible.' The officers of engineers with the party were Captain Napéan and Lieutenant De Butts. On landing, the men were detached in twos and threes to the different points of defence around Toulon; and their duties consisted in directing, under the general superintendence of their officers, the several working parties employed in constructing the batteries, &c. In the various actions and operations at this place, the detachment was more or less engaged, and "all were most zealous, active, and distinguished in their several capacities." Some were wounded; and in the desperate defence of Fort Mulgrave, three were killed.

At this fort, private Samuel Myers, who had previously served at the siege of Gibraltar, was conspicuous in his exertions under Lieutenant John Duncan, royal artillery, assistant engineer. At one of the guns all the artillerymen were either killed or disabled, for the post was a dangerous one; and the gun was consequently silent, though in a position to do much service. Observing this, Myers, having given general instructions to those who were under him as to the manner in which they were to perform their work, repaired with some volunteers to the battery and manned the gun. For a considerable time he laid and fired it himself with a precision and effect that checked the fierceness of the enemy's cannonade, and attracted the notice of General Dundas. Highly approving of the zeal and gallantry of the self-constituted gunner, the General made him a corporal on the spot, and would have honoured him with a higher rank, only it was found that the custom of the corps did not admit of this distinction being conferred. Throughout the remaining period of the defence, Myers divided his attention between this gun and the works, attending to both with an ardour and fearlessness that gained him much praise. Early in the next year he was killed in Corsica.

Two of the English companies out of six having already been sent abroad, and the nature of our relations with France ren-

* Private Joshua Cook, of the Woolwich company, was sent to Toulon as orderly to Colonel D'Aubant, royal engineers, and served in that capacity in Toulon and Corsica until the Colonel returned with him to England.

dering it highly probable that more would be demanded, the Duke of Richmond represented to his Majesty the benefit that would result to the service, if a corps of artificers and labourers were formed expressly for employment abroad. His Grace the more readily recommended this measure, as the various stations from which detachments were sent were compelled to hire civil tradesmen to supply their places, at wages considerably higher than the estimates warranted; and whilst it checked improvement in the labourers, which His Grace was anxious to see developed, it also crippled, in some degree, the general efficiency of the companies. Concurring, therefore, in his Grace's proposition, His Majesty granted a warrant under date the 11th September, 1793, for raising a corps of royal military artificers and labourers, to consist of four companies and to be distributed as follows:—

Flanders . . .	2	companies
West Indies . . .	1	„
Upper Canada . . .	1	„

The command and composition of the companies were to be similar in every respect to the English companies; they were to be stationary in the countries where they were appointed to serve; and the men were to receive the like advantages in pay, allowances, and clothing. A distinct position would seem to have been given to these foreign companies by the warrant, but they nevertheless, though designated *a corps*, were comprehended with the English companies in one united body, and depended upon the latter companies for the maintenance of their strength and efficiency. Such, however, it may be observed, was not the case with the companies at Gibraltar, which yet remained a separate and independent body, though differing from the home and foreign companies only in non-essentials of a local character.

The warrant just alluded to does not appear to have been carried out in the manner intended. Instead of sending a reinforcement to Flanders to complete the companies there to the authorized establishment, one company was withdrawn from thence and sent to the West Indies; while as regarded the

latter station, in addition to the company ordered, a party also embarked with it, forming, with the detachment already in those islands, the nucleus of a second company. The total number of artificers and labourers in Flanders, after this change, was 82 of all ranks, and in the West Indies 126. On what ground this reversionary alteration was adopted is not precisely known; but it may reasonably be assigned to the pressing appeals from the West Indies for more men, and the inactive position of affairs in the Low Countries permitting it to be effected without detriment to the service. The company for Canada was never embodied, though the idea of forming it was cherished until December 1793, when it was abandoned.

At the end of the year the establishment and strength of the corps were as under:—

Home companies . . .	600
Foreign companies . . .	400
Total . . .	1000 establishment
Strength	588
Wanting to complete . . .	412

1794—1795.

Working dress—Company sails for West Indies—Martinique—Spirited conduct of a detachment there—Guadaloupe—Mortality—Toulon—Flanders—Reinforcement to company there—Return of the company—Works at Gravesend—Irregularities in the corps—Causes—Redeeming qualities—Appointment of Regimental Adjutant and Sergeant-major—Consequences—Woolwich becomes the head-quarters—Alteration in working dress.

THIS year the working dress of the corps was considerably modified. The raven-duck frock was succeeded by a plain round blue jacket for winter, and a raven-duck jacket for summer. The colour of the working hat was changed for the privates from black to white; and the corporals and sergeants were distinguished from the inferior ranks by a band of gold lace round the pole of the hat at the bottom. See Plate VI.

The company from Flanders under Colonel Elias Durnford, royal engineers, intended for service in the West Indies, rendezvoused for a time at Spithead. While there, every care was taken to make it as efficient for active duty as possible; and several men who were suffering from the fatigues of the sieges of Dunkirk and Nieuport, were accordingly re-embarked and their places supplied by others from the Portsmouth and Gosport companies. After being provided with the necessary field equipment, the company sailed with the fleet from Spithead on the 3rd November, 1793, and arrived at Barbadoes the 6th January, 1794. Its strength on landing was ninety-four of all ranks, including its sergeant-major—Matthew Hoey.¹

¹ Served seven years in the Royal Marines. Enlisted in the corps April 28, 1788, and was present in almost every action and capture which took place in the West Indies up to the year of his decease, which occurred at Barbadoes, July 14, 1810. Few non-commissioned officers had a more stirring career. or

From Barbadoes the company proceeded with the expedition under General Sir Charles Grey and Admiral Sir John Jervis to Martinique; and having landed, commenced and completed, during the night of the 10th February, the erection of the required batteries on Mount Matherine against Pigeon Island. On the surrender of this island on the morning of the 11th, a portion of the company, under Lieutenants Fletcher and Durnford, royal engineers, was formed in line with a brigade of the royal artillery and a part of the 70th regiment, to protect the stores then landing, and to support the left of the army in the attack upon the heights of Souririe. The post was soon carried; and the entire company subsequently participated very essentially in the siege of Fort Bourbon. After a month's unceasing exertion before that fort, it was captured on the 25th March, and Martinique then became the prize of Britain. In noticing the services of the company, Sir Charles Grey, in his despatch of 25th March, writes:—"Colonel Durnford, with the corps of engineers, have also a claim to my warmest approbation for their exertions in placing and constructing the batteries." The casualties were one killed—private William Simpson, on the 11th February at Pigeon Island—and three wounded.²

After the successful attack on Souririe, corporal James Kerr of the royal military artificers, and a detachment of the company under his orders, were employed on field duty at noon-day in front of the army. A very superior force of the enemy attempted to surprise them, but as soon as they perceived their danger, they retired and defended themselves in so steady, spirited, and soldierlike a manner, as to command the admiration of many officers and others.

Nearly the whole of the company were subsequently em-

greater chances, by his prizes, employments, and successful speculations, of acquiring wealth. Much he gained and much he spent. He had his horse and his servants. Costly ornaments he wore with eastern profusion, and the hilt of his rapier, and the mountings of his scabbard, were of silver. Indeed it requires a couplet from Pope to do him anything like justice.

"A radiant baldrick o'er his shoulders tied

Sustain'd the sword that glitter'd at his side."

² 'London Gazette Extraordinary,' April 17th and 22nd, 1794.

ployed in the reduction of the Islands of St. Lucia and Guadaloupe; but what services were rendered by them in those captures have not been recorded.

Sir Charles Grey, having succeeded in the enterprise with which he was intrusted, left Major-General Dundas in command at Guadaloupe and made arrangements to return home. The fever peculiar to the country, soon afterwards made its appearance in the island and the General died. Taking advantage of this event and the daily increasing sickness, the French rose against the British and retook Fort Fleur d'Épée. Sir Charles Grey, hearing of the disaster and anticipating its consequences, returned with all haste to Guadaloupe and resumed the command of the troops. At this time the company was divided into almost equal proportions at each of the subjugated islands, to assist in carrying on the various works. Thirty-one non-commissioned officers and men had been left at Guadaloupe on its capture under Lieutenants Dowse and Durnford, royal engineers; but at the period of the outbreak only twenty-one men were present, ten having already died of the fever.

At Guadaloupe the military artificers were employed in the repairs of magazines and barracks, and in the construction of field works at Basseterre: subsequently they superintended the erection of batteries, &c., against Point à Pitre in the endeavours to recover Grandeterre; but as all attempts to regain this branch of the island were now abandoned, the detachment retreated to Berville with the army for the purpose of preventing Basseterre falling into the hands of the enemy. Here the artificers were engaged in various works for the defence of the camp, and shared in repulsing the three attacks made on the position in September and October. By climate, fatigue, and privation, their numbers gradually dwindled away; and when the post was captured on the 7th October, only ten men were living. Six of these were taken prisoners,³ with Lieutenant Durnford of

³ Privates William Burrell, John Clark, Abraham Mayhead, Robert Torrance, William Fleming, and Thomas Wagg. Four of the number soon died; and the two first, on being released, joined the remnant of the company at St. Domingo on the 18th April, 1796.

the engineers; and the other four, under Lieutenant Evatt, R.E., served at the defence of Fort Matilda from the 14th October to the 10th December, the date of its evacuation.⁴ During that protracted struggle, the services of these four men, especially sergeant John Morris and private Samuel Bowes, were found to be particularly useful in every respect. Such was the opinion of Lieutenant Evatt, who, fifty years after, also afforded a general testimony to the merits of the company, by stating that "wherever their services were required they were ever conspicuously forward."

The yellow fever continued its ravages throughout the year with frightful violence, and carried off more than half of the company. In May the sickness was very general among the artificers. That month twenty-five died; and of the survivors, very few were found sufficiently effective for the service of the works. In June, the party at St. Lucia, which so far had escaped the prevailing scourge, was removed to Martinique to hasten the restoration of Fort Bourbon. But little advantage, however, was obtained by this arrangement, as nearly the whole of the men were immediately seized by the sickness. At the close of the year sixty-five non-commissioned officers and privates had died; of whom forty-two were at Martinique and twenty-three at Guadaloupe; as also Colonel Durnford, Captain Chilcot, and Lieutenants Dowse and Lawson of the royal engineers. The strength of the company was now reduced to twenty-six of all ranks, including the prisoners of war, but the effectives of this number did not exceed ten.

Toulon was evacuated in the middle of December, 1793, and the remnant of the army employed there soon afterwards landed in Corsica. With this force the detachment of military artificers shared in the various actions and sieges of that island, particularly at San Fiorenzo, Bastia, Ajaccio, and Calvi. In directing the construction of the required works and batteries, more especially at the lengthened siege of Calvi, their services were highly spoken of by their officers and the assistant engineers under whose instructions they for the most part

⁴ 'London Gazette,' 13751. 10-14 February, 1795.

acted; and though so few in number, they were considered by the army to be most useful and valuable soldiers.⁵ Most of them were killed at San Fiorenzo and Calvi, and the rest were wounded; of whom two privates only survived. These two men, previously to the evacuation of Corsica in October, 1796, were present at the capture of the Island of Elba, and in January, 1797, returned with Lieutenant De Butts, royal engineers, to Gibraltar.

Hostilities were resumed in Flanders as soon as the severity of the winter had subsided. To compel the French to evacuate Flanders was now the purpose of the allied commanders. To this end, on the 16th May, the whole force made a forward movement. The column under the Duke of York, to which the company of artificers was attached, marched to Lannoy and then to Roubaix driving the enemy before it. On the 18th May the French, making a determined stand, hotly pressed the British in front and rear by an overwhelming force, and obliged his Royal Highness to resort to the daring alternative of retreating through the enemy's line, which he accomplished, but with great loss. In this action the artificers had four wounded, one missing—private John Smart—and seven taken prisoners.⁶

The Earl of Moira being appointed to command a corps intended to act on the offensive against France, one sergeant, one corporal, twenty-one artificers, and eight labourers of the home companies were selected to accompany it. Early in January the detachment was forwarded to Southampton and there encamped for several months, drilling with the troops. Ultimately the destination of the expedition was changed, and his lordship was directed to co-operate with the Duke of York.

⁵ Lieutenant John Duncan, royal artillery, who was employed as assistant engineer in the sieges of Toulon and Corsica, "often spoke," writes Lieutenant-General Birch, of the royal engineers, under date 22nd August, 1848, "with the very utmost enthusiasm of the conduct of the royal military artificers in these operations, and would delight to dwell in describing their conduct as being fine, brave, and enduring."

⁶ Privates Alexander Williamson, Archibald Douglas, Alexander Stewart, Andrew Lindsay, David Morton, George Horn, and John Bristo.

The armament forthwith embarked, and sailing for Ostend, landed on the 26th June. After a march of more than thirty days, executed with cheerful resignation, the Earl of Moira effected a junction with the Duke of York's column at a time when, from the precarious situation of his Royal Highness, an addition to his resources was imperatively needed. The detachment of artificers with his lordship now joined Captain Mann's company, the strength of which, since the opening of the winter of the previous year, had been reduced by deaths from eighty-two to seventy. With the present increase the total of the corps in Holland amounted to 101 of all ranks; but of this number, many were no longer equal to the fatigues of a campaign owing to the diseases contracted by them, from unavoidable exposure, during a season of unusual inclemency; and several suffering from incurable frostbites were placed in the category of wounded men.

On the 12th May, 1795, the above company, transferred to the command of Captain Johnson of the engineers, arrived at Woolwich. Its strength was eighty-six, including its sergeant-major. Being no longer required for foreign duty, the men were distributed among the Portsmouth and Gosport companies and the Guernsey and Jersey half companies. Twelve were left at Lisle sick and prisoners of war: three of them died, seven returned to England at different periods and the other two—Private George Horn and John Bristo—continued to be recorded as prisoners until February, 1797; when, not having rejoined their corps, they were struck off the strength. By the reduction of the Flanders company the establishment of the corps was diminished from 1,000 to 800 of all ranks.

About this period, a detachment of one sergeant, thirty-three carpenters, and two drummers, under Captain C. Holloway, royal engineers, was sent to Gravesend to make various repairs and additions to the defences on the shores of the Thames, as the state of European politics and our unsettled relations with France rendered these precautionary measures absolutely indispensable. They were picked men, of good qualification; and to distinguish them from the corps employed at Woolwich, Purfleet, and

Chatham, were permitted to wear a very long fantastic feather of black, topped with crimson. Tilbury Fort and the Blockhouse at Gravesend were thoroughly repaired by this detachment, and the requisite arrangements and appliances for establishing a communication across the Thames, by means of barges for the passage of an army, were effected by them. They also constructed two batteries for four 24-pounders each, with temporary wooden barracks for artillerymen at Shornmead and Hop-Point, below Gravesend. These services were barely finished when thirty of the detachment were recalled to join the expeditions for St. Domingo and the Caribbee Islands. The party that remained, was shortly afterwards increased to one sergeant and fifteen carpenters. Detachments of varied strength were also employed in strengthening the defences on the coast of Sussex, and in repairing the castles at Hurst, Cowes, and Yarmouth.

Drunkenness and irregularity were now very prevalent in the corps. Many of the men, from their abandoned habits, were insensible either to advice or punishment: whilst others, whose moral conduct could not be reproached, were negligent of that proper respect for personal cleanliness and appearance which is one of the first considerations of a soldier in every well-regulated regiment. In some degree to check these evils, a few of the most incorrigible among the labourers were dismissed from the corps, or were either turned over to the navy or sent to the West Indies. But even these severe but necessary measures failed to produce that wholesome impression on the habitual delinquents, which it was reasonable to anticipate would be the result.

The first symptoms of disorder in the conduct of the men appeared when they found they were liable to be sent abroad if occasion required their services. Led by their constitution and employment to consider themselves permanently settled, they were quite unprepared for any innovation which had a tendency to subvert their position or to interrupt the advancement of their individual interests. The married men particularly received it with unequivocal dissatisfaction. Unwilling to sub-

mit to the change, which struck at the root of their privileges, several deserted; and others, not daring to involve themselves in the consequences of so serious a step, remained only to drown their discontent in dissipation, and bring discredit on the corps.

This was not the only source of demoralization. Ever since the formation of the corps little or no attention had been paid to its military efficiency. Discipline was almost entirely relinquished, and drill was an unfashionable exercise. The former was relaxed on account of the men being regarded more in the light of civilians than soldiers, and the latter was nominally given up on the plea, that it was of far greater public benefit to keep them constantly on the works than at drill. From the leniency of the one, numbers paid but little regard to authority on military matters, and were only too ready to evince a spirit of disaffection when anything occurred to infringe upon liberties or privileges that the usages of the corps had given them a sort of right to enjoy; and from the neglect of the other, they were awkward and dirty in appearance and slovenly in their attire. By the many well-intentioned and orderly men in the corps, the laxity of the discipline and infrequency of the drill were certainly recognized and appreciated as indulgences; but the advantages bestowed were more than counterbalanced by the evils they induced; for several men—not labourers only, but artificers—distinguished by their abilities as tradesmen, but too depraved to profit by the mildness of the discipline, plunged into all the excesses of disorder and drunkenness. Yet, with all this misconduct and want of training in soldierlike principle and bearing, they always exhibited an active pride in their fair name as mechanics, and committed, comparatively, but few offences on the works.

Another element in producing the irregularity complained of is traceable to the manner in which the corps was recruited. From the difficulty of obtaining good tradesmen with satisfactory testimonials of previous conduct, the pernicious system of receiving men without characters was resorted to. Ability as tradesmen was the great specific, conduct being a non-

essential qualification. Consequently, in the removals from the line especially, many men were transferred to the military artificers, whose dissolute habits rendered their influence both mischievous and demoralizing, although, from their merits as mechanics, they were found far too valuable to dismiss, and too useful to be subjected to a protracted punishment.

But with all this dissipation and disorder there was much in the corps to approve, much to admire. The non-commissioned officers, the majority of the artificers, and a goodly number of the labourers were well-conducted men, and upheld their military character and appearance in a becoming manner. On the works, besides being able and expert artificers, they were found to be industrious and efficient, supporting and assisting their officers in every duty or enterprise of difficulty or danger with readiness and zeal. Though differing from other troops in many essential points, still there was much sterling worth in the royal military artificers, rarely to be met with in any other corps in the service.

Recourse to discipline and drill seemed to be the only chance of preventing the increase of irregularity, and of permanently improving the character and condition of the corps. At each of the stations the experiment was now in partial operation, but, simultaneously with this judicious effort, another measure had been effected which promised to be of material advantage in bringing about the desired change. This was the appointment, on the 15th May, of Lieutenant John Rowley of the royal engineers, to be Regimental Adjutant to the corps. To each company, from its formation, an adjutant had been and continued to be attached; who, however, from the paramount importance of the works and other circumstances, was too engrossed by his attention to professional duties and details to be of much service to his company. The Regimental Adjutant was stationed at Woolwich, and through him was carried on all the correspondence of the corps. His office, however, was at Westminster. To assist him, therefore, company serjeant-major Anthony Haig, who was an excellent drill-master and a talented non-commissioned officer, was promoted to be regi-

mental sergeant-major on the Staff at Woolwich with the pay of 3*s.* a-day.

These appointments were immediately followed by an alteration in the system of recruiting as conducted by the officers commanding companies. Experience had proved that such a system was detrimental to the corps, and that its discontinuance would narrow the sources from which some of the existing evils originated and were fed. With this view, the particular charge of the service was intrusted to the Regimental Adjutant. Recruits were now enlisted for general service, and when ready to join the corps, were, in the first instance, sent to Woolwich. On their arrival they were clothed, equipped, and subjected to the same drilling as infantry soldiers under the sergeant-major and adjutant; and, when trained, were posted to the companies, whether at home or abroad, most in want of men. Even this slight modification produced a more than corresponding improvement in the corps, and revived in some degree, at the different stations, the discipline and drill. At Portsmouth especially, at a later period, under Colonel Eveleigh, who was the first Adjutant of the corps and served with its companies at the siege of Gibraltar—the disciplinary arrangements were so satisfactorily enforced and sustained, that it was a custom for some years to remove all the irregular men to that station, to place them under the operation of a strict and wholesome surveillance. A few years after, about 1806, to give the corps the advantage of manœuvring in masses, the companies at Portsmouth and Gosport, with all the subaltern officers in command, were, once a week during the summer months, brought together for drill under their respective Adjutants—Lieutenants Hamilton and Oldfield.

Woolwich now became the head-quarters of the corps, and all invalids were ever after sent to it from the different stations for discharge, instead of being disposed of, as heretofore, by the captains of companies.

This year the working jacket was somewhat altered. Broad skirts with pocket slashes were appended to it, and, for the sake of giving a more military appearance to the men, a yellow

worsted lace triangle was sown between the two back buttons, and a frog was added to each side of the collar. These ornaments on the sergeant's jacket were of gold lace. The hats of the privates were changed from white to black felt, and the sergeants, in addition to the gold band, wore rosettes and crimson plumes. See Plate VII. All ranks wore clothing of precisely similar fabric.

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ROYAL MILITARY BAND



Printed by M. H. Harbart



1795—1796.

Companies to St. Domingo and the Caribbee Islands—Reduction of St. Lucia—Conduct of company there—Gallantry in forming lodgment and converting it into a battery—Attack on Bombarde—Distribution and conduct of St. Domingo company—Mortality in the West Indies—Detachment to Halifax, Nova Scotia—Dougal Hamilton—Detachments to Calsbot Castle and St. Marcou.

WAR, coupled with fever, had by this time made considerable havoc among the troops in the West Indies, and reduced the force to a number totally inadequate for the services of the different islands, much less to resist efficiently the encroachments of a vigilant enemy, and check the insurrectionary demonstrations of a disaffected negro population. In some respects to supply this deficiency, reinforcements having been applied for, two expeditions were fitted out at Spithead, and sailed in November, 1795, under Sir Ralph Abercrombie, for St. Domingo and the Windward Islands.

To each expedition a company of sixty non-commissioned officers and men of the military artificers were attached, equipped with tools appropriate to their trades, in addition to their arms. The company for St. Domingo, under Lieutenant Crozier, royal engineers, was formed by men drafted from the Woolwich and Chatham companies; and that for the Caribbee Islands, under Lieutenant Gravatt, R.E., by men from the Gosport, Portsmouth, and Plymouth companies.

Both companies arrived—after a long and dangerous passage, particularly in clearing the Channel—in March, 1796. In disposing of the two companies, Sir Ralph despatched, under Lieutenant Crozier, thirty-three non-commissioned officers and

privates, including two men who had been prisoners of war at Guadaloupe, to St. Domingo, detaining the remainder to act under himself with the Caribbean company, which now reached the strength of seventy-seven of all ranks.

The reduction of St. Lucia was early the intention of Sir Ralph, and the expedition accordingly sailed thither. The company of artificers, under the command of Captain Hay, royal engineers, landed on the 26th April, and at once were told off for the duties of the siege. In addition to the construction of some extensive batteries to act against Morne Fortuné, they superintended the formation of a communication by means of a new road from Choc Bay to the Morne. By the 24th May the English had pushed up to within 500 yards of the fort, and the garrison capitulated on the 26th May.

From the nature of the ground and other circumstances, the operations for the reduction of the fort were extraordinary and arduous, and the exertions of the company conspicuous. These attracted the notice of Sir Ralph, who, through the medium of Captain Hay, conveyed his thanks to the military artificers for their good conduct and soldierlike behaviour at the siege.

In the attack on the enemy's advanced posts at Morne Fortuné on the 24th May, a detachment of about twenty non-commissioned officers and men of the company, under Lieutenant Fletcher, R.E., with handspikes, axes, and picks, rushed gallantly forward and formed a lodgment, which was rapidly converted into a battery of five 24-pounders to breach the body of the place. The exertions of this party greatly contributed to the success of the assault and to the fall of St. Lucia. Lieutenant Fletcher was wounded, as also two rank and file.¹ Of the other casualties in the company from the opening of the siege to the assault no record has been preserved.

The detachment of thirty-three non-commissioned officers and men, under Lieutenant Crozier, R.E., arrived at Cape Nichola Mole, St. Domingo, on the 2nd May, and Captain W.

¹ 'London Gazette Extraordinary,' July 4th, 1796.

M'Kerras, royal engineers, assumed the command of it. On the 8th June following, about twenty of the party were engaged in the attack on Bombarde, in which one private—John M'Donald—was mortally wounded, and one sergeant—Hugh Taylor—was taken prisoner.² On the 11th June, the St. Domingo detachment was further increased by the arrival from St. Lucia of one sergeant and fourteen privates under Lieutenant Stewart.

Of the ulterior active services of this detachment, nothing can be satisfactorily traced. It was, seemingly, broken up into small parties, and disposed of at St. Marc, Jeremie, Grande Ance, the Mole, and Port au Prince, superintending under their officers, the execution of various works which were deemed essential for defence, on account of the arrival at Cape François of Rochambeau, Santhonax, and several other republicans of consequence. In these and former works the men seem to have exerted themselves with zeal, and to have obtained commendation for their good conduct. "Indeed, I must say," writes Captain M'Kerras to Sir William Green, the chief engineer, under date July, 1796, "that I have never seen a better set of people in every respect and manner than they were."

To a great extent the fever still prevailed in the West Indies, and had raged fearfully during the months of June and July. It was not confined to any particular island, but was general throughout the group. Never had a more melancholy scene of mortality attended any expedition than befel those to St. Domingo and the Windward Islands. Of the company of military artificers at the former island, twenty-five had died in June and July alone, and by the end of the year it was reduced to nineteen men only. The Caribbee Islands' company, during the same period, suffered still more severely; inasmuch as it was diminished from seventy-seven to thirty-one of all ranks; whilst the company that served at the captures of Martinique, St. Lucia, and Gaudaloupe, in 1794, had frittered away by deaths and invaliding to eighteen non-commissioned officers and

² 'London Gazette,' 23rd to 26th July, 1796; takes notice of the private wounded, but not of the sergeant taken prisoner.

men.³ Of the survivors more than half were incapacitated for duty from sickness, and, consequently, the services of the department pressed very heavily upon the effectives. On the 1st September the remnants of the two latter companies were amalgamated, and reached a total of 49 of all ranks.

In June a detachment of one sergeant, two corporals and twenty artificers, embarked for Halifax, Nova Scotia, where the classes of tradesmen most needed for the works could not be obtained except at extravagantly high wages. Some care was therefore taken to select mechanics fully equal to the requirements of the settlement. The detachment landed in September following, and Captain James Straton, commanding royal engineer, was appointed to command it. Various works were in progress at the time of their arrival, to which they were distributed according to circumstances; but the service upon which they were chiefly employed was the erection of the lighthouse in Halifax harbour. Over this work, private Dougal Hamilton, a very intelligent and skilful mason, was appointed foreman, and acquitted himself throughout with credit. Subsequently, when about to quit the province as an invalid, H.R.H. Prince Edward ordered his immediate disembarkation, and placed him at the disposal of the treasurer of the settlement, by whom he was employed as a foreman in building the Shelburne Lighthouse on the coast of Halifax.

Early in the spring a party of the Portsmouth company was detached to Calshot Castle to repair and strengthen it; and another from the Guernsey half company, to renew the defences at the Island of St. Marcou. In carrying on the works at the latter place, privates Roger Hambly and Hugh M'Laughlin were dreadfully wounded by the explosion of a mine in the execution of their duty.

³ Lieutenant, afterwards Lieutenant-General, Evatt, who served with the company in Sir Charles Grey's campaign of 1794, writes thus of it: "The dreadful sickness then prevailing left few or none of the men after its conclusion, and it might with truth be said, they came out, did their duty, and died!"

1797.

Detachments to Portugal—To Dover—Transfers to the Artillery—Enlistment of artificers only—Incorporation of Gibraltar companies with the corps—Capture of Trinidad—Draft to West Indies—Failure at Porto Rico—Fording the lagoon, by private D. Sinclair—Private W. Rogers at the bridge St. Julien—Saves his officer—Casualties by fever in Caribbean company—Filling up company at St. Domingo with negroes—Mutinies in the fleet at Portsmouth—Conduct of Plymouth company—Emeute in the Royal Artillery, Woolwich—Increase of pay—Marquis Cornwallis's approbation of the corps—Mutiny at the Nore—Consequent removal of detachment to Gravesend—Alterations in dress.

EARLY in January, Lieutenant F. W. Mulcaster, R.E., with a party of one sergeant, one corporal, five artificers, and four labourers of the Woolwich company, embarked for Portugal to join the force under the command of Lieutenant-General Charles Stuart, which was sent to that country for the purpose of preventing its invasion by the armies of France or Spain. The nature of the service did not call for any display of character, and the detachment being withdrawn in October 1798, immediately proceeded with the expedition to Minorca.

In February one corporal and seven miners of the Plymouth company were detached to Dover to carry on the mining operations at that station under Captain H. Bruyeres, R.E. They were farther increased in October to two corporals, eleven artificers, ten labourers, and one drummer, as well to conduct the mining as to assist in repairing the works on the Western Heights. A detachment was also sent from this company to Berryhead near Torbay, to erect fortifications.

A great deficiency occurring in the numerical establishment of the royal artillery, the Master-General desired that as many

of the labourers of the corps of artificers as were anxious to avail themselves of the opportunity of transferring their services to that regiment, should be permitted to do so. The transferring continued from March to May, and the corps was thus reduced sixty-seven men, each of whom received one guinea on being accepted by the Artillery.¹

This reduction in the establishment of the labourers was followed in August by an order, that the recruiting for the corps should be limited to the artificer part only. Labourers and men not bred to the regulated trades were no longer enlisted, and every artificer so enlisting only received the bounty and subsistence of a labourer, until he had been approved as a competent artificer. This was a wholesome precaution, as those enlisted under the assumed name of mechanics were continued as labourers, until industry and improvement had rendered them worthy of advancement.

In June the soldier-artificer corps at Gibraltar was incorporated with the royal military artificers. Ever since its formation in 1772 it had held a distinct position, and was an integral body of itself. Its establishment was two companies of 5 sergeants, 5 corporals, 2 drummers, and 125 private artificers each, with 1 sergeant-major to both companies; but its actual strength on the amalgamation was only 255 of all ranks. In the regular monotonous routine of that garrison there was little occasion for their services except as artificers. At this period their conduct was far from commendable. Much addicted to drunkenness, they were the constant subjects of courts-martial; but on the works, under the eye of their officers, they behaved well and were very good mechanics, particularly the non-commissioned officers, who, besides, were skilful foremen. By the incorporation of these companies with the corps, it was increased from 801 to 1,075 of all ranks; but its actual strength only reached 759 men.

¹ One of these labourers, John Alexander, enlisted in the Chatham company 15th July, 1796, and was transferred 1st April, 1797. Forty years afterwards he was commissioned as quartermaster in the royal horse artillery, and after eleven years' service in that rank, retired on full-pay in 1847, and died in 1854.

Sir Ralph Abercrombie having resolved to make an attempt on the island of Trinidad, an expedition under himself and Admiral Harvey sailed accordingly from Martinique on the 12th February. To this force were attached one serjeant-major, two corporals, and nineteen artificers, under Major Charles Shipley, and Lieutenants Gravatt and Lefebure, royal engineers. From an accident by fire, which consumed the enemy's ships on the night preceding the morning arranged for the attack, the island became an easy conquest and surrendered by capitulation on the 18th February.

Soon after the taking of this island, a detachment under Lieutenant Ford, R.E., of three serjeants, two corporals, and twenty privates, drafted from the Portsmouth company, landed and joined Major Shipley's company at Martinique, the strength of which, with the increase, amounted to sixty-five of all ranks.

Sir Ralph Abercrombie and Admiral Harvey now assembled an expedition against Porto Rico and landed there on the 17th April. The company of artificers furnished about forty non-commissioned officers and men for this service, including Lieutenant Ford's party. Here they constructed, assisted by a party of the 14th regiment, two batteries, one for mortars and the other for guns. A large magazine abandoned by the enemy, was also partially converted into a battery for two mortars, but its completion was relinquished in consequence of the ordnance intended to arm the battery having been swamped in a morass in crossing. Notwithstanding the exertions made to reduce the place, the enterprise failed, and the troops were withdrawn on the 30th April. Previously, however, to effecting the evacuation, the artificers, to prevent the enemy following in the retreat, destroyed the bridge which connected the island of St. Julien with the main; and afterwards hastily reared a breastwork of sandbags to cover the embarkation, which, however, was not required, as the expedition was suffered to leave the island unmolested. The casualties in the military artificers were five privates killed, viz., Joseph Featherstone, George Clark, Samuel Hague, George Winter, and John Cameron,

and four severely wounded; besides about twenty more who sustained slight contusions or mutilations.²

Among the measures suggested for reducing Porto Rico was one for taking the town, by forcing the troops through the lagoon bounding the east side of the island. Before the project could be entertained, it was considered advisable to ascertain if the stream were fordable. An officer of Sir Ralph's staff having requested permission to undertake the service, he was voluntarily accompanied by private David Sinclair of the military artificers. In the night, at the appointed hour, both entered the lagoon together, each provided with a long staff. With this support they probed their adventurous way, and at length succeeded in gaining the opposite slope; where, standing near one of the redoubts which defended a broken bridge, they distinctly heard the vigilant sentinels talking and walking on their beats. With the same caution as before, they picked their course back again, and then coolly repeated the duty without the aid of props. The officer reported the ford to be fully practicable, and at the same time lauded the intrepidity of the soldier who accompanied him. Thereupon Sir Ralph praised him for his gallantry and rewarded him with a johannes—a piece of eight dollars. The idea of making the assault by passing the stream was given up, in consequence of the British force being too weak to cope with an enemy powerful in men and means, and almost impregnable in position. Sinclair died the 28th July, 1797, and during his short career in the West Indies, an officer under whom he served has left this testimony to his worth, "that he was ever conspicuous in every service."

Determined upon relinquishing Porto Rico, Sir Ralph ordered Lieutenant C. Lefebure, of the royal engineers, with a detachment of the artificers, early in the morning of the 30th April, to repair to the bridge which connected the island of St. Julien with the Main and demolish it, for the purpose of preventing the Spaniards following and harassing the army during the retreat. The bridge was an old crazy structure of

² In the 'London Gazette,' 3rd to 6th June, 1797, the killed only are noticed.

stone consisting of nine arches. All were directed to work at the road-way of the centre arch, but to private William Rogers, at his particular request, was assigned the difficult and dangerous duty of dislodging the key stone. The ground was soon harrowed up, a gap made across the middle, several stones were removed from the pier-heads, and the bridge exhibited signs of instability. Nothing daunted, Rogers boldly stepped upon the crown of the arch, and after a few heavy blows with his pickaxe, scooped the stone from its bed. At once the arch gave way; and the others leaning towards it, cracked as though torn by an earthquake and fell beneath him. Rogers's situation was one of imminent peril, but with a fearlessness that was remarkable, he plunged from the crumbling bridge into the stream, and was fortunately preserved from any serious harm, whilst five of his comrades were crushed to death by the fall; four also were severely wounded; and all the rest, save corporal William Robinson, were injured.

Nor was this all. Rogers swam about the heap to afford help to those who were suffering and dying. It was yet dark, and the thick dust still rising from the fall, made the darkness denser. Groping, therefore, among the ruins, he found an individual who still had signs of life, struggling, ineffectually, to free himself from some massive fragments that entangled him. Rogers set to work to release the drowning man: this he quickly accomplished, and, swimming with his charge to the shore, the rescued turned out to be his own officer—Lieutenant Lefebure. The life of that gallant subaltern, however, was only prolonged to fall a sacrifice to his heroism on the walls of Matagorda in 1810. Rogers's exertions were not confined to his officer only, for several of his comrades who were precipitated into the water and were unable to swim, he saved, assisted by those of the party who had sustained but trivial injuries.

A desolating epidemic still raged in the Caribbee Islands and greatly diminished the numbers of the company. In November particularly, the climate was extremely hot and unhealthy and the deaths by fever considerable. During the year the casualties were, deaths, thirty-one, of which fifteen

occurred in November; sent home invalided, six; deserted, two; total, thirty-nine; leaving the company, of all ranks, only thirty-three strong at the end of the year.

At St. Domingo the great want of artificers for the service of the engineering department being severely felt, Captain McKerras, R.E., in February, represented the expediency of keeping up the company with negroes. The number of the military artificers then serving in the colony was nineteen of all ranks, a third of whom were constantly unfit for any kind of duty, suffering as they did from over exertion and frequent relapses of remitting fever. To Europeans the climate was "the most pernicious and abominable in the universe," and none but the strongest could at all bear up against its influences. To fill up the vacancies in the company, therefore, by drafts of mechanics from England, would have incurred a heavy outlay without reaping a commensurate return. Considerations like these prompted Captain McKerras to suggest the measure, and he was further influenced by the conviction, that, since civil labour could not be procured in the colony unless at an enormous expense, that of the slave would, after receiving instructions from the present climatized artificers of the company, be found of great advantage to St. Domingo, and a vast saving to the public. The slave artificer was to receive food, clothing, and barrack accommodation, but no pay. Whatever attention may have been paid to the proposal, certain it is, that the company was never recruited by blacks. This probably arose from the island having been abandoned in the autumn of 1798.³

The memorable mutinies in the fleet at Spithead at this

³ Sir Charles Pasley, in the prefatory notes to his work on 'Elementary Fortification,' vol. i., p. 4, writes of the inefficiency and misconduct of detachments sent on foreign service, and concludes his observations by saying, "I am told in the West Indies, it had actually been proposed to employ negroes as engineer soldiers." If the above is the recommendation Sir Charles alludes to, he has either been misinformed of the reasons for that proposal, or he has mistaken them; for the detachment was composed of good non-commissioned officers and well-qualified artificers from the Woolwich and Chatham companies; and in the discharge of their several duties, gave every satisfaction to their officers. The proposal was dictated by humanity, as well as with a view to the prospective advantage of the public, and in no respect originated in the misbehaviour or inefficiency of the men.

time were followed by the rising of some unprincipled men, who, as emissaries of revolt, traversed the country endeavouring by every device to shake the allegiance of the soldiery. Efforts of this kind were also attempted with the royal military artificers, particularly at the ports, but beyond a few desertions, without effect. Most of the companies publicly opposed these agencies; but the Plymouth company in an especial manner distinguished itself by its open and soldierlike activity against their disloyal exertions.

The document,⁴ printed by the company and widely circulated

⁴ A copy of the document is subjoined :—

Plymouth Lines, 21st May, 1797.
We, the
Non-commissioned Officers
Of the Company of Royal Military
Artificers and Labourers,
Stationed at Plymouth Lines,

Come forward at the unanimous request of the Company, to avow at this momentous crisis, our firm loyalty, attachment, and fidelity to our most gracious *Sovereign* and our *Country*, and solemnly declare our firm determination to maintain subordination and discipline to our officers, with whom we have every reason to be fully satisfied, and request they will accept these, our most grateful acknowledgments for their humane attention towards us, and beg they will let this our determination be made known to the *Right Honourable General Lord George Henry Lennox*, Governor and Commander-in-Chief in this district.

That, as we learn, there are men endeavouring to withdraw His Majesty's *soldiers* from the duty they owe to their *King* and *Country*, we are determined should any such proceedings appear amongst us, to take the earliest opportunity of checking the same; and, as a mark of our attachment to our most gracious *Sovereign* and glorious *Constitution*, we do hereby offer a reward of

Ten Guineas,

to any *soldier-artificer*, that will discover any person, or persons, offering them *money, seditious handbills*, or otherwise, with an intent to withdraw them from their duty, on conviction of the person, or persons, before a civil magistrate.

God save the King!

Witness our hands,

(Signed)	WM. BROWNE,	Sergeant-major.
	ROBT. WAREHAM,	} Sergeants.
	WM. BURGESS,	
	JAS. MOIR,	} Corporals.
	JNO. EVELIN,	
	WM. HUTTON,	
	WM. McBEATH,	} Lance-corporals.
	WM. COTTEY,	
	JOSH. WELLS,	
	WM. BEEB,	

through Devonshire, was sent by Major-General Mercer, captain of the company, to Lord Cornwallis the Master-General; who expressed very great satisfaction with the loyal sentiments it avowed, and highly approved of the spirit and zeal of the men in giving the declaration publicity at so opportune a moment.

Some delay occurring in extending the King's beneficence to the Ordnance corps with respect to the increase of pay, the royal artillery at Woolwich, impatient to obtain it, exhibited unmistakable symptoms of discontent and insubordination. "More pay; less drill!" were their constant complaints, and hundreds stood by their arms ready to use them in compelling attention to their claims. One night particularly there was much disturbance, and next morning about daybreak, the Commandant of the garrison, Colonel Farringdon, of the royal artillery, ordered the whole of the military artificers to proceed to the artillery barracks and barricade the rear entrances. Captain Holloway, R.E., complied; and whilst the men were effecting the service as quietly as circumstances would admit, they were discovered by the mutineers, who showered upon them sundry articles of barrack furniture; and then bursting open the doors, fell upon the party and forced them from the barricades. Colonel Farringdon, who was witnessing the progress of the work, felt the shock of the sortie, and at once ordered the company of artificers to be withdrawn to preserve them from further danger. In the course of the morning the Duke of York made his appearance, and on promising to give the claims of the regiment immediate consideration, the disaffected were appeased and returned to duty.

Already the subject of pay to the Ordnance corps had been under review, but the *éméute* at Woolwich hastened the decision upon it. It was clear that the various allowances—permanent, incidental, and temporary—were insufficient to answer the objects for which they were intended; and also, that the application of them from sundry causes was both intricate and difficult. It was therefore recommended to discontinue all extra allowances, except a small sum, annually, for defraying

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the expense incurred in altering clothing; and issuing a rate of pay to all ranks adequate for every purpose, which measure His Majesty approved in a warrant dated 25th May. A comparison of the military allowances of the artificers prior to the promulgation of the new warrant, and the pay sanctioned on 25th May, is subjoined:—

	Pay per diem before 25th May, 1797.		Extra a-day. ³	Pay per diem by Warrant of 25th May, 1797.	
	s.	d.		d.	s.
Sergeant-major	2	3	1	2	9½
Sergeant	1	9	1½	2	3½
Corporal	1	7	1½	2	0½
Artificer	0	9	1½	1	2½
Drummer	0	9	1½	1	2½
Labourer	0	6	2½	1	0½

In promulgating the augmentation of pay to the corps, Lord Cornwallis felt it his duty to accompany the pleasure of the King with an expression of his own sentiments; and accordingly, in the orders dated 31st May, issued on the 2nd of June, he thus wrote:—

“Marquis Cornwallis, Master-General of the Ordnance, feels himself happy in announcing to the corps of royal military artificers and labourers the increase which His Majesty has been graciously pleased to make to their pay, which puts it in their power to enjoy every comfort which a good soldier can reasonably desire.

“The Master-General takes this opportunity of expressing his satisfaction at the regular behaviour and good conduct which this corps has manifested, and trusts it is not in the power of the most artful traitor to seduce the soldiers of the royal military artificers and labourers from their loyalty and attachment to their King and country; and when he assures them he shall always take the greatest pleasure in rendering them a service, he is persuaded they will continue to prove themselves deserving of his good offices.”

³ The extras were allowed the men to provide them with bread, a pair of breeches once in two years, and a rosette; and to pay the expense of making up their gaiters, and converting their uniform coats, after a certain period, into jackets.

Scarcely had the mutinies at Portsmouth subsided, before a more formidable one appeared in the fleet at the Nore. Equitable concessions had already been made to the navy; but at the Nore these were not received with satisfaction. Other exorbitant demands were made by the Nore seamen, and legitimate authority was resisted even by force of arms. This bold menace then led the Government to compel unconditional submission; and the instigators of the mutiny, with Richard Parker at their head, suffered the extreme penalty of the law. During this alarming outbreak, the company of artificers in the Medway division were very zealous in the completion of various works to be employed against the mutineers, should the crisis arise to require them. The companies at the different ports were also on the alert and distributed to several posts of importance. A detachment of sixteen non-commissioned officers and men—withdrawn from Gravesend in April—were returned to that station in June. This detachment erected two batteries at Northfleet for four and two guns of heavy calibre, to fire into the 'Neptune,' 98, and 'Lancaster,' 64, lying off Greenhithe, should they attempt without proper orders to pass to the Nore. They also made such repairs as were necessary to the blockhouse and batteries at Gravesend, and also strengthened the fortifications and renewed the furnaces for heating shot red-hot at Tilbury Fort. Here also, before returning to Woolwich in August 1798, the detachment built a wooden river-wall at the Ferry-house.

This year the cocked hat was revived. It was an adaptation of the pinched-up Nivernois hat and the ample Ramilies. The flaps were edged with broad black binding instead of gold lace as formerly. The cockade and gold loop were retained; but the short red feather was displaced by an eight-inch length white heckle. At each of the shoots or angles of the hat was a rose-shaped ornament of gold lace. The hats of the sergeants and serjeant-majors were of equal fineness and edged with black silk lace, flowered; while those of the corporals, artificers, and drummers were much superior to the labourers. The latter did not wear roses. Alterations were also made in the

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Royal Military Attachments

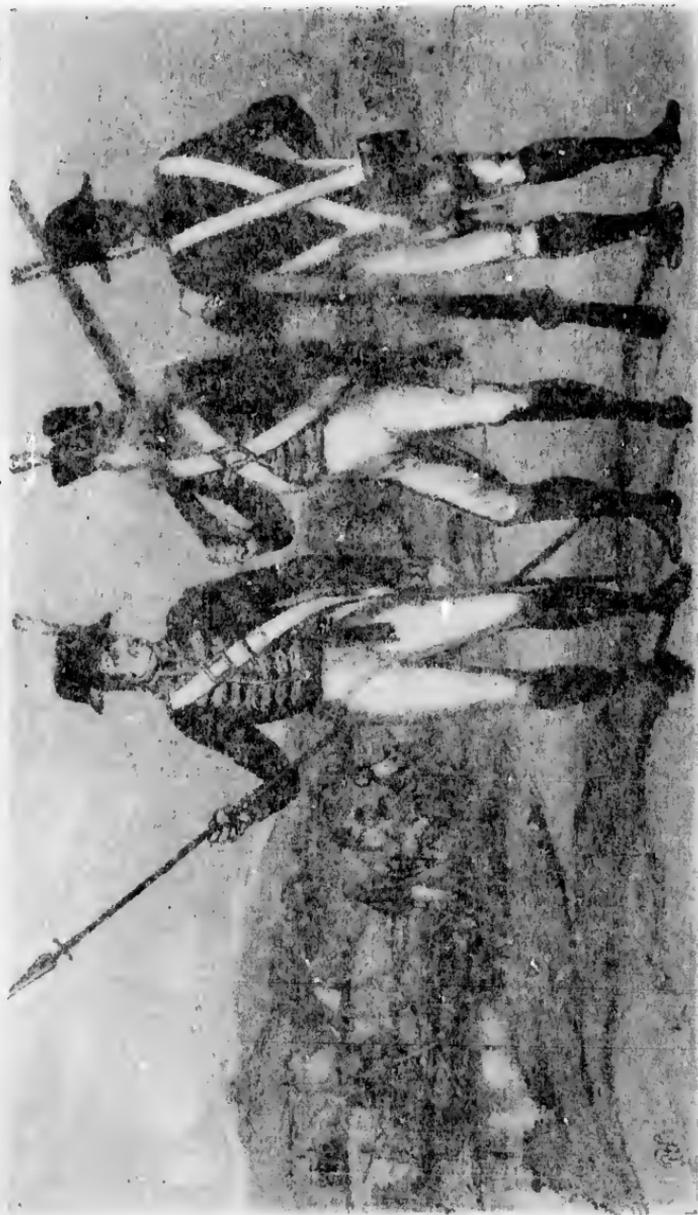


Illustration by M. J. Hill

Illustration by M. J. Hill

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dress, inasmuch as the coat, with its long skirts, was reduced to what was called a half-coat with short skirts. Lapels were abolished, and the broad lapel was succeeded by frogging. The decorations were scarlet for the first time, with the usual livery. *Chapeaux* were still in vogue; but the use of hair powder ceased. *Perukes* were now worn over the coatees of the ranks, on the same distinction. See Plate VIII.



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dress, inasmuch as the coatee, with its long skirts, was reduced to what was called a half-coat with short skirts. Lappels were abolished, and the laced looping was succeeded by frogging. The drummers wore scarlet for the first time, with the usual livery lace. Clubs were still in vogue; but the use of hair powder ceased. Sashes were now worn over the coatees of the ranks entitled to the distinction. See Plate VIII.

1798—1799.

Contribution of corps to the State—Detachment with expedition to maritime Flanders—Destruction of the Bruges canal—Battle near Ostend—Draft to West Indies—Capture of Surinam—St. Domingo evacuated—Expedition to Minorca—Conduct of detachment while serving there—Composition of detachments for foreign service—Parties to Sevenoaks and Harwich—Mission to Turkey—Its movements and services—Special detachment to Gibraltar to construct a cistern for the Navy—Detachment with the expedition to Holland—Its services—Origin of the Royal Staff Corps.

FRANCE, having but little occupation for her armies, turned her attention to England and matured arrangements on a scale of surpassing magnitude for its invasion. In this country all ranks and orders of men were affected by the threat; and such was the spirit of military ardour it induced, that corps of volunteers were rapidly embodied to meet the exigency of the times. Throughout the kingdom the wealthy contributed largely to assist the measures for defence; and the army, influenced by the popular feeling, joined in the demonstration and tendered subscriptions to the Government to aid in the realization of its purposes. The corps of military artificers also, prompted as well by a desire to relieve the general burden of the nation as from gratitude to the King for the recent addition to their pay, gave, in February, a contribution of three days' pay to the Treasury, to be applied as should be considered best for the defence of the state.¹ In acknowledging the letter conveying

¹ The following is a copy of the letter of the Woolwich company, offering the contribution above alluded to:—

Sir,

Woolwich, 12th February, 1798.

At a time when the exigencies of the State appear to require the assistance of every good subject to alleviate the general burden our fellow-subjects bear, it is the unanimous wish of the non-commissioned officers,

the gift, General Morse, the Colonel-Commandant, writes under date of 13th February, "their loyal and laudable offer has afforded me great satisfaction."

An expedition under Major-General Coote was fitted out in May, at Margate, for service against maritime Flanders. The design of the enterprise was to destroy the works and sluices of the Bruges canal near Ostend, and to cripple the internal navigation. To effect these services a detachment of the corps, experienced in mining, from the Chatham and Plymouth companies,² under Lieutenant Brownrigg, royal engineers, was attached to the force and sailed from Margate on the 14th May on board H. M. S. 'Expedition,' in which was General Coote himself.

The force disembarked in three divisions on the 19th May, and the artificers, who had been instructed on board ship by

artificers, and labourers of the corps of Royal Military Artificers, &c., at this place, to manifest the gratitude they owe their King and country for the late increase of pay, as well as their attachment to His Majesty's person and government, and their zeal for the service in which the country is engaged, by offering a contribution of three days' pay, to be applied as may be thought best to the defence of the State.

We request you will be pleased to lay this our wish before the Colonel Commandant of the corps for his approbation.

Signed on behalf of the artificers and labourers, &c., of the corps of Royal Military Artificers, &c., at Woolwich, and with their unanimous consent.

THOS. FORTUNE,	Sergeant-major.*
JAMES DOUGLAS,	} Sergeants.
JOHN LEVICK,	
EDWARD WATSON,	} Corporals.
ROBT. HUTCHINSON,	
JOHN YOUNG,	} Lance-Corporals.
BENJ. ROBERTS,	
WILLIAM BAIN,	
HUGH KINNAIRD,	

Captain CHARLES HOLLOWAY,
Commanding the Royal Military
Artificers, &c., at Woolwich.

* The greater part of the detachment had been specially employed in mining services at Dover.

² Enlisted as a matross in July, 1761, in the royal artillery, and was pensioned from that regiment in October, 1783. On May 1, 1795, he enlisted into the Royal Military Artificers, at the age of 52! and died at Canterbury, August 10, 1799. Was known as the author of a small work called "The Artillerist's Companion," published by Egerton in 1786.

Lieutenant Brownrigg in the duties required of them, accompanied the first division, provided with intrenching tools, wooden petards, &c. On landing, the troops took possession of the forts that protected the sluices, in order that the intended work of destruction might be carried on successfully. The artificers, with a company from the 23rd regiment and a detachment of royal artillery, commenced the appointed work, and in about four hours laid the locks, gates, and sluices in ruins, burned several gun-boats, and effected an explosion in the basin of the canal that almost demolished it, and drained it dry. In this service the exertions and efficiency of the party may be inferred from the praises bestowed by General Coote upon Lieutenant Brownrigg.³

Having thus accomplished the object of the expedition the troops were ordered to re-embark. At the appointed hour the weather had become boisterous, and the violence of the surf rendered it impracticable to reach the shipping. A position was, therefore, taken up on the sand-hills before Ostend, which was strengthened in the night by the military artificers with intrenchments suitable to the occasion; but on the 20th, the British, hemmed in by a much stronger force, were compelled, after an obstinate contest, to surrender themselves prisoners of war. The casualties in the detachment were—killed, two; wounded, five; and thirteen, including the wounded, taken prisoners.⁴ The survivors returned to England, and rejoined their companies in March, 1799.

In the West Indies the Caribbean company was reduced at the end of the previous year by fever to thirty-three men, who were distributed in ones and twos through different districts of the conquered islands. None could be spared for active duty without detriment to other services equally important; and

³ "Lieutenant Brownrigg, R.E., in about four hours, made all his arrangements, and completely destroyed the sluices; his mines having, in every particular, the desired effect, and the object of the expedition thereby attained. * * * In Lieutenant Brownrigg, I found infinite ability and resource: his zeal and attention were eminently conspicuous."—*London Gazette*, 17 to 21 July, 1798.

⁴ "*London Gazette*," 17 to 21 July, 1798.

several expeditions were, therefore, undertaken without a military artificer accompanying them. In some measure to supply the numerous vacancies that had occurred, one corporal and twenty-nine privates embarked in February on board the 'Union' transport under Lieutenant T. R. l'Ans, R.E.; and on their arrival the company was increased to fifty-seven non-commissioned officers and men.

On the 20th August, the expedition under Lieut.-General Trigge, which included three corporals and eleven men of Lieutenant-Colonel Shipley's company, captured the Dutch settlement of Surinam, which surrendered without resistance. One artificer, John Nancarrow, mason, was accidentally drowned on this service; and this was the only casualty that occurred to the expedition.

At St. Domingo the detachment fast wasted away on account of the arduous services of the island and the diseases of the climate; and on the evacuation of the place in September only two of the company, with Lieutenant H. Morshead, of the corps,⁵ survived to embark with the troops. Of the original company, which numbered forty-seven on its arrival in May, 1796, thirty-six died, seven were invalided, two deserted, and the remaining two⁶ were sent to do duty at Jamaica.

In November three sergeants, four corporals, fifty-five artificers, three labourers, and one drummer, total, sixty-six, formed from the party employed in Portugal, and from artificers of the companies at Gibraltar, were sent with the force under General Charles Stuart against Minorca. On landing, the Spaniards, without offering any resistance, retired into the town of Citadella, which possessed a sort of fortified *enceinte*. A battery for a few field-pieces was constructed against it in the night by the

⁵ This officer was "ordered to the West Indies with two companies of the royal military artificers: himself and two of the privates only escaped the baleful effects of the climate of St. Domingo."—United Service Journal, i., 1832, p. 142.

⁶ These were privates Adam Cowan and John Westo. The former was at once appointed sergeant and conductor of stores to Commissary Meek of the Ordnance. After delivering over the stores of the department at Jamaica to a sergeant of Dutch emigrant artillery, he returned to England, and was discharged with a pension of 2s. 0½d. a-day in April, 1816.

artificers under Captain D'Arcy, royal engineers, and after firing a few shots the place surrendered on the 15th November. Soon after the capitulation, the detachment was very much dispersed through the island, employed on various defensive works; and on Sir Charles Stuart quitting it, the military artificers remained to restore the fortifications. In January, 1801, the detachment was denominated the Minorca company; but in August, 1802, it was withdrawn, and being disbanded, the men were distributed among the companies of the corps at home and at Gibraltar.

During their stay in Minorca it seems that their conduct was not above reproach, nor their services on the works as useful as desired. Sir Charles Pasley has recorded that they were found to be very inefficient, and ascribes it to their having been selected for the expedition from the Gibraltar companies, which, from circumstances, were for a number of years the worst in the corps.⁷ Here, however, it is proper to add, that their inefficiency did not arise from their want of ability and skill as mechanics,⁸ but from their general irregular behaviour occasioned chiefly by intemperance. Writing of the Gibraltar companies, Sir Augustus de Butts, in a letter dated 11th July, 1848, says:—"I cannot speak so confidently of their general conduct, but on the works, under the eye of their officers, they behaved well, and were very good artificers, particularly the non-commissioned officers."

On the composition of detachments for foreign duty, Sir Charles Pasley has made some observations which may not inappropriately be introduced here. "When any expedition," he writes, "was to be undertaken, the number of royal military artificers required were in all cases, selected by small detach-

⁷ Pasley's 'Elementary Fortification.' Notes to Preface, p. iv., vol. i.

⁸ Several individual proofs could be adduced but two must suffice. Private Evan Roberts, a talented mason, was detached to Malta during the blockade of Valetta, and rendered good service as a foreman under Captain Gordon, R.E. On the formation of the Maltese artificers, he was appointed sergeant in one of the companies to prevent his removal to another station: and Sergeant-major James Shirres, formerly of the Gibraltar companies, from his correct conduct and merit as an artificer, was appointed overseer of works in the royal engineer department at Plymouth, in December, 1804.

ments out of the stationary companies; and as the commanding engineers at the several fixed stations were naturally averse to parting with their best men, the detachments thus formed for field service, were generally composed of the stupidest and least trustworthy non-commissioned officers, and of the most ignorant, profligate, and abandoned of the privates." ⁹ This was, it would appear, the general rule, but exceptions may fairly be taken in favour of the detachments forwarded to Toulon, St. Domingo, Halifax, and Ostend, as well as to some of the reinforcements sent to the Caribbee islands. These detachments were not formed of bad men weeded from the different companies, but of non-commissioned officers and privates whose qualifications and utility as mechanics were unquestionable, and whose conduct was approved.

In April and May a corporal and party of carpenters of the Woolwich company were detached to Sevenoaks, and there built temporary wooden barracks for a company of artillery; a second party was employed in repairing Falmouth Castle from May to November; and in the latter month two carpenters and two masons, all privates, were sent to superintend workmen in the erection of fortifications and temporary defences at different places from Chelmsford to Harwich, in which duty they continued until April 1800.

Napoleon, by a series of successes, had gained a firm footing in Egypt, and the subjugation of India was contemplated by the French Directory. As well to thwart the intention, as to stimulate the Turks, the British Government determined to send a military mission to the dominions of the Sultan, to cooperate with the Ottoman army in their hostile movements against the French. The mission being formed of artillery, engineers, and artificers, in all seventy-six persons, under Brigadier-General Koehler, of the royal artillery, embarked in the 'New Adventure' transport in February, but did not sail from England till April. The military artificers, selected by Major Holloway, royal engineers, from the Woolwich company, numbered one sergeant—Edward Watson—two corporals, nine-

⁹ Pasley's 'Elementary Fortification.' Notes to Preface, p. iv. vol. i.

teen artificers, and two labourers; and as Major Holloway had proceeded overland to Constantinople,¹⁰ were consequently placed under the orders of Captain Laey, R.E. On the near approach of the 'Adventure' to Gibraltar she was partially wrecked. A quantity of stores and some pontoons were thrown overboard, and private Philip Patterson, whilst exerting himself in casting away the stores, was washed off the deck by a wave into the sea and drowned. On the 14th June the transport arrived at Constantinople, and Major Holloway assumed the command of the artificers.

On the removal of the mission to Levant Chiflick, five of the detachment were detained with the officers at Buyukdere, and the remainder were occupied in various services at the former place and Kaithana, where they erected a furnace for heating shot. Shortly afterwards experiments with red-hot shot were carried on in the presence of the Sultan, who, at the close of the practice, having reviewed the mission, presented each person with a gift suitable to his rank. Whilst building the furnace, the artificers, exposed to marsh miasma, were early attacked with fever. At first the cases were slight, but relapses following with malignity, three of the detachment died. To preserve the mission, therefore, it was removed in October to the Dardanelles. Previously to the embarkation, the artificers constructed a handsome model of the upper castle at Chemekalleh, on the Asiatic side of the Dardanelles, with Major Holloway's improvements, which model was presented by that officer to Hadgi Ibrahim Effendi, Secretary at War for the Ot-

¹⁰ Brigadier-General Koehler, Major Holloway, and six other officers and gentlemen proceeded by the overland route to Constantinople. Three of the detachment accompanied them—privates Joseph Comfort, Jonathan Lewsey, and David Waddell. "Their journey in the outset," says Dr. Wittman, in his 'Travels in Turkey,' &c., p. 6, "had been attended by uncommon severities, such, however, as might have been expected from a season more rigorous than any which had been experienced for many years. In passing over the continent, they had, at the entrance of the Elbe, been shipwrecked among the shoals of ice; and to relieve themselves from the perilous situation, had been under the necessity of passing over the ice to the extent of two miles, to gain the shore; by this effort they were providentially saved." They now prosecuted their journey to Constantinople, where they arrived in March, 1799.

toman Porte. Subsequently, at the Dardanelles,¹¹ they were employed in effecting various alterations and additions to the castle until the 2nd December, when the mission was suddenly recalled to Constantinople; and landing on the 4th, awaited orders to proceed on more active service.¹²

At the instance of the Admiralty, a detachment of one sergeant, one corporal, and forty privates, chiefly masons and bricklayers, able-bodied men and good artificers, under Lieutenant C. Mann, royal engineers, sailed for Gibraltar in May on board the 'Fortitude,' and landed there the following month. The party was specially employed in constructing a cistern for naval purposes, under the military foremanship of sergeant Joseph Woodhead; and in October, 1800, it was incorporated with the Gibraltar companies.

England and Russia having concluded a treaty to send an army to Holland to reinstate the Stadtholder, a corps of 12,000 men, under Sir Ralph Abercrombie, embarked for the Helder and landed on the 27th August. Attached to this expedition was a party of military artificers, consisting of one sergeant, two corporals, thirty-five artificers—seventeen of whom were carpenters—and one drummer, commanded by Lieutenant-Colonel Hay, R.E. The detachment embarked on board the 'Amphitrite,' and disembarking with the second division, were present in the action of that day.

¹¹ While here, sergeant Watson of the artificers, in preparing money for the payment of the mission in the presence of a Turkish marine, quitted the room for a moment, leaving the money on the table. "On his return," writes Dr. Wittman, "the marine had disappeared with 120 piastres, about 9*l.* English. Having described the person of the delinquent to the Captain Pacha, inquiries were at once commenced to detect the thief. On the second day after, the marine confessed his guilt to General Koehler, and begged his influence with the Captain Pacha to save his life. The General did so, but several days elapsed before the affair was disposed of. During the interval, the General, anxious to prevent the culprit being strangled, expressed some doubts of the culprit's identity; but in reply to this, the Pacha very handsomely declared his full conviction that the marine had taken the money, as he was certain an Englishman would not tell an untruth."—Wittman's Travels in Turkey, Asia Minor, &c., p. 65.

¹² The above particulars are chiefly taken from Dr. Wittman's 'Travels in Turkey,' &c.

After forming the engineer park near the Helder, about ten men were left to repair the fort; and the remainder, divided into brigades of four to each brigade, followed the troops in their forward movement in charge of the intrenching equipment of the expedition, which was conveyed in waggons. Early in September, the detachment constructed several batteries for guns and mortars to defend the post at Zuyp; as also, subsequently, at Hoorn and Egmont-op-Zee; and to facilitate the march of the army to the latter place, they assisted in the formation of three flying bridges over canals that intersected the route. In the retreat, they were continually employed in throwing small bridges across the canals by means of planking, felled trees, and other chance materials. At Alkmaer they constructed several defensive works; and on retiring from thence, where three roads met, they raised, in an incredibly short time, a mound of earth about twelve feet high, across the junction, with the view of impeding the enemy in their pursuit of the British. None of the military artificers were killed or wounded on this service. On the evacuation of Holland in November the detachment rejoined the companies.

Here, perhaps, it would be proper to allude, in a general remark, to the practice of providing detachments for foreign service. It will already have been observed, that whenever any expedition was undertaken, resort was invariably had to the royal military artificers for a selection of men to accompany it, suitable to the work upon which it was contemplated they would be employed; but the numbers furnished were always insufficient for the purpose, and no representations or remonstrances could avail in altering a custom, which, from causes not easily surmised, seems to have been pertinaciously persevered in.

This remark is fully borne out by the statement of a highly distinguished officer;¹³ and is moreover corroborated by the fact, that about this time, the particular attention of the Commander-in-Chief was drawn to the subject, without, however, accomplishing what the interests of the service greatly needed. It is

¹³ Sir John Jones, in his 'Sieges,' vol. ii., note 38, p. 389, 2nd edit.

said, that when the Duke of York was preparing his expedition for Holland, he demanded efficient assistance from the royal engineers and royal military artificers, which, for some reason, the Ordnance authorities reluctantly met with an inadequate provision. Annoyed by the limited number tendered, his Royal Highness determined to establish a corps competent to discharge the duties usually devolving upon the royal engineers, "which should be absolutely at the disposal of the Horse Guards; and as his Royal Highness held office in times when the thoughts of statesmen were bent rather to render the means of the country's defence complete, and to aid other nations in opposing the aggressions of an arrogant and unscrupulous power, than to effect savings in the public expenditure, he found no difficulty in consummating his wishes, and hence arose the royal staff corps."¹⁴

¹⁴ Gleig's 'Military History,' xxxvii., p. 287.

1800.

Mortality in the West Indies—Blockade of Malta—Capture of a transport on passage from Nova Scotia—Movements and services of detachments in Turkey; attacked with fever—Anecdote of private Thomas Taylor at Constantinople—Cruise of expedition to Cadiz—Attack on the city abandoned—Subsequent movements of the expedition; Malta; and re-embarkation for Egypt—Statistics of companies at Gibraltar.

From the diminished state of the company in the West Indies, and the impracticability of filling up the constantly-recurring vacancies by drafts from England, authority was given to the Commanding Engineer in the Leeward Islands, to obtain on the spot, men for the company properly qualified and climatized, either by enlistment or transfer from other corps. This led to an immediate incorporation, in April, of one sergeant, twenty privates, and two drummers, from the 43rd and other regiments; and though the plan was attended with considerable success, the still greater mortality from fever always kept the company greatly below its establishment.

In addition to the repeated allusion made to the military artificers in the West Indies, the following statistics of mortality, as far as the same can now be ascertained, affording a tolerably correct idea of the unhealthiness of the climate, and the sufferings to which the men must have been subjected, may here not be misplaced.

	Number of Deaths.
1793	17
1794	65
1795	19
1796	70
1797	37
1798	12
1799	10
1800	9
	—
Total	239

The aggregate number of artificers and labourers sent there from year to year, including those transferred from other corps and enlisted on the spot, amounted to about 350. More than two-thirds of the number, therefore, fell victims to the war and the climate! Many also were sent home invalided, several of whom died on the passage, or soon after landing in England. At the close of 1800, the strength of the company did not exceed seventy-eight of all ranks, twenty-two being required to complete it.

In February, private Evan Roberts, an active and intelligent artificer, was chosen from the Minorea company for service at the blockade of La Valetta, and arrived at Malta before the end of the month. From that time until the surrender of the fortress on the 15th of September, he served in the department with zeal and efficiency under Captain Gordon, royal engineers; and continued, though a private, to discharge the duties of an overseer of works until the formation, in 1806, of the first company of Maltese artificers, to which he was transferred as sergeant.

At Halifax, Nova Scotia, three invalids embarked on board the 'Diamond' transport on the 15th of September, with several invalids of Captain R. Wright's company of royal artillery, and sailed with the fleet on the 19th of that month. Previously to weighing anchor, private Walter Allan was accidentally drowned in the harbour by falling overboard; and the other two, privates Ninian Kerr and Samuel Milman, were captured by the French some time in October. But all efforts to ascertain where, or how, the enemy effected the seizure

of the vessel with her crew and passengers, have proved unsuccessful.

Soon after the removal of the mission from the Dardanelles to Constantinople, Captain Lacy and Lieutenant Fletcher, R.E., were detached to join the Turkish army in Syria. With these officers two military artificers were also sent, one of whom returned from Cyprus with the former officer in April, and the other reached the mission again, some two months later, with Captain Lacy. On the 13th of June, the artificers sailed from Constantinople¹ with the mission, and landed at Jaffa on the 2nd of July, where they encamped with the Turkish army and commenced, under the foremanship of sergeant E. Watson, the improvements suggested by Major Holloway in the fortifications of that port. These, however, though far advanced, were ultimately set aside, and the artificers were appointed to erect several new works in front of Jaffa; which, in consequence of the French being in great force at Catieh, were considered to be more essential than the proposed alterations to the defences of the town. With great ceremony, on the 30th of August, the first stone of the intended new bastion was laid by the Grand Vizier; and shortly after, his Highness having reviewed the mission, marked his approbation of their appearance by a present to each non-commissioned officer and soldier. In December the fever, which had been alarmingly rife in the Turkish camp, attacked the mission. Its first victim was a military artificer; and before the end of the month, though the cases of mortality were few, the mission had to lament the loss by death, of their commander, General Koehler, R.A., and his lady. Major Holloway, royal engineers, then assumed the command, and at the close of the year, a change of cantonment

¹ Some time before leaving the city, private Thomas Taylor, royal military artificers, was, without any provocation, assaulted by a Turk, who attempted to stab him with his yatikan. On a report of this outrage being made to the Capitan Pacha, to whose retinue the Turk belonged, he came to a resolution to have him decapitated. By the mediation and entreaties of Lord Elgin, a mitigation of the punishment ensued, and the Turk, after receiving fifty strokes of the bastinado on the soles of his feet, was sentenced to twenty years' imprisonment in the college of Pera, to learn the Arabic language.—Dr. Wittman's Turkey, p. 93.

having re-established the health of the men, the works at the new bastion progressed vigorously.²

In April, a detachment of one sergeant, two corporals, and thirty artificers, under Captain Bryce, R.E., accompanied the expedition under Sir Ralph Abercrombie, for employment on secret service. The men were selected from the different home companies, and all were "sufficiently qualified in their respective trades, as well as able-bodied." Proceeding to Portsmouth, they remained inactive for about six weeks; and, at length embarking on board the 'Asia' transport, sailed in June with the expedition. In the Channel off Portland, the fleet encountered a gale, and was driven back to Portsmouth; but on a fair wind springing up, got under weigh again, and in due time ran up the Tagus. From thence the 'Asia' proceeded to Gibraltar, lay there about a month, and sailing for Minorca, soon reached that island and landed the artificers; where, for about seven weeks, they were employed in the construction of temporary barracks, &c., for the troops put on shore. At the expiration of this period, the artificers returned to the 'Asia' and retracing the route to Gibraltar, anchored for a fortnight. There they were reinforced by one sergeant, one corporal, and five miners of the companies at the fortress; and at the appointed hour, the 'Asia,' again weighing anchor for Tetuan Bay, took water there and sailed with the fleet for Cadiz.

When off Cadiz, the artificers were told off into two brigades, and six of the boldest and most expert men were selected to land with the first division, and the remainder with the second. On the morning of the day in which the attempt was to be made, the artificers, as a preliminary measure, removed all the trenching tools and engineers' stores into the launches, and then took their places in the boats, provided with adzes, pole-axes, and miners' tools for removing impediments, &c. A long interval of breathless suspense followed, in which the seamen rested impatiently on their oars; but, as an epidemic raged at the time in the city, the landing was countermanded,

² Particulars for the most part obtained from Wittman's 'Travels in Turkey,' &c.

and the men and stores being reshipped, the meditated attack upon Cadiz was relinquished. The 'Asia,' consequently, sailed for Tetuan Bay, where, exposed to a storm, she was compelled to cut her cable and run for Cape Spartel. There she anchored for four days, and on the wind shifting again made for the bay.³

At this rendezvous the fleet was divided into three divisions, and the artificers accompanied that under Sir Ralph Abercrombie to Malta. There they were landed; and after a stay of about seven weeks, during which they were employed preparing platforms and fascines, re-embarked on the 17th of December, seven on board the 'Ajax,' 74, Captain the Hon. Sir Alexander Cochrane, and the remainder on board the 'Asia' transport. Hitherto the service of the expedition had been expended in a series of cruises or reconnaissances alike harassing and wearying, but at length, a glimpse of approaching activity burst upon the armament. Soon the enterprise commenced, and terminated with glory to Britain by rescuing an inoffensive nation from the eagle grasp of an oppressive republic.

Ever since the incorporation of the Gibraltar companies with the corps, the power to recruit for those companies was vested in the commanding royal engineer at the fortress, and, so far, was exercised with tolerable success. This permission was the more necessary, as, from the frequent calls made upon the home companies to detach parties for the service of particular expeditions, it was impossible, so to attend to those companies as to keep them numerically complete. The effect of that power was, that from the date of the incorporation to the end of 1800, ninety-six artificers had either been enlisted or received as transfers from regiments in the garrison; but from the unavoidable exposure of the men to the sun in carrying on their working duties, and the general unhealthiness of the climate, the casualties in the companies far exceeded the number that

³ The seven non-commissioned officers and men embarked at Gibraltar to join the expedition, returned to their companies at the fortress immediately after the failure at Cadiz.

joined. Of the increase and decrease in the companies for the above period, the following is an accurate exposition:—

Strength at the incorporation, of all ranks	255
Joined from employment at the naval reservoir . . .	36
Enlisted or transferred from regiments in garrison . .	96

Total	387
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The decrease was:—

Deaths	45
Discharges	31
Invalided	38
Desertions	4

118

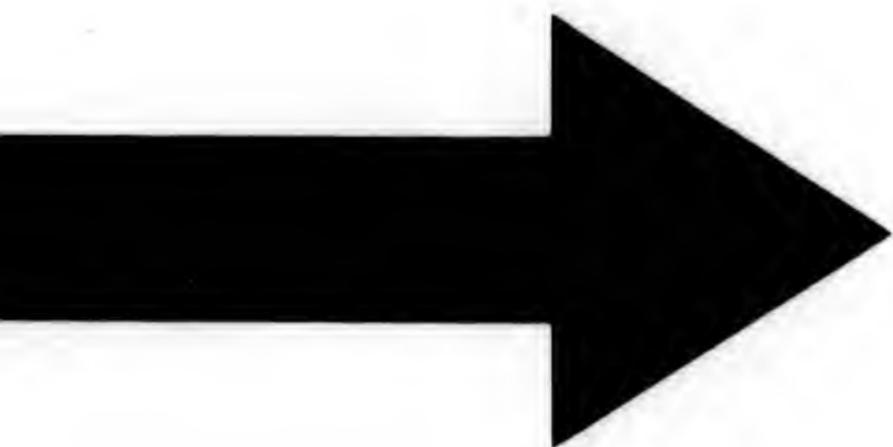
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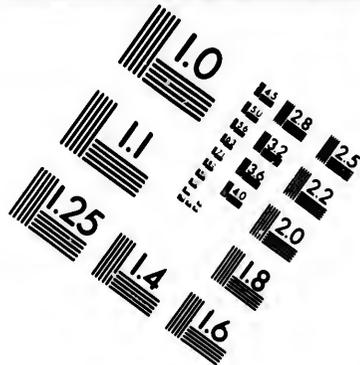
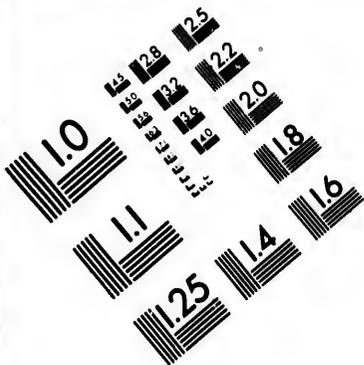
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Establishment	275
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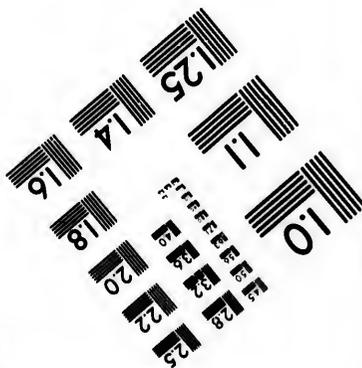
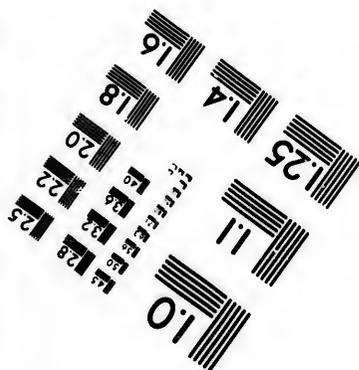
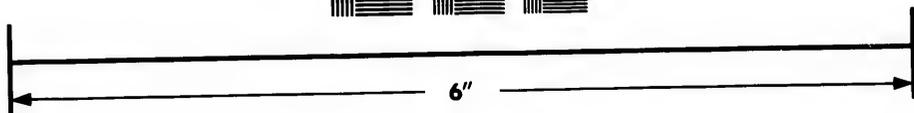
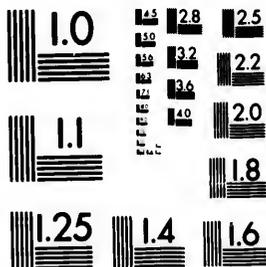
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1801—1802.

Distribution of corps—Dispersion of West India company—Statistics—Detachment to St. Marcou—Capture of Danish settlements—Casualties in West India company—Compared with mortality in Gibraltar companies—Working dress—Services, &c., of detachment at Gibraltar—Conduct of Sergeant W. Shirres—Concession to the companies by the Duke of Kent—Cocked hat superseded by the chaco.

On the 1st January the corps was distributed in companies and detachments as follows. The names of the officers in command and the senior non-commissioned officers at the several stations are also added:—

		Sergeant-majors.	
Woolwich	Lieut.-Col. B. Fisher . .	John Eaves.	
Chatham	Lieut.-Col. Thos. Nepean	John Palmer.	
Portsmouth	} Col. John Eveleigh . .	James Smith.	
Gosport		Alexander Spence.	
Plymouth	Maj.-Gen. Alex. Mereer .	William Browne.	
Jersey	Capt. John Humfrey . .	Anthony Haig.	
Guernsey	Lieut.-Col. J. Mackean.	Andrew Gray.	
Dover			
Gibraltar	Lieut.- Col. Wm. Fyera .	Joseph Makin.	
Minorca	Capt. Robert D'Arej . .	Sergeant Jas. Shirres, <i>Foreman of Carpenters.</i>	
Nova Scotia	Capt. Wm. Fenwick . .	Sergeant John Catto, <i>Foreman of Masons.</i>	
West Indies	Lieut.-Col. Chas. Shipley .	Serg.-Maj. Matthew Hoey.	
Egyptian Expedition	Capt. Alex. Bryce . .	Sergeant John McArthur,	
Jaffa, with the Otto-	} Major C. Holloway . .	<i>Master Smith,</i>	
man army		Sergeant Edward Watson,	
		<i>Master Carpenter.</i>	

The head-quarters of the West India company were at Martinique, from which non-commissioned officers and men were detached to St. Lucia, St. Vincent's, St. Kitt's, St. Pierre's, the Saintes, Surinam, and Barbadoes, for the purpose of acting

as overseers on the works or for employment on particular services.

The establishment of the corps was 975; but wanting 232 to complete, its strength only amounted to 743 of all ranks. Of this number 403 were abroad and 340 at home.

Early in the year a small party of one sergeant, and seven artificers from the Portsmouth and Gosport companies were sent to St. Marcou, an island on the coast of France, seven miles east of Cape la Hogue, to repair the fortifications; and having accomplished the service returned to their companies in November.

To the expedition which proceeded against the Danish settlements in March, under the command of Lieut.-General Trigge, were attached one sergeant-major, two corporals, and twenty privates of the military artificers, who were present at the capture of the islands of St. Bartholomew, St. Martin, St. Thomas, St. John, and Santa Croix.

The loss in the West India company by fever and other diseases during the year amounted to twenty, whose vacancies were immediately filled up by transfers from the line.

In May the working dress consisted of a blue cloth jacket with skirts, two serge waistcoats with sleeves, two pairs of blue serge pantaloons, a black round hat, and a pair of half black gaiters. One of the waistcoats and a pair of pantaloons formed the second working dress. The new jacket was made of stouter and better cloth than formerly; sleeves were added to the serge waistcoats, and the second pair of pantaloons were substituted for the canvas ones. These improvements were considered equivalent to a linen shirt, a pair of stockings, and a canvas jacket previously supplied with the working suit, but which, from this year, ceased to be issued to the corps.

At the opening of the year the military artificers with the British mission to Turkey, reduced to fifteen men, were occupied in the erection of the new bastion at Jaffa, which was finished and the guns placed on the platforms with great pomp on the 27th January. Of the detachment with the mission, two were styled labourers, from their not having been promoted to

the rank of artificers ; and they, when not immediately occupied on the works, acted in the capacity of servants to Major Holloway. One of these labourers when out one afternoon some distance from Jaffa, exercising the Major's horses, was attacked by a party of Arabs on a predatory excursion, by whose fire the Major's horse was killed, and the bătman wounded with balls and slugs in nine different places. The servant of Major Hope, R.A. was also in the assault ; and by great exertion succeeded in bearing his comrade back to the camp. Dr. Wittman, of the mission, with celerity equal to his skill, extracted the missiles and the sufferer speedily recovered.¹

On the 2nd February, Captain Lacy, royal engineers, was despatched to El Arish to collect military information, accompanied by a private of the artificers who early fell a sacrifice to the plague that prevailed there. On the 25th of that month, the Ottoman army commenced its march to Grand Cairo, the British mission being attached to the body guard of his Highness the Vizier, mounted on fine horses superbly caparisoned, and attended by Arabs. Passing through Ashdod, the army encamped for a while at Gaza, where the military artificers were separated into three parties, and attached to the divisions respectively commanded by the Grand Vizier, Mahomed Pacha, and Taher Pacha ; but it is difficult to record with satisfactory distinctness, the particular services in which they subsequently participated. On the 28th March the army entered the Desert at Kahnyounes, and traversing that arid and inhospitable region for about 150 miles, subjected to occasional deprivation of food and water, and exposed to sultry heats, infectious diseases, and danger, reached Salahieh on the 27th April, after a tedious and harassing march of thirty-two days. Two of the military artificers died in the Desert ; and the survivors, who were present at the capture of Salahieh and Belbeis, and in the action near

¹ Either private Jonathan Lewsey or private David Waddell, both of whom acted as servants to Major Holloway, R.E. The former was a powerful man, and remarkable from the circumstance of his having *four thumbs* ! two on each hand in addition to the proper complement of fingers. On the breaking up of the mission at Grand Cairo, these privates returned to England with that officer by the overland route.

the village of Elhanka, entered Cairo on the 11th July. There they were employed during the remainder of the year, in renewing the bridge of boats across the Nile constructed by the French to preserve a communication with Gizeh, and also in repairing the fortifications of the city, until the 19th February, 1802, when they quitted for Rosetta. From this town they were removed to Alexandria, and afterwards to Malta, where, finally embarking for England, they arrived at different periods in the fall of 1802 and spring of 1803.² The strength of the detachment on joining the Turkish mission, was twenty-four of all ranks; eleven only returned! Of the casualties eleven died of fever or the plague, and two were drowned accidentally. "After a series of painful, harassing, and critical events," says the journalist, "the labours of the mission closed; and the patience, forbearance, and circumspection of the individuals engaged in this long and perilous service, were manifested on a variety of trying occasions, which required all the energy inherent in the British military character."³

Meanwhile the detachment of the corps with the force under the command of Sir Ralph Abercrombie reached Marmorice Bay; and with the exception of the party on board the 'Ajax': landed, and prepared a shipload of fascines and gabions to be used in the intended enterprise. Five of the 'Ajax' men were employed in different repairs to the vessel; and the other two, assisted by a corporal of the 44th regiment, made an elegant double couch of mahogany covered with various beautifully-marked skins from Rhodes, for the Turkish General Mustapha, which was presented to him by Captain the Hon.

* Sergeant Edwai Watson, who enlisted into the artillery as a nutross, January 28, 1775, and joined the corps at Woolwich, March 1, 1792, was the senior non-commissioned officer with the mission; and in consideration of his zeal, ability, and uniform exemplary conduct, as well in discharge of his military duties, as in the executive superintendence of the several works undertaken by Major Holloway, he was promoted, on his arrival in England, to be sergeant-major of the Woolwich company. On December 1, 1810, he was discharged. For similar reasons corporal David Pollock was advanced to the rank of sergeant, and appointed master-smith.

³ Wittman's 'Turkey,' p. 395.

Alexander Cochrane, R.N. On the 17th February, the fleet set sail for Egypt, and running into Aboukir Bay on the 1st March, the troops landed on the 7th, and then followed a display of invincible ardour and bravery on the part of the British, that checked France in her career of success, and turned all her glorious Egyptian conquests into painful disasters and capitulations.

With the first division were landed the seven military artificers of the 'Ajax,' who were present in the action of that morning; and eight hours afterwards commenced to trace the necessary works for besieging Aboukir Castle. Next day the remainder of the detachment landed from the 'Asia' transport, and dispersed in small parties of about four each to the several brigades of the army, advanced to Alexandria. Under the direction of their officers, the 'Ajax' artificers superintended the construction of batteries for eleven guns and three mortars in front of Aboukir, laying all the platforms themselves, and restoring, when damaged by the enemy's fire, the cheeks of the embrasures which were formed by a double row of sand-bags backed or strengthened by a row of casks filled with earth, a plan suggested by Major M'Kerras, royal engineers, previously to his being killed; but which was not again resorted to, during the subsequent operations of the campaign. On the 19th March the castle surrendered.

On the heights of Alexandria, the artificers with the column under Sir Ralph Abercrombie, superintended the erection of batteries and redoubts of sand-bags, fascines, and gabions, which formed a strong line of defence from the sea to Lake Maedic. The Aboukir party joining on the 20th, also assisted in the works until their completion. Unable, from being unarmed, to take an active part in the battle of Alexandria on the 21st March, they occupied themselves in the essential duty of carrying shot, shell, and ammunition to the artillery and the troops.

After the battle the military artificers had the charge, under their officers, of renewing the works on the heights, and when completed were appointed to aid in effecting the inundation of

a portion of the country. This was accomplished by cutting seven channels in the dyke of the canal of Alexandria, through which the waters of Lake Aboukir rushed into Lake Mareotis, then nearly dry, and about ten feet below the level of Lake Aboukir. Across the Nile they subsequently threw a bridge of boats, to facilitate the communication between Alexandria and Rosetta, re-forming it when swept away by the rapidity of the current; and afterwards they assisted in the construction of a similar bridge across the openings in the dyke of the canal of Alexandria for the convenience of the shipping.

Four of the artificers who were at the siege of the castle of Aboukir were attached to the brigade under Colonel Spencer, and served at the reduction of Rosetta, Fort St. Julian—against which they constructed batteries for two guns and two mortars—Elhamet, Alkam, and Rahmanieh.

Shortly after they proceeded to Grand Cairo and were present at its surrender on the 27th June. A brief interval elapsed, when they returned to Alexandria, by the river Nile, in the dgerms which contained the field equipment of the detachment. On reaching Alexandria, the entire detachment was divided into two parties, one under Captain Bryce, the chief engineer, and the other under Captain Ford, royal engineers; and were subsequently present at the siege of the castle of Marabout, the taking of Redoubt de Bain, and at the final fall of Alexandria on the 27th August. No casualties in killed and wounded are reported to have taken place among the men during the campaign; and though no particular testimony to their merits appears to have been recorded, from the circumstance of their being so few in number, and from the absence of prominent occasions of exhibiting their zeal and efficiency, arising from the enemy capitulating and surrendering many of his works without resistance, still they were permitted in common with the other troops that served in Egypt, to wear the device of the Sphinx on their appointments. A like honour was also conferred upon the military artificers who served with the mission to Turkey.

Immediately following the capture of Alexandria, an expe-

dition was sent to Elba, under Admiral Lord Keith and General Sir Eyre Coote. Five military artificers were attached to it on board the 'Amphitrite' transport, under the orders of Captain Birch, royal engineers; but, when between Rhodes and Caudia, an English man-of-war brought intelligence of peace to Lord Keith, and the descent upon the island was relinquished. Thereupon the 'Amphitrite' sailed for Malta, where the artificers remained for six weeks, employed in repairing the fortifications. During this period, they were joined by others of the detachment from Alexandria, and re-embarking, arrived in England in February, 1802. The residue of the detachment, detained for a while at Alexandria and Malta watching the development of events, reached these shores in August, 1803.

On the Duke of Kent being appointed Governor of Gibraltar, his first care was to introduce some wholesome regulations for diminishing the drunkenness and crime so prevalent in the garrison. Stringent measures were therefore adopted with regard to the sale of liquors and wines in the canteens, scrupulous attention was paid to the appearance of the men in the streets, and drill and discipline were rigorously enforced. These reforms, however, were received with much discontent; and on Christmas-eve of 1802 the stifled feeling of insubordination broke out into mutiny.

In this *émeute* the greater part of the military artificers took an unequivocal but unimportant part. The Duke's new rules interfered more essentially with the practices and indulgences of the companies, than with any other troops in the garrison. Besides being subjected to the general rigours imposed on the troops, the artificers were deprived of the privilege of working privately in the town, and were once a week taken from the command of their own officers, and drilled and disciplined by the Town Major. These innovations upon old usages produced considerable disaffection in the companies, and many of the more reckless and turbulent were not backward in ranging themselves on the side of the mutineers. Joining a party of the Royals at night, at the Town Range Barracks, they proceeded in company to the South Barracks, where, on approach-

ing to make arrangements for a simultaneous rising, the 18th Royal Irish fired upon them, with no better result than tearing the feather from the hat of one of the privates of the artificers.

This harmless volley had the effect of cooling the ardour of the mutineers, and the rebel artificers becoming tranquil, returned home; but on the Saturday following, another and more decided exhibition being expected, the officers of engineers met at the barracks, to endeavour to prevent any co-operation with the mutineers. Meanwhile the companies received their working pay, and all restrictions being taken off the canteen, the intemperance that followed soon rendered the men too insensible to discharge any duty effectually, either for the Crown or the mutineers. During the night a strong party of the 25th regiment appeared at the gates to demand the services of the companies; but sergeant William Shirres, assisted by a small guard of the corps, closed and daringly held the gates against the exasperated rebels, and prevented any communication with the barracks. Without entering further into the progress of the mutiny, it will be sufficient to add, that it was soon suppressed, and three of the ringleaders of the 25th regiment were shot on the Grand Parade by sentence of a general court-martial.

A few days after the Duke of Kent ordered the companies to be specially paraded for his inspection. Having passed down the ranks and moved to the front, his Royal Highness addressed them. He appeared to have been informed that the artificers had joined with the Royals and 25th regiment in their intemperate display; but added, that he felt every reluctance to give credence to the report, and also made some complimentary allusions to the services of the companies at the fortress. He then desired to know if there were any complaints, in order, if reasonable, to adjust them. The men, thus courteously invited, having stated their wish to be drilled by their own officers, his Royal Highness directed the Town Major to manœuvre the companies. Carefully the Duke watched the firelock exercise and the execution of the various

evolutions, and, expressing his satisfaction with their appearance and drill, granted their request.

This year the cocked hat, worn since 1797, was superseded by the chaco, similar in size and shape to the one commonly adopted in the army. So strange an alteration—from the sage-like cocked hat to its trim substitute—obtained for the new head-gear the cimmerian appellation of the “smoke-jack.” The white heckle feather worn with the cocked hat, was retained. See Plate IX. As time wound up, this description of chaco lost its upright lines for one which, approaching a cone in shape, was called the “sugar-loaf cap.” The latter, again, was superseded by another in 1813, which, from its peculiar form, was familiarly styled the “bang-up.”

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Uniform 1802

evolutions, and, expressing his satisfaction with their appearance and ardor, granted their request.

That year the cocked hat, which since 1797, was superseded by the chapeau, similar in size and shape to the one commonly adopted in the army. So strange an alteration—from the simple cocked hat to the trim substitute—obtained for the new head gear the somewhat appellation of the "smoke-jack."

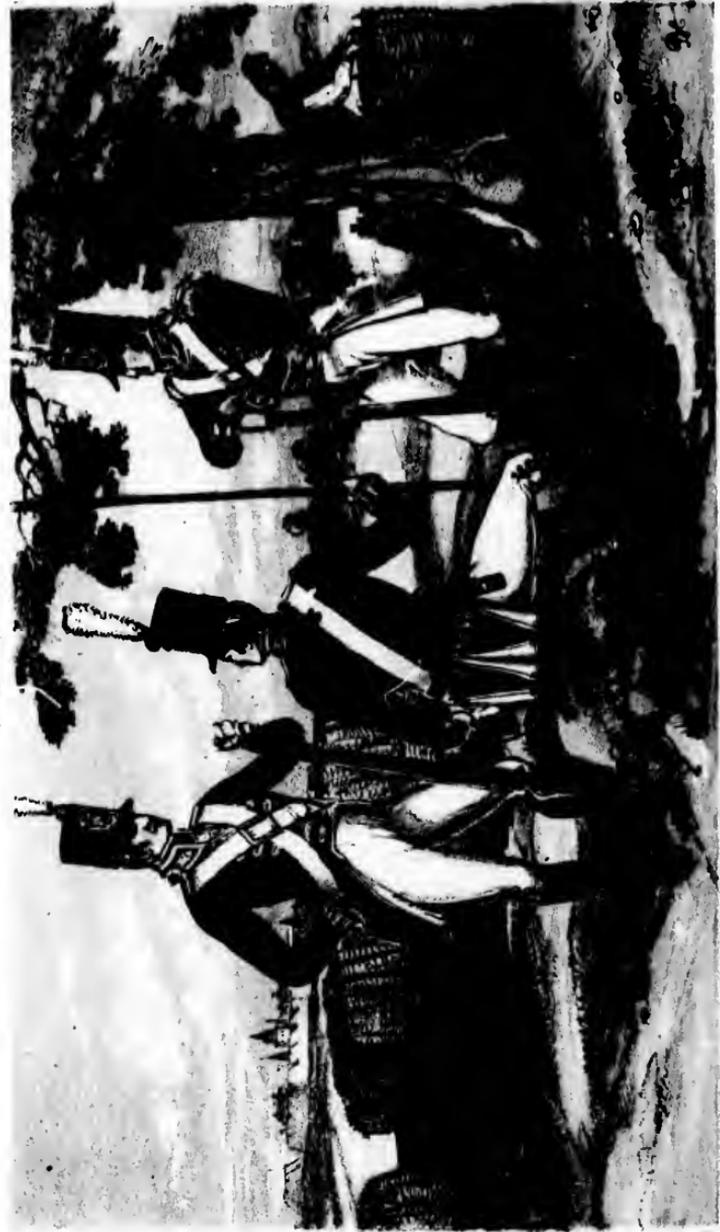
In order to be worn with the cocked hat, was required. See Plate IV. As time wore up, this description of chapeau has the singular form for one which, approaching a cone in its shape, called the "sugar loaf cap." The latter, again, was superseded by another in 1813, which, from its peculiar form, was familiarly styled the "bing-up."

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Royal Military Artillery



Printed by W. R. N. H. H. H. H.

UNIFORM 1887

1803—1805.

Party to Ceylon—The treaty of Amiens broken—State of West India company—Capture of St. Lucia—Tobago—Demerara, Essequibo, and Berbice—Works at Spike Island—Capture of Surinam—Conduct of private George Mitchell—Batavian soldiers join West India Company—Fever at Gibraltar—Consequent mortality—Humane and intrepid conduct of three privates—Invasion of England—Works at Dover—Jersey—Chelmsford—Martello towers at Eastbourne—Bomb tenders at Woolwich—Recruiting—Volunteers from the Line and Militia—Treaty of St. Petersburg—Party to Naples—Ditto to Hanover.

LIEUTENANT-COLONEL BRIDGES having been appointed commanding royal engineer in Ceylon, he applied for a detachment of the military artificers to accompany him to that station. The requisite sanction being procured, six artificers, comprising one corporal, two carpenters, one mason, one bricklayer, and one smith, embarked for the East in January. The precise object of despatching so small a party to so distant a settlement cannot now be learned, but every care was taken to choose men for the service whose activity and abilities as craftsmen were well known, and whose conduct was unexceptionable. "Select," says the order to the officer called upon to furnish the party, "such men as you would prefer if going on the service yourself." In June the party arrived at Trincomalee, but what specific services were performed by them in the colony it would be idle to conjecture. Before the autumn of 1806, four of the men died, but the other two held up against the climate till 1815, when one left for England and was discharged,¹ and the other died in April, 1817.

¹ John Wallace. It is related of him that he was lost sight of for many months, and his appearance at Woolwich gave rise to as much surprise as his person to doubt. All traces of the original man had worn away, and from the

The treaty of peace between France and Great Britain was signed on the 27th March, 1802, and hailed everywhere with exultation. Soon, however, Buonaparte began to exhibit a spirit at variance with the solemn engagement, and his irrepressible ambition forced him to seek occasions for gratifying it. Increased power and dominion were the engrossing objects of his genius; and, singular as it may appear, states and republics fell under his sway without his lifting a sword to conquer them. All this transpired while yet the burst of joy at the peaceful negotiation was ringing in the courts of Europe; but Great Britain, though a sullen spectator of these events, caring more to be blamed for reluctance than impetuosity, at length interfered, and the result was, that war was declared with the French republic on the 18th May, 1803.

At that period the company stationed in the West Indies had nearly reached its establishment; and, as the sickness, so rife in former years, had greatly lessened both in malignity and extent, the general health of the men had much improved. So keen was Lieutenant-Colonel Shipley about maintaining his company complete, that whenever a death occurred or an artificer quitted the station through ill health, he invariably applied direct to the general officer in command of the troops, to order a tradesman of approved qualification and conduct to be transferred to it from the line. Alike interested in the efficiency of the company, the general officer always acceded to his request; and the company, consequently, was in excellent condition for affording effective co-operation in any active service.

Intelligence of the renewal of hostilities soon reached the West India islands, and an expedition was forthwith prepared to be employed in the capture of St. Lucia, under the command of General Grinfield and Commodore Hood. To this force were attached one sergeant-major, three sergeants, five corpo-

oddness of his dress, and peculiarity of his manners, the task of recognition was rendered still more perplexing. Eventually, satisfactory proofs of his identity being obtained, he was again acknowledged and discharged on a pension of 1s. 6d. a-day, his service in the corps having exceeded thirty-three years.

als, and sixty-eight privates of the military artificers, who were engaged, on the 22nd June, in the storming of Morne Fortuné and taking of St. Lucia. Corporal William Dyson was killed at the storm,² but of the wounded, no particulars exist. Of the services of Colonel Shipley and his company in this capture, the General, under date of June 22nd, thus wrote:—"To Lieutenant-Colonel Shipley and the royal engineers, he is indebted in a high degree for assistance and professional advice."³

In July the same company was present at the capitulation of Tobago, which surrendered without bloodshed to the forces under General Grinfield. "Great praise," says the General in his orders of the 1st July, "is also due to the alertness and readiness of the royal artillery and royal artificers in their embarkation and disembarkation, both of themselves, ordnance, and stores, and for their attention to their discipline and duties."⁴

In the following September, Colonel Shipley and one sergeant-major, three sergeants, one corporal, and thirty-three privates, were attached to another expedition under the same General, and were present at the capture of the colonies of Demerara, Essequibo, and Berbice. Like Tobago, these islands surrendered without resistance. At each of the subjugated settlements and at Trinidad, a small party was left to carry on the current services and improve the defences. The head-quarters still remained at Martinique. During the year the deaths in the company did not exceed twelve men; and its strength at the end of the year was eighty-seven of all ranks, of whom only eight were ineffective from sickness.

Early in the year Lieutenant-Colonel Sir Charles Holloway was appointed commanding royal engineer at Cork, and at once commenced a minute examination of the fortifications under his charge. These were found to be defective, inasmuch as they did not sufficiently command the surrounding country

² In the 'London Gazette,' 26 to 30 July, 1803, this corporal is, by mistake, returned as sergeant.

³ 'London Gazette Extraordinary,' August 15, 1803.

⁴ *Ibid.*

and harbour. Sir Charles, therefore, among many works which he suggested for the defence of the district, projected an extensive fort for Spike Island to be erected on the site of Westmoreland Fort, which was to be demolished. Authorized to carry his plans into execution, he applied and obtained in October, the services of an efficient detachment of tradesmen, consisting of a sergeant, and master mason, thirteen artificers, and one labourer of the Woolwich company, to aid in destroying the old fort and in erecting the proposed new one. As the works progressed and their completion was pressed, the detachment, in December, 1804, was augmented to thirty-eight non-commissioned officers and artificers; and in January, 1805, to a full company of one hundred strong, under the denomination of the "Spike Island Company." Between five and six thousand civil mechanics and labourers were daily employed at the fort, over whom, to a certain extent, were placed the non-commissioned officers of the company, as masters of the respective trades, or foremen of particular portions of the work.

Arrangements for an expedition against Surinam having been perfected, Major-General Sir Charles Green and Commodore Hood sailed there in April. Lieutenant-Colonel Shipley, royal engineers, as also one sergeant-major, two corporals, twenty privates, and one drummer of the artificers accompanied it, the rest of the company not being available for the service in consequence of being greatly dispersed through the different islands. Surinam being very difficult of approach, Lieutenant-Colonel Shipley, on the 29th April, went on shore to procure tidings with respect to the best means of reaching the settlement. On returning, he reported that a body of troops might be conducted to the rear of Forts Leyden and Frederici. Accordingly, twenty of the military artificers with side arms and felling axes, ten of the 6th West India regiment similarly provided, a detachment of 140 men of the 64th regiment, and about thirty seamen, all under Brigadier-General Hughes, landed on the night of the 29th, and proceeded through almost impassable woods, led by negro guides, to the place of assault. After five hours' laborious marching, the stormers arrived near

the rear of Frederici Battery, which was gallantly taken, as was also Fort Leyden soon after; and Surinam surrendered on the 5th May. "No obstacle," says the despatch of Sir Charles Green, "could damp the enterprising spirit of our seamen and soldiers. They underwent great fatigue in executing these works, which, however, they cheerfully submitted to under Lieutenant-Colonel Shipley, who, as usual, was unceasing in his exertions."⁵ Severe as the storming is described to have been, only three soldiers were killed; of whom one was a military artificer,⁶ private James Connolly, at the assault of Fort Leyden. Of the number wounded, no official account has been traced.

Private George Mitchell, represented as a highly-meritorious soldier, distinguished himself in the assault, as, indeed, did the whole of the detachment. As well on the march as in the two successive assaults, he was conspicuous for his perseverance, promptitude, and bravery, and when entering Frederici with the foremost troops, was severely wounded by the side of his officer, Lieutenant J. R. Arnold, R.E., who led the storm. For his services on this occasion he was promoted to be corporal, and subsequently for the same reason to the rank of sergeant. He also received a present from the Patriotic Fund at Lloyd's, in testimony of the opinion entertained of his services.⁷

On the reduction of the place, the Batavian troops were released from their former allegiance, and at liberty to become either citizens in Surinam, or soldiers in his Britannic Majesty's forces; but the barren and uninviting prospects that a captured country presented prevented many from settling, and they readily offered to enrol themselves under the British standard. Availing himself of the opportunity, Lieutenant-Colonel Shipley

⁵ 'London Gazette,' 19 to 23 June, 1804.

⁶ *Ibid.*

⁷ In the subsequent campaigns of the West Indies he behaved equally meritoriously; and in garrison and the workshops always conducted himself well. Besides being an excellent mason and foreman, no artificer in the service, perhaps, had a better practical idea of mining, in which he signalized himself at the destruction of Fort Desaix, Martinique. After sixteen years' arduous service in the West Indies, he was sent to Woolwich and discharged in July, 1814.

accepted the services of seventeen Batavian artificers and enlisted them for the company. Fourteen deaths were reported in the company during the year; and on the 31st December its strength was eighty-eight of all ranks.

A fever of a very malignant character appeared at Gibraltar in August, and continued its ravages during the autumnal months. Brought in by a foreigner, who took up his abode in the vicinity of the married quarters of the royal artillery, the disorder was soon communicated to the latter; and, by the end of September, it spread with a rapidity only equalled by its virulence. Ere long the whole fortress was infested by the pestilence; and, as if to render the calamity more awful, it was preceded by an earthquake, which agitated the whole Rock. Out of a population computed at 10,000, including 4,000 troops, no less a number than 5,946 died between the 1st September and 31st December. So great a mortality in so short a period is unexampled in the history of that fortress.^a

The two companies of artificers in the garrison were early visited by the epidemic and but few comparatively escaped. Of those who were fortunate enough to bear up successfully against the disease, it was ascertained that the chief part had previously suffered from yellow fever in the West Indies. The artificers' barracks at Hargraves' Parade were a considerable distance from the localit^y; where the disorder originated, and consequently, for a time, were free from fever; but several of the men having been employed in attending the sick civil master artificers of the department, at their own homes in the town, and the married families of the companies having unrestrained access to the Parade, infection was thus communicated to the single men in barracks; and the effect was seen too late to adopt any sanitary measures or restrictions to prevent its ingress. In August three men died, and in September ten, whilst the numbers affected by the malady were very considerable. By the beginning of October the fever had extensively spread; and all work in the engineer department being suspended, the companies were confined to barracks, and the families in

^a Sir James Fellowes 'On the Fever of Andalusia.'

quarters prohibited from appearing in the streets of the town unless from urgent necessity. Soon afterwards, to preserve their health, they were removed into camp at Beuna Vista. Nothing, however, could arrest the advance of the disorder: gloom and horror hourly increased, and in a very few days the sickness at the encampment far exceeded anything that had occurred at Hargraves'. By the end of the month a mournful diminution had taken place, ninety men having fallen a prey to the epidemic! In November, providentially, the fever sensibly waned, and only twenty-three men died; and in December, after carrying off four more men, its influence ceased to be felt at the fortress. At the approach of the disease the companies mustered 263 of all ranks; but by the termination of the year 130 had died; thus reducing the companies to the strength of 133.⁹ Here it may be added, that the royal military artificers lost during the fever more men proportionally than any regiment or corps in the garrison.¹⁰

Amidst so much mortality, great alarm and irresolution naturally prevailed; and whilst many excusably avoided all possible contact with the infected, there were not wanting men of humanity and courage to volunteer their attentions and services to the sick and dying. Several instances of signal disinterestedness could be recorded, and the names of not a few mentioned, who fell a sacrifice to their generous zeal; but the following men, by their exertions and unshaken devotion in the discharge of the onerous offices assigned to them, seem to have been regarded with peculiar admiration, and therefore deserve whatever notice can be accorded to their merits in these pages.

Private John Inglis performed the important duty of orderly

⁹ According to Sir James Fellowes, 229 men of the companies were admitted into hospital with the fever, of whom 106 recovered, and 123 died; but as Sir James has omitted the statistics for August in his tables, the apparent disparity between the two accounts is reduced to the trifling difference of 4 only, a mistake which, doubtless, occurred from some inaccuracy or accidental omission in the information furnished to Sir James from the Ordnance Hospital records.

¹⁰ This statement is borne out by Sir James Fellowes. See p. 450 of his work 'On the Fever of Andalusia.'

to the sick in the hospital at Windmill-hill, and to assiduous attention united marked kindness and tenderness, shrinking from no difficulty and dreading no danger. During the fatal month of October his watchfulness and exertions were incessant, and his patience and humanity were as conspicuous, as his fortitude.

Private James Lawford undertook the melancholy service of receiving the dead, both for the artificers and the artillery, and conveying them to the burying-ground near the Grand Parade. Horrible and hazardous as was this duty, he persevered in its performance with a coolness and intrepidity that was perfectly amazing.

Private James Weir was the principal gravedigger, and attended to his appointment with unflinching ardour and self-possession. Surrounded by the pest in its worst forms, and inhaling the worst effluvia, he never for a moment forsook the frightful service, but laboured on, inspiring those who occasionally assisted him, until the necessity for his employment no longer existed.¹¹

An attempt at invasion being daily expected from the French, earnest attention was turned to those parts of the coast of England upon which the descent would probably be essayed. Immense sums of money were accordingly placed at the disposal of the officers of engineers to carry into effect whatever projects might be approved for rendering the shore defences more secure. Increased exertions were, therefore, made in strengthening the permanent fortifications, enlarging the defences of Dover and Chatham, "constructing batteries at various points, building temporary barracks along the coast, and studing our shores with martello towers."¹²

¹¹ What was most extraordinary connected with these daring fellows, was the fact, that throughout the epidemic, they enjoyed the most robust health; but, after its cessation, fearing that they were loaded with infection, and that a sudden transition to the garrison again would cause the fever to return, the authorities deemed it prudent to send the hearse-driver and gravediggers to camp at Beuna Vista, where, after about two months' quarantine, they were permitted to rejoin their companies.

¹² 'United Service Journal,' i., 1845, p. 483.

Besides using all vigilance and exertion at the different ports where the royal military artificers were stationed, in furtherance of the general business of preparation and defence, detachments of the corps were constantly on the route from one place to another, erecting temporary or permanent works. In April, at the suggestion of Major-General Twiss, then commanding royal engineer in the Southern District, the party at Dover was much increased to assist in forming casemates in certain positions of the works on the western heights, by which to remedy the defects in the original construction.

At Jersey, in the same month, every precaution was taken to render the island capable of resisting any encroachment from its turbulent neighbours; and all the batteries and forts, as far as practicable, were manned with ordnance. In the execution of this service corporal and master-carpenter Daniel Brown, described as "a worthy man and a useful artificer," was killed by a fall from the top of Platte Rocq Tower.

In September a small party was detached to Chelmsford, and superintended, under the direction of Captain G. Whitmore, royal engineers, the construction of a chain of temporary field-works, consisting of intrenchments, batteries, and redoubts, from Woodford Windmill to the windmill at Gallywood Common, a distance, by the line of works, of about two miles and a half. Various regiments of militia provided their contingents to execute these works, in which they were assisted by detachments from the royal waggon train and royal staff corps.

About the same time another party was despatched to Eastbourne to aid in building the circular redoubt there, as also in erecting several martello towers on the coast, at points best suited to protect our shores. Fluctuating in strength according to the general emergencies of the service, this detachment continued to work in the Eastbourne district until the summer of 1817, when, after assisting in the erection of all the towers as far as Rye Bay on the one side of Eastbourne, and Seaforth on the other, it quitted the district and the men composing it rejoined their companies.

At Woolwich, during the later months of the year, parties

were specially engaged in preparing and fitting out bomb tenders for the Channel fleet, by casing their magazines, making racks for shot, and executing such other precautionary services as would insure them from explosion and destruction in action.

Nor should the efforts made to carry on the recruiting with success be overlooked, since the steps taken were chiefly induced by the spirit of the times, and the anticipated wants of the coming war. In the previous year, after the treaty of Amiens was signed, the recruiting was suspended; but in June, 1803, it was resumed with an energy that promised to yield an abundant result. In addition to the old stations, several new ones were opened for obtaining candidates, and the bounty for recruits was increased to 1*l.* 3*s.* 6*d.* each! whilst the reward to the soldier, to stimulate him to exertion and vigilance, was augmented to 4*l.* 14*s.* 6*d.*! The former levy money was ten guineas, but the improved premium amounted to nineteen guineas.

Notwithstanding the great demand for men, every care was taken to receive none in the corps who were not in every particular fully equal to its various duties; and the officers employed on the service were specially enjoined to engage such candidates only as were "stout made, able-bodied, well-limbed, healthy, and active, of good character, and good abilities as tradesmen; not over 30 years of age, nor under 5 feet 6 inches in height." Under these restrictions, and as the call for mechanics in civil life was loud and pressing, only 53 artificers were received and approved of this year, leaving at its close 351 men to complete the corps to its establishment of 1,075.

No better success attended the recruiting in the year 1805. Full employment was offered by the country to every artisan disposed to handle his tools, and the sources of enlistment, therefore, were almost choked up. In this extremity, as the corps was very much below its establishment, application was made to the different regiments of militia for candidates; and the effect was, that 134 volunteers—all tradesmen and miners

—joined the artificers, in April and May, from forty-six regiments. After a short interval, a similar application was made to the Horse Guards to allow artisans from the line to enter the corps. His Royal Highness the Duke of York, acquiescing in the proposal, conveyed his commands on the 8th July to every battalion in the service, both at home and abroad, to have volunteers, to the number of two carpenters and three bricklayers from each, transferred to the military artificers. By this arrangement the corps, which was 112 men in arrear of its establishment when the order was promulgated, was rendered complete by the end of the year. To each volunteer received was paid a bounty of ten guineas. The total number of recruits and men transferred from the line and militia during the year amounted to 435.

Filling up the corps in this manner was highly prejudicial to its best interests and general efficiency, so far as the transfers from the regiments of the line were concerned. Officers of those regiments were naturally averse to parting with their good men, and out of a batch of volunteers the five least reputable in every battalion, unless under extraordinary circumstances, were selected to be transferred. To prevent the reception of objectionable men, every precaution was taken by the officers of engineers appointed to this duty; but, with all their circumspection, some of the most abandoned characters were passed into the corps. With the different militias, however, this was not the case. All the volunteers were unreservedly surrendered to the recruiting-officer, who was at liberty to pick from the number those whom he desired, and subject them to whatever examination he pleased before accepting them. In this way some of the ablest mechanics and many of the best-conducted men and finest-looking soldiers joined the corps, and their behaviour and usefulness in after service furnished the best test of the advantages derived by receiving volunteers from the militia.¹³

¹³ This observation would appear to clash with the remarks of Sir Charles Pasley (note F, p. xvii. 'Elementary Fortification') upon the impropriety of enlisting militia-men; but after carefully tracing the history of many volunteers from that arm, the fact cannot be concealed that the transfers alluded to were decidedly beneficial to the corps. The best sapper, miner, and pontoneer,

England had not yet taken any active measures against France, busied as she was in endeavours to protect her own shores; but as soon as the Powers of Europe had formed themselves into a coalition, under treaty signed at St. Petersburg on the 11th April, to check the progress of Buonaparte, the British Government lost no time in giving effect to the engagement. Accordingly in that month, a body of troops under Sir James Craig embarked for the Neapolitan States to join with the Russians in expelling the French. To this expedition was attached a party of one sergeant, one corporal, and thirteen artificers of the Woolwich company, under the command of Captain C. Lefebure, royal engineers, which landed at Naples in November. Here the expedition remained inactive until the 19th January, 1806, when, from the defection of the Russians, it was deemed prudent to withdraw the troops and proceed to Messina, where the military artificers landed on the 18th February, 1806.

In October, another force was sent to Hanover, under Lord Cathcart, which, after it should achieve the liberation of that State, was destined to advance into Holland for the same purpose. One sergeant, one corporal, and fourteen privates of the Chatham company, under Captain J. F. Birch of the engineers, accompanied the expedition and landed in Swedish Pomerania the same month; but, by the time the force was prepared to enter into the contest, affairs were on the change; and Buonaparte having gained the brilliant victory of Austerlitz, the treaties of Presburg and Vienna followed, putting an end to the war, and leaving England alone an enemy to France. Unable, without assistance, to re-establish the independence of Hanover and Holland, Lord Cathcart's army returned to England early in 1806, and the detachment of artificers rejoined the Chatham company in February of that year.

that ever served in the corps—perhaps the best in Europe—was a militia-man; and the name of Jenkin Jones, the faithful and zealous sergeant-major under Sir Charles Pasley at Chatham, now quartermaster at Woolwich, need only be mentioned, to verify the assertion and to corroborate the encomium. Quartermaster Hilton, the efficient sergeant-major to the corps in France under Sir James Carmichael Smyth, had also been in the militia.

1806.

First detachment to the Cape of Good Hope—Misfortunes at Buenos Ayres—Reinforcement to Gibraltar—Services at Calabria—Formation of Maltese military artificers—Increase of pay to royal military artificers—Augmentation to the corps and reorganization of the companies—Establishment and annual expense—Working pay—Sub-Lieutenants introduced—Indiscipline and character of the corps.

In August of the previous year, an expedition under Sir David Baird sailed against the Cape of Good Hope, to which were attached one sergeant, two corporals, and seventeen artificers of the Plymouth company under Captain J. C. Smith of the royal engineers, who embarked on board the 'Melantho' transport. The artificers landed on the 4th January, 1806, with the artillery, and marched and encamped with them in the field; but Sir David Baird, conceiving that their services would be more beneficial in the castle after its capture, than in action, would not permit them to take part in the operations. They therefore halted about a quarter of a mile to the right rear of the position, and there remained until they marched with the troops into the castle. Ever since this capture, a detachment of the corps of varying strength has been employed in the colony, not only at Cape Town, but at many posts and forts at a considerable distance inland and upon the frontiers.

Two privates of the Cape detachment under Captain Kennett, of the corps, sailed in April with the force under General Beresford against Buenos Ayres. Landing at Point de Quilmes on the 25th June,¹ they were present at the surrender of

¹ 'London Gazette Extraordinary,' September 13, 1806.

the city on the 27th following. After a time the Spaniards, recovering from the panic which lost them their capital, retook it with signal success, and those of the British not killed, were taken prisoners. Captain Kennett was among the former, and one of the artificers was wounded. On the loss of their captain, the two men were attached to the artillery and served in the action of the 12th August, 1806, under Captain Alexander Macdonald, royal artillery: they subsequently were taken prisoners and remained so until January 1808, when they returned to England with the forces under General White-locke.

To supply the casualties at Gibraltar occasioned by the fatal fever of 1804, a detachment of 133 artificers,² under Captain H. Evatt, royal engineers, embarked on the 31st December, 1805, and landed at the fortress in February following. The strength of the companies was thus increased from 174 to 307 of all ranks.

Sir John Stuart, who commanded the army in Sicily, now undertook, at the solicitation of the Court of Palermo, an expedition against the French in Calabria. The detachment of artificers at Messina, reduced to twelve in number, furnished ten men, under Captain C. Lefebure, royal engineers, to accompany the troops. They were present on the 4th July at the battle of Maida; and afterwards at the siege of Scylla Castle from the 12th to the 23rd of the same month. Shortly after the capture, six of the party returned to their old quarters at Messina, leaving two non-commissioned officers and two artificers under Lieutenant George Macleod of the engineers, to superintend the restoration of the castle defences. In October the four men rejoined the detachment at Messina, where the whole continued to be employed in various engineering services for several years.

Artificers under military control and discipline being much required for the works at Malta, Lieutenant-Colonel R. T. Dickens, R.E., recommended the formation of three companies

² With fifty women and forty children! More than, in *these* days, are permitted to accompany a *battalion* on foreign service.

of Maltese tradesmen for the service of the engineer department; two to be stationed at Malta and Gozo, and one for employment in general duties in the Mediterranean, Gibraltar, and Egypt. English companies of artificers would have been proposed for the works of the stations named, had the efficiency and conduct of detachments previously sent from Gibraltar to Minorca, Sicily, and other parts of the Mediterranean, warranted it; "but," says Sir Charles Pasley, "as the Gibraltar companies were, from circumstances, the worst in the corps, the detachments formed from them * * * * were found so very inefficient, that Maltese and Sicilians were preferred to Britons in the Mediterranean, for the important service of the royal engineer department."³ As well from this, as from other local⁴ and economical considerations, the Government approved of the measure, and the royal authority for its accomplishment being obtained, the companies were formed on the 1st May.

The Mediterranean or war company consisted of—

4 sergeants,
4 corporals,
100 privates,
1 drummer,
10 boys.

Total . . 119

and the companies for Malta and Gozo, numbered each—

2 sergeants,
4 corporals,
60 privates,
1 drummer,
10 boys.

Total . . 77

An adjutant from the royal engineers was appointed to the 1st company, and one, a foreigner—Matteo Bonavio⁵—to the other two companies at Malta and Gozo, to which was also

³ Pasley's 'Elementary Fortification,' note A, p. iv.

⁴ In the treaty of Amiens it was stipulated that *one-half* the soldiers in the garrison at Malta should be natives; and although the treaty had been violated by Napoleon, Great Britain still regarded its provisions, in this respect at least, as sacred and obligatory.

⁵ Styled, by local usage, "Assistant Engineer."

added one sergeant-major and quartermaster-sergeant Guiseppe Sinerco, stationed at Malta. The total number of these companies with the staff amounted to 276. The pay of the war company was assimilated to that of the royal military artificers, while that of the other companies was fixed as under:—

	<i>s.</i>	<i>d.</i>
Sergeant-major or quartermaster-sergeant	3	0 a-day.
Sergeant	1	6 „
Corporal	1	3 „
Private, or drummer	1	1 „
Boy	0	6 „

The adjutants received 3*s.* per day each extra,⁶ and the working pay of the non-commissioned officers and men was divided into two classes of 6*d.* and 9*d.*, which they received in addition to their regimental pay. The non-commissioned officers, who were foremen, received as working pay 1*s.* a-day each.

These companies were formed into a corps with the title of Maltese military artificers, and, like the old artificer company at Gibraltar, remained a distinct and separate body. They were officered by the royal engineers. Their clothing consisted of a close blue cloth jacket with black collar and cuffs, and Ordnance buttons; open blue cloth pantaloons and a military hat and feather. The sergeants were distinguished by sashes, the corporals by chevrons, and the sergeant-major by a uniform like the sergeant-major of the English companies.⁷

This year Mr. Windham, the Secretary-at-War, warmly espoused the cause of the army, and ultimately obtained for it the redress he so earnestly sought. This was promulgated in the well-known Warrant called "Windham's Act," which in-

⁶ Of the regimental allowances of the foreign adjutant nothing is known, nor can any record be discovered of the uniform worn by him.

⁷ In 1808 the companies were clothed in a uniform made of cotton, manufactured in the island, similar to the local corps. The facings were of black cloth. The sergeants and corporals were distinguished as before, and the sergeant-major still wore the *home* uniform. The substitution of cotton for cloth was ordered on account of its being cheaper and better adapted to the climate, besides forwarding the views of Government, in aiding the sale of the staple commodity of the island, deprived by the war of its usual vents.

creased the pay of the soldier while serving, and provided a liberal pension for him on retirement, corresponding to his infirmities and services. On the 1st September, the Act alluded to was extended to the royal military artificers, and the advantages conferred upon the corps were as under:—

	Increase.	Total amount of pay a-day.	
		s.	d.
Sergeant-major on the staff	5½	3	11½
Sergeant	3½	2	6½
Corporals:—			
After 14 years	3½	2	4½
Between 7 and 14 years	2½	2	3½
Under 7 years	1½	2	2½
Privates and Buglers:—			
After 14 years	2	1	4½
Between 7 and 14 years	1	1	3½
Under 7 years	no increase	1	2½

In the prospect of a long war, to provide reinforcements for the execution of the extensive works in progress at Dover and Nova Scotia, and to be capable, to a certain extent, of meeting the contingencies that might arise, a royal warrant was issued dated 5th September, sanctioning a reorganization of the corps for general service, an augmentation of two companies, and a small increase to each of the other ten companies.

Under this arrangement the corps was distributed as follows, and the companies for the first time, appear to be distinguished by numbers; which, however, from the long habit of designating them by stations, soon became obsolete:—

1st. Woolwich	Captain G. Hayter.
2nd. Chatham	Major R. D'Arcy.
3rd. Dover	Captain W. H. Ford.
4th. Portsmouth	Captain R. Fletcher.
5th. Gosport	Captain T. Byers.
6th. Plymouth	Lieut.-Colonel T. Skinner.
7th. Spike Island	Lieut.-Colonel Sir C. Halloway.
8th. Jersey	Captain J. Hamfrey.
(Guernsey)	Major J. Mæckean.
9th. Gibraltar	Captain H. Evatt.
10th. Gibraltar	Captain G. Landmann.
11th. West Indies	Lieut.-Colonel W. Johnston.
12th. Nova Scotia	Captain W. Bennett.

* Sir John Jones states, evidently by mistake, that the corps was composed of *thirty-two* companies.—Journals of Sieges, ii., note 38, p. 389, 2nd edit.

By the authority of the warrant alluded to, the establishment of each company was remodelled, the ranks of Sub-Lieutenant and second corporal were created, and the total of all ranks per company increased from 100 to 126. Under the previous system of detaching men, the companies were mutilated, disordered and reduced; but under this enlarged organization, it was considered they would be more accessible, and better able to afford such accidental assistance as might be needed, without diminishing the companies to an inconvenient strength, or without particular detriment to the station. The subjoined detail shows the approved composition of a company at this period.

- 1 Sub-Lieutenant,⁹ a new rank, with pay of 5s. a-day.¹⁰
- 1 Sergeant-major.
- 5 Sergeants.
- 5 Corporals.
- 10 Second Corporals,¹¹ a new rank, pay fixed at 1s. 9d. a-day.
- 30 Carpenters, including 4 top sawyers.
- 20 Masons,
- 18 Bricklayers, } including slaters, tiles, and plasterers.
- 10 Smiths,
- 10 Miners,
- 4 Wheelers,
- 4 Collar Makers,
- 2 Coopers,
- 2 Painters,
- 4 Drummers.

Total . 126

The total establishment of the corps, including the adjutant and sergeant-major on the staff, amounted to 1,514, exhibiting an increase above the former establishment of 439 men;

⁹ Styled *Second* Lieutenants in the warrant by mistake. The Sub-Lieutenants were junior to the Second Lieutenants of engineers, but held rank with Second Lieutenants of the line, according to dates of commission. This right was often questioned, but never, as long as the Sub-Lieutenants were attached to the corps, officially settled. In 1835 the position of a Sub-Lieutenant (H. B. Maekenzie), who had joined the line as paymaster being disputed, it was then settled that *Sub-Lieutenants* were junior to *Ensigns*.

¹⁰ Subsequently increased to 5s. 7d. a-day, and after seven years' service to 6s. 7d. a-day.

¹¹ Holding comparative station with corporals of the line, according to date of promotion.

and its expense for one year, exclusive of the working pay and other miscellaneous allowances, reached the sum of 45,500*l.* 17*s.* 7½*d.* With the three companies of Maltese artificers, the corps mustered a force of 1,790 officers, non-commissioned officers, and men.

As a means of encouraging the men to exertion and good behaviour, their working pay was permitted to be increased, under the authority of the warrant before mentioned, from 6*d.* to 9*d.* or 1*s.* a-day. The non-commissioned officers invariably received the highest rate. None, however, could be advanced from the lowest to the superior rates without first being recommended to the commanding royal engineer at the station, by the junior officers, foremen, or overseers; and this system of rewards, except for special services, has been observed in the corps ever since.

The sergeant-majors who received the first commissions had been in the artillery, and were distinguished for their good services and bravery. To their zeal and expertness as soldiers, they added an intimate knowledge of drill and discipline—requisites of essential importance in the organization of a new force, but which, from the vague and indefinite character of the corps, became, almost necessarily, too temporizing and elastic to be sufficiently beneficial or respected.

Efforts had on one or two particular occasions been made to avoid the faults and supply the omissions of earlier years; but the improvement before alluded to, had not reached the expectations of those who felt an interest in the corps. One obvious reason was, the nominal appointment of officers to companies, who were so incessantly shifted, that it was not uncommon to find a company passing under the command of three or four different officers in the course of twelve months;¹² and another was, the reluctance with which some commanding

¹² This may be regarded as a favourable view of the ease. Sir John Jones states, "Each company was commanded for the moment by the senior Captain of engineers, who might happen to be placed on duty wherever the company might be; so that it was not unfrequent for a company to be commanded by five or six captains in as many months."—*Journal of Sieges*, ii. note 38, p. 389, 2ud edit.

officers permitted the temporary withdrawal of the men from the works for the purposes of drill and discipline.¹³ The free use of the means to train the men to subordination and the use of arms, to restrain them from irregularities, and fully to develop the organization and purposes for which the corps was raised, being thus interrupted, naturally tended to vitiate and lower its military pride, spirit, and appearance.

Bald and grey-headed non-commissioned officers with ages varying from forty-five to sixty-five, good artificers and foremen, but lacking the energy and demeanour of soldiers, were no rarities in the royal military artificers. Disinclined to learn, they but very imperfectly understood their military station, and seldom exercised their authority, except in the emollient guise of persuasion and advice. On all sides there was a yielding, that in some measure obliterated the lines of distinction between the different grades. Their interests seemed to be reciprocal and interwoven, and the best workman was generally esteemed the best man. Almost every military idea was sacrificed for "the works," in which it would be hazardous to say, that they did not labour with ability and industry.

To check the growth of these unmilitary principles and practices, to enforce respect for position and authority, and to assist in maintaining in the corps the exercise of proper discipline and drill, the Sub-Lieutenants were established. Their duties were like those of adjutants, whom they superseded, and were, therefore, held responsible to their Captains for the conduct, efficiency, internal management, and payment of their respective companies. This, however, was but a transient expedient. An instalment only of the good that was expected was realised;¹⁴ and it was left for a later period to enlarge and perfect what in this year, though spiritedly commenced, fell considerably short of success.

¹³ Pauley's 'Elementary Fortification,' note A, p. iii.

¹⁴ *Ibid.*, note E, p. xvii.

1807.

Appointments of Adjutant and Quartermaster—Captain John T. Jones—Disasters at Buenos Ayres—Egypt—Reinforcement to Messina—Detachment of Maltese military artificers to Sicily—Newfoundland—Copenhagen—Captures in the Caribbean Sea—Madeira—Danish Islands in the West Indies—Hythe.

It having been determined to consolidate the appointments of Adjutant and Quartermaster to the royal military artificers, Major John Rowley¹ and Colonel George W. Phipps² resigned their offices.

To succeed to the vacancies thus created, Captain John Thomas Jones, an officer of undoubted ability and military experience, was brought from Sicily, and on the 1st January commissioned to hold both appointments.³ Upon him, therefore, devolved the difficult task of arranging and directing the details of the new organization both at home and abroad, and of carrying into effect a general system of drill and discipline.⁴

¹ In the earlier years of his appointment he was much at Woolwich, and personally superintended the affairs of the corps; but for some years prior to the new organization, his duties in London seldom permitted him to visit the head-quarters.

² Colonel Phipps was never present with the corps. As Quartermaster, he performed his duties in London. In consideration of his relinquishing the Quartermastership, and also for his good services, he was granted by His Majesty an allowance of 10s. a-day.—'Accounts of Ordnance, House of Commons,' 1816, p. 31.

³ 'London Gazette,' 20th to 24th January, 1807.

⁴ 'United Service Journal,' ii., 1843, p. 110. 'Jones's Sieges,' ii., note 38, p. 389, 2nd edit.

In this duty he continued until July, 1808, when, ordered on a particular service to the Asturias, he resigned the staff rank. From the time of the appointment of Captain J. T. Jones, the Adjutant was permanently stationed at the head-quarters at Woolwich, and his office also was established there.

Early in the year an expedition was sent against Chili under Major-General Crawford, accompanied by a sergeant and ten artificers under Captain J. Squire, R.E. Instead of proceeding to Chili, counter orders were received, and Captain Squire and his eleven men sailed with the force to Buenos Ayres. Arriving at Monte Video on the 14th June, they were accordingly landed and took part in the disastrous attack on Buenos Ayres, in which all the artificers were taken prisoners, and so remained until January, 1808, when they quitted with the force under General Whitelocke.

On the 6th March, Major-General Frazer, at the head of a small armament, sailed from Messina to dispossess the Turks of Egypt. To this force were attached, under Captain J. F. Burgoyne, royal engineers, four of the military artificers furnished from the detachment in Sicily, who embarked on the 19th February. Having in due time landed at Alexandria, they served at the capture of that city, also in the attack of Rosetta, and in the retreat to Alexandria. In September following these four artificers rejoined the party at Messina.

In the meantime the detachment at Messina was reinforced by a sergeant, one corporal, and eighteen privates of the Gibraltar companies, under Lieutenant George J. Hardings, R.E., who embarked at the Rock on the 14th April. With the exception of the non-commissioned officers, this party was composed of irreclaimable drunkards, worthless alike as artificers or soldiers.

From the inefficiency of these men, the Maltese war company was ordered to furnish its contingent for service in Sicily, and accordingly a detachment of one sergeant—Evan Roberts—one corporal, and twenty-nine artificers, embarked at Malta on board the 'Charlotte' transport on the 23rd, and landed at

Messina on the 30th July. In the autumn following, the whole of the party with two men of the royal military artificers as foremen, were detached to Augusta and Syracuse, to be employed on the works under sergeant Roberts.

Newfoundland now became a station for the corps. A detachment of eighteen non-commissioned officers and men, all masons and miners, embarked at Plymouth in May, on board His Majesty's ship 'Isis,' under Captain George Ross of the royal engineers, and arrived there in July. Before the end of August, the detachment was further strengthened by six artificers from Halifax, Nova Scotia. Until proper accommodation could be provided, they lived in huts like the Esquimaux or emigrant fishermen, or under canvas in a dreary uncleared valley between Signal Hill and the sea. In some measure to relieve the monotony and mitigate the rigours of an inhospitable country and climate, permission was granted to the men to spread their nets in the waters near St. John, and to catch as much fish as was needful for the sustenance of themselves and families. Provisionally, also, the married portion of the detachment were allowed small allotments of land, which they cleared and cultivated at intervals, when they were not employed on the works. From these sources of occupation they were kept in constant industry and amusement, and their health effectually preserved and invigorated.

Two sergeants, two corporals, six second corporals, and forty-one artificers, with Captain Fletcher, R.E., embarked at Woolwich for Copenhagen on the 29th July, and landed there the 16th August. In the bombardment of that capital they served under the immediate direction of Lieutenant-Colonel R. D'Arcy, R.E.; and, in returning to England, served as Marines under Lieutenant Bassett of the royal navy. The party rejoined their companies on the 7th November.

One second corporal and three privates of the West India company were embarked in August, on board His Majesty's ship 'Blonde,' V. V. Ballard, Captain, to act as artificers and seamen during a short cruise in the Caribbean sea; and while

forming part of the crew of this ship, they served at the guns in the capture of the undernamed French privateers :—

	Guns.	Men.
15th August . . . 'La Dame Villaret' . . .	5	69
16th " . . . 'L'Hortense' . . .	8	90
14th September . . . 'L'Hirondelle' . . .	8	84
23rd " . . . 'Duquesne' . . .	17	123
14th October . . . 'Alerte' . . .	20	149

An expedition was sent to Madeira in October under General Beresford, to which was added a detachment from the Spike Island company of one corporal, one second corporal, and ten privates, under Captain A. Morshead, royal engineers. They landed in December, and were stationed at Funchal until May, 1812, when they were withdrawn and despatched to their companies in Portugal.

In December, General Bowyer ordered a party of the West India company to be attached to his expedition about to sail against the Danish islands of St. John, St. Thomas, and St. Croix. Three sergeants, four corporals, and forty-two privates were accordingly selected, and embarked for that service on the 16th December; but the islands having surrendered without resistance, the detachment rejoined at Barbadoes on the 13th January, 1808. A sergeant was left at St. Croix to superintend repairs to barracks, &c. Six mechanics belonging to the Danish service, taken prisoners at St. Thomas and St. Croix, enlisted into the company.

Throughout the year a small party of the Dover company was employed on the works at Hythe, under sergeant Adam Cowan, and continued so occupied for several years.

1808.

War in the Peninsula—Expedition thither—Detachments to the seat of war, with Captains Landmann, Elphinstone, Squire, Burgoyne, and Smyth—Captain John T. Jones—Reinforcement to Newfoundland—Discipline at Halifax—Services at Messina—Parties temporarily detached to different places—The queue.

NAPOLEON had now fairly reared his eagles in Spain and Portugal, and compelled the reigning monarchs of those countries to renounce their thrones. To his brother Joseph he gave the sovereignty of the former kingdom, retaining for himself the sceptre of the latter. England, more indignant than alarmed at these spoliations, but eager to dispossess the invader of his acquisitions, at once willingly responded to the desire of Portugal to restore the dynasty of Braganza to the throne, and also tendered her assistance, uninvited, to Spain, to carry on the war.

No sooner had the ministry determined upon sending succours to the Peninsula to effect the overthrow of Napoleon, than different expeditions were fitted out and sent to the seat of war. Small parties of the military artificers, selected from the various companies of the corps, were at the same time forwarded with these forces.

On the 13th May, two miners, under Captain G. Landmann, royal engineers, were sent from Gibraltar to Cadiz with the division under General Brent Spencer, and were afterwards removed to the scene of active operations in Portugal.

On the 18th June, one sergeant, one second corporal, and eleven privates, armed with small swords only, embarked at Woolwich under Captain Elphinstone, R.E., and joined the force under Sir Arthur Wellesley. Both these parties were

present at the battle of Roliça on the 17th August, and Vimiera on the 21st of that month.

A detachment of one sergeant, one second corporal, and twelve privates, under Captains J. Squire and J. F. Burgoyne, royal engineers, was forwarded on the 29th April with Sir John Moore's army to Gottenburg to assist the Swedes against the Russians. The arms and appointments of the corps were taken from them, and they were supplied for defence with a short hanger sword. Several of the party had already been on service at Buenos Ayres under Captain Squire, and were again solicited by that officer for this expedition. The rest were men specially selected for the duty, both on account of their abilities and conduct as artificers and soldiers. After the force was recalled from its inactivity in Sweden, the detachment of artificers accompanied it to Portugal.

About this period three artificers proceeded to the Peninsula with Sir David Baird's division, and one man was attached to the force under Sir Harry Burrard.

In September, one corporal, one second corporal, and fourteen privates embarked for Spain on board the 'Sisters' transport under the command of Captain J. Carmichael Smyth, R.E., and joined the army under Sir John Moore in November.

The total artificer force in the Peninsula, comprising six different parties, was forty-nine of all ranks. This number does not include Captain J. T. Jones, the adjutant, who quitted Woolwich in July for special service in the northern provinces of Spain under the orders of Major-General Leith.¹

To reinforce the party in Newfoundland, a detachment of one sergeant, one corporal, one second corporal, and forty-six privates embarked at Portsmouth in June, and landed at St. John's from the 'Vestal' frigate on the 18th July. Early in the following year the detachment was increased to the establishment of a company.

Lieutenant Oldfield of the royal engineers—a painstaking

¹ In the absence, on foreign duty, of Captain J. T. Jones, from July, 1808, to January, 1809, Sub-Lieutenant John Eaves performed the duties of adjutant to the corps with credit and efficiency.

officer—was removed to Halifax about this time and appointed adjutant to the company stationed there. Having previously held a similar commission at Portsmouth—the model station for discipline—he commenced his duties with a favourable prestige. The materials he had to work upon were old in years, misshapen from habit and labour, and somewhat addicted to the prevailing vice of intemperance; but even these worn-out men he moulded by his once a-week drill into an appearance which enabled them to march past creditably with the Line on the Sunday garrison parades. Most of the company had been many years in the Province, and though not very tight and tidy soldiers, were nevertheless valuable as workmen and specially useful as foremen when military working parties were employed.

Both parties employed in restoring the fortresses at Syracuse and Augusta were recalled to Messina, and assisted to repair and improve the defences of that place.

At the Cape of Good Hope parties were detached at intervals during the year to Stellenbosch, Simon's Town, and Hout's Bay; and at Halifax to St. Andrews and Fort Clarence. At the latter fort, the non-commissioned officer detached was employed surveying. From Newfoundland a detachment was sent to Cape Breton; and from Gibraltar, also, second corporal Thomas Paul and four privates were detached to Perexil, a small islet opposite the Rock between Ceuta and Apes' Hill, where they dismantled all its batteries, magazines, and store-houses. Parties were also employed at Hurst Castle and the Isle of Wight.

The time-honoured queue, which had long formed a conspicuous appendage to the soldier's head-dress, was abolished in the corps in August; and the closely-cropped hair of the present day, and small whisker extending to the lobe of the ear, were then adopted.

1809.

Retreat to Coruña—Miserable state of the detachment on reaching England—Hardships of the stragglers—Capture of Martinique—Skill of George Mitchell at the siege—Fever in the West Indies—Reduction of the Saintes—Detachment to Portugal—Battles of Oporto and Talavera—Casualties in the retreat, and distribution of the party—Naples—Zante and the Ionian Islands—Term of service of the Maltese military artificers—Siege of Flushing—Services of the military artificers there—Gallantry, in the batteries, of John Millar, Thomas Wild, and Thomas Letts—Conduct of corps at the siege—Casualties by the Walæaren fever—Skilful conduct of Corporal T. Stevens in the demolitions at Flushing—Captain John T. Jones—Servants—Incidental detachments.

EXCEPTING the two miners with General Spencer, the whole of the royal military artificers in Spain joined Sir John Moore's army. When the force was put in motion, the senior sergeant of the detachment was left at Liston for special duty. The remainder accompanied the army in the retreat, and with the exception of two men taken prisoners and seven stragglers, were present at the battle of Coruña.

Immediately after, the detachment embarked for England. The season being stormy there was no regularity in the arrivals. Some, therefore, landed at Portsmouth and others at Plymouth between January and March. They were destitute of every article essential to their comfort or equipment. Several were shoeless and clad in tatters and undistinguishable uniforms; while the majority, haggard and attenuated, suffering from shipwreck, privation, and sickness, afforded indubitable evidence of the severe and arduous campaign, through which the necessities of war had recently carried them.

Left to their own resources, the seven stragglers retraced

their steps, between 300 and 400 miles, to Lisbon. In undertaking the journey, during a very inclement season, they encountered many dangers, endured frequent trials and hardships, and barely supported life upon the scanty offerings which chance and a ransacked country afforded them.

On the 28th January, three sergeants and seventy-one rank and file of the West India company, under the command of Brigadier-General Shipley, embarked at Barbadoes with Lieutenant-General Beckwith's expedition and landed at Martinique on the 30th. The company was further increased by a sergeant, three corporals, and seventeen artificers under Lieutenant Robert Thomson, royal engineers, who embarked at Halifax, Nova-Scotia, with Lieutenant-General Sir George Prevost's division. Both parties, when not engaged as overseers, were employed in the general labour of the trenches and the park, and performed the duties allotted to them, particularly in the destruction of Forts Bourbon and Desaix, with activity and zeal. Several non-commissioned officers and men were distinguished by special commendation; and the skill of corporal George Mitchell gained for him the reputation of being the best miner in the service. Private George Thomas was killed 22nd February in the advanced battery before Fort Bourbon. After the surrender of Martinique it became the head-quarters of the company. The Nova Scotia party returned with Sir George Prevost and landed at Halifax the 17th April. During the operations the rains were heavy and incessant, and the men being much exposed, fevers and dysentery were rife among them. By the end of the year, twenty-one of the company had died and five were invalided.

In April, two sergeants and seventeen rank and file were present at the reduction of the Saintes under the command of Lieutenant Hobbs, R.E., and were employed during the service in the construction of the required batteries, magazines, &c. The party returned to Martinique the latter end of the month.

A detachment of one sergeant and eighteen rank and file embarked at Portsmouth, on the 14th March, under the command of Lieutenant-Colonel Fletcher, for Portugal, and arrived

at Lisbon on the 5th April. It was composed of men chosen from the Portsmouth and Gosport companies, among whom were several who had served in the previous campaign. Writing from Portsmouth, the Colonel says, "I find that all the men now here, who were with me before, are very anxious to go out again, but one cannot ask for everybody." On arriving at Lisbon the party was joined by a sergeant and the seven stragglers of the Coruña party. It was thus increased to twenty-eight total, and shortly after another private from England was added to the number.

On the 12th May was fought the battle of Oporto: twenty-five men of the artificers were present. They afterwards repaired the wooden bridge which led into the town. Moving with the army they mustered at Coimbra on the 1st June, and at Castello Branco on the 1st July. At the battle of Talavera, on the 27th of that month, fifteen of the detachment were present. Private Aaron Delacourt was taken prisoner while endeavouring to convey to the rear Captain Boothby of the royal engineers, who was wounded, and had his leg amputated. Of the artificers not present at the battle, two were at Lisbon, three on route to join the army, four at Abrantes, sick; and one on the Alberche. With the exception of two at Lisbon all joined at Talavera before the end of July.

A severe retreat succeeded the battle, in which the party suffered very much. At Merida they were mustered on the 1st September. Lisbon was their head-quarters in November, at which time they were greatly scattered. A sergeant only was at Lisbon and the rest were distributed as follows:—one Abrantes, one Badajos, one Oeyras, four Sobral, and six Torres Vedras. Of the other artificers in Portugal, four were in the general hospital sick, and one a prisoner of war. The casualties since the opening of the campaign were six deaths, two missing, and two invalided to England.

The company of Maltese military artificers at Messina was increased in April by seventeen rank and file from Malta. On the 1st June following, sergeant Roberts and thirty-eight men of the company, were attached to the expedition for the invasion

of Naples. Twelve of the royal military artificers also went with the expedition, and served under the command of Lieutenant-Colonel A. Bryce, royal engineers, in the reduction of the islands of Ischia and Procida.

Returning to Messina in August, six of the royal and eight of the Maltese artificers were added to the force under Brigadier-General Oswald, and were present, on the 2nd October, at the surrender of Zante and other Ionian islands. These parties continued at Zante until after the taking of Santa Maur. in the next year.

The Maltese artificers being enlisted for a term of three years only, their engagements expired in the summer. Upwards of sixty men consequently claimed their discharge, and in July the third Maltese company was re-formed.

In the mean time a force of one sub-lieutenant—George Robinson—two sergeant-majors—Joseph Forbes and John Smith—ten sergeants, and about 280 rank and file¹ had been selected for an expedition to Holland under the Earl of Chatham, to destroy the fleet and arsenals on the Scheldt. The youngest and most active men were chosen for the service, and were provided with swords and belts. The greater portion were also armed with muskets, under an impression that they would have to fight their way on shore. The detachment was divided into two operations to proceed against Flushing and Antwerp; the former under the command of Lieutenant-Colonel R. D'Arcy, R.E., the latter under Colonel Fyers, R.E. Both brigades embarked the 19th July, and having landed near Goes and Walcheren, a small force was employed in the operations in South Beveland under Captain Squire, R.E., and the remainder, with Sub-Lieutenant Robinson, were engaged in the bombardment of Flushing. The meditated attack on Antwerp was abandoned. Private Anthony Webster was killed at the seamen's battery on the 13th August, and two men were wounded.

¹ In Jones's 'Sieges,' vol. ii., p. 269, 2nd edit., the number, including the sub-lieutenant, is shown as 261 only; at p. 415, the total of all ranks is stated to be 276; but both strengths differ from the actual force engaged.

During the bombardment, fifty of the detachment were permanently employed in making fascines and gabions, and about eighty carpenters prepared and put up the splinter-proof magazines and laid the platforms. The remainder were distributed to the batteries as sappers and miners or overseers. One of the batteries which was required in a hurry was worked solely by the royal military artificers, and completed in twenty-eight hours.² Generally they attended to the more difficult and dangerous portion of the batteries, and besides repairing the parapets and platforms, improved the embrasures when injured by the enemy's cannonade.

In this service privates John Millar,³ Thomas Wild, and Thomas Letts acted very praiseworthy in situations of great danger, and showed examples of courage, zeal, and attention to duty much beyond the rest of the detachment. On occasions when particular parts of the batteries were broken, these men fearlessly forced themselves into the embrasures to renew the work. The firing upon them was usually heavy. To effect their purpose with less interruption, they spread across the mouths of the embrasures, wet bulls' hides with the hairy surfaces to the fortress; and bearing as they did a resemblance to the newly disturbed earth, the enemy was deceived and withdrew their firing upon the work. The injured parts of the embrasures were thus restored with incredible dexterity. The two former were promoted to be second-corporals for their gallantry, and a similar rise was offered to Letts but he preferred to remain a private.

The conduct of the detachment at Walcheren is thus noticed by the Earl of Chatham:—"The active and persevering exertions of the corps of royal engineers have been conducted with much skill and judgment by Colonel Eyers, aided by Lieutenant-Colonel D'Arcy."⁴ Elsewhere their exertions in the construction of the batteries are stated to have been indefatigable.⁵

² Jones's 'Sieges,' vol. ii., p. 279, 2nd edit.

³ Was left property to the amount of 4000*l.* and purchased his discharge in 1810.

⁴ 'London Gazette.'

⁵ Hargrave's 'Account of Walcheren and South Beveland,' p. 16, edit. 1812.

After the occupation of Flushing, the fever common to the country set in with peculiar virulence; and the royal military artificers suffered very severely. Employed as they frequently were in conducting excavations in marshy and unhealthy situations, nearly the whole of the detachment were seized with the malady and thirty-seven died. Sergeant-major Forbes was of the number.

By repeated removals of the sick, the detachment was reduced to about eighty of all ranks, who were employed, previously to the evacuation of the island, in the demolition of the basin of Flushing and the naval defences of the place under Lieutenant-Colonel Pilkington, royal engineers. Second-corporal Thomas Stephens was intrusted with the practical conduct of the destruction of one of the piers of the flood-gates. The task imposed on him was so ably executed, that when the explosion took place, the bottom of the pier was forced out and the superincumbent masonry fell without projecting a stone to any distance. Though only a second corporal he was appointed lance-sergeant on the spot for his skilful conduct.

Captain John T. Jones, the adjutant, was removed from the royal military artificers, on the 1st July by promotion, and was succeeded in the appointment by Captain Gilbert Buchanan, R.E. In reorganizing the corps, Captain Jones had effected considerable improvements and raised in a high degree its morale and military efficiency.

The practice of employing men of the corps as servants to officers of royal engineers was discontinued in August. On active service the custom was found to be a great disadvantage. Stringent measures were therefore adopted to prevent its recurrence; and to this day, the officers are required to affirm quarterly, that they do not employ any men of the corps in their private service.

Detachments are traced during the year at the following new stations:—to Alderney, seven rank and file were removed from Guernsey by order of Lieutenant-General Sir John Doyle. Two armourers were employed in the royal manufactory for small arms at Lewisham, and continued on this service

for many years. The Eastbourne party was scattered along the Sussex coast, working chiefly at Hastings and Bulverhithe. The Newfoundland company gave a strong party for the King's works at the south side of the harbour, which remained there for many months. A non-commissioned officer of the Halifax company was employed on a tour of inspection to Cape Breton and Prince Edward's Island; and the detachment at the Cape of Good Hope was distributed to Simon's Town, Hout's Bay, King's Blockhouse, and Muyzenberg.

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1810.

Capture of Guadaloupe—Of St. Martin's and St. Eustatius—Torres Vedras—
Anecdote of Corporal William Wilson at the Lines—Almcida and Busaco—
Detachments to Cadiz—Pantales and La Isla—Destruction of Forts Barbara
and St. Felipe, near Gibraltar—Santa Maura—Occasional detachments.

ON the 22nd January, Colonel William Johnston and Lieutenant Hobbs, royal engineers, with three sergeants and forty-five rank and file of the West India company, embarked at Martinique under Lieutenant-General Beckwith. The detachment was appointed to the fifth or reserve brigade under the command of Brigadier-General Wale; and having landed at St. Mary's Capisterre, served at the taking of Guadaloupe.

A small party under Captain Hobbs, R.E., afterwards accompanied the force under Brigadier-General Harcourt, and was present at the capture of the islands of St. Martin's and St. Eustatius.

The celebrated Lines of Torres Vedras, commenced in October, 1809, were fully completed late in 1810. The number of the royal military artificers employed in their construction never exceeded eighteen of all ranks, who were distributed in ones and twos throughout the whole extent of country to be intrenched.¹ Under the superintendance and control of their officers, they directed the labours of many hundreds of the peasantry. Some of the party were responsible for the efficient services of no less than 500 to 700 workmen. In this duty second-corporal William Wilson and private James Douglas rendered themselves conspicuous by their skill and activity. Both were promoted in consequence.

Corporal Wilson was selected by Colonel Fletcher, the commanding engineer, to be his orderly, in which capacity he served until the death of his chief at St. Sebastian. At Torres Vedras

¹ Jones's Lines of Lisbon, 1829, p. 78.

the corporal had charge of a work, and a party of the Portuguese Ordenanza Militia was placed under his orders to execute it. Two of the men were put to a task to be completed within a certain time; but regarding the work as impossible, they refused to comply and complained to their officer, who took their part and was inclined to censure the corporal. However, with more manliness than soldier-like propriety, the corporal offered to bet the officer a dollar that he would accomplish the task *himself* within the time. The bet was accepted. Corporal Wilson stripped, easily won his dollar, and prevented the recurrence of similar complaints during the progress of the Lines.

Four of the royal military artificers were attached to the army on the Coa, and were present at the action near Almeida in July, and the battle of Busaco in September. Retreating with the army to Torres Vedras, the four men rejoined the detachment, and the whole continued to do duty in the Lines until removed for more active service.

On the 13th March, one corporal and eleven men of the Portsmouth and Gosport companies embarked with the force under Sir Thomas Graham for Cadiz. The non-commissioned officers were "careful trusty persons," and the men "stout, able, and good tradesmen." They landed from the 'Concord' transport on the 24th March, and were commanded by Major C. Lefebure, royal engineers, until he received his death wound, which took place in April as he was descending the walls of the fortress of Matagorda during its evacuation. Meanwhile a reinforcement from Portsmouth increased the party to two sergeants and forty-eight rank and file; and in October it was again augmented, by artificers selected from the different companies, to three sergeants, nine corporals, five second-corporals, two drummers, and seventy-three privates, with Sub-Lieutenant R. Davie. The last draft landed at Cadiz from the 'Diadem' transport.

In defending the fort of Puntales, which sustained a bombardment from across the water, a portion of the company was always employed. There private Benjamin Hall was killed,

and several privates were injured by a wall, under which they were mining, falling on them. The remainder of the company were occupied in fortifying the position of La Isla for the defence of Cadiz. Their particular duty consisted in making platforms, palisades, &c., and in acting as overseers to the military working parties of the line, assisted by artificers drawn from the regiments in garrison. The principal share of the work was done by task, which, being laid out beforehand, the royal military artificers showed the workmen their respective portions as soon as they arrived on the ground,² and superintended its correct execution, both in quantity and detail. At La Isla, the company was stationed at the park, and domiciled in one of the powder-magazines which had been made defensible.

Under the direction of Lieutenant-Colonel Evatt and Captain G. J. Harding, royal engineers, Forts Barbara and St. Felipe, on the Spanish lines in front of Gibraltar, were demolished by a strong detachment from the two companies stationed at the fortress. The operations occupied a few months; and during the work the detachment was covered by a force from the garrison of 500 to 800 soldiers. In firing a mine near St. Felipe, private John Barber lost an arm, both eyes, and part of his chin and teeth. In springing another mine near Tarifa, private Thomas Hughes was killed.

From Zante a party of five royal and eighteen Maltese military artificers sailed with the force under Brigadier-General Oswald, and were present on the 16th April at the capture of Santa Maura. This service effected, the detachment returned to Messina, leaving for the works of the newly-captured island a corporal and a mason of the royal military artificers.

During the year, parties or individuals of the corps were employed on particular service abroad—at Ceuta, Tarifa, and at Sidney in Cape Breton; while, at home, men were detached to Hythe, Isle of Wight, and Northfleet. At the latter place the party was employed, from August to December, in surveying under Mr. Stanley of the royal military surveyors and draftsmen.

² 'Prof. Papers,' iii., p. 94.

1811.

Mortality in the West Indies—Strength and distribution of detachments in the Peninsula—Recapture of Olivenza—Field instruction prior to siege of Badajoz—Conduct of corps at the siege—Conduct of Sergeant Rogers in reconnoitring—Reinforcement to Portugal and duties of the detachment—Its distribution and services—Battle of Barrosa; gallant conduct of Sergeant John Cameron—Tarragona—Defence of Tarifa—Augmentation to corps and reconstruction of companies—Annual expense of corps—Command of the companies—Their stationary character—The wealthy corporal—New distribution of corps—Commissions to Sub-Lieutenants, and ingenious inventions of Lieutenant Munro.

THE West India company being gradually reduced to about fifty men, it was strengthened in March to 110, by the arrival at Barbadoes, in the 'Flora' transport, of fifty-eight men. During the years 1810 and 1811 the number of deaths in the company from yellow fever was thirty.

The detachment of the corps in Portugal was increased to seventy-eight of all ranks, by the landing at Lisbon of two sergeants and fifty-seven rank and file under Lieutenant P. Wright of the royal engineers. Thirty-four of the reinforcement were forthwith sent to the Lines of Torres Vedras and the Almada position; and the remaining twenty-five joined the head-quarters of the army, under Captain George Ross and Lieutenant Stanway.¹

While these movements were being effected, two artificers of the detachment were present at the recapture of Olivenza in April, under the command of Captain Squire, R.E.²

Soon after the reduction of Olivenza the siege party was augmented to twenty-seven, by the arrival at Elvas of twenty-five men under Captain George Ross. Of this increase not a man had ever seen the construction of a sap, battery, or trench.

¹ Jones's 'Sieges' vol. i. p. 377, 2nd edit.

² *Ibid.* p. 6.

The whole were therefore daily drilled in the formation of field-works and in making fascines and gabions.³ In these instructional operations they soon acquired sufficient knowledge to render themselves useful to their officers; and, at the same time, showed intelligence and alacrity in aiding in the construction of the flying-bridges across the Guadiana at Jaramenha.

These twenty-seven men were employed in the first siege of Badajoz. Reduced by two, they were also present at the second siege of that fortress. On both occasions the diligence and exertions of the detachment were prominent; and, assisted by the line workmen, they quickly repaired the broken batteries and damaged embrasures. "Many a fine fellow," says a well-known author, "lost his life in endeavouring to vie with the men of the engineers."⁴

In the second siege, on the night before the storming, sergeant William Rogers, and three intrepid men of the corps, accompanied Captain Patton, R.E., on the dangerous service of reconnoitring the fords of the Rivillas, and the approach to the castle breach beyond the river. They conducted the examination for a time and then returned to the works for a file of men as a guard. With this escort they retraced their steps; but left it behind at a short distance from the breach, when the captain and his "trusty sergeant" went forward alone and completed the reconnaissance. In returning to the guard the captain stumbled, and the clanking of his sword drawing the attention of the French sentinels, they fired, and he fell mortally wounded. Sergeant Rogers protected his captain till he gained the escort, with whose assistance he succeeded in bearing him alive to the trenches. Captain Patton was able to make his report of the practicability of the assault and soon afterwards expired.⁵ Sergeant Rogers died at Fuente Guinaldo in the following August. Of him Colonel Fletcher wrote: "he

³ Jones's 'Sieges,' vol. i., p. 10, 2nd edit.

⁴ 'United Service Journal,' ii., 1831, p. 329.

⁵ Jones's 'Sieges,' vol. i., p. 70, 2nd edit. 'United Service Journal,' ii., 1831, p. 331.

was an attentive, good soldier, and in every way a most estimable character.⁵

In May the detachment under Lieutenant-Colonel Fletcher received an addition of thirty-nine men; and on the 29th June a further reinforcement of sixty-three non-commissioned officers and men under Lieutenants Melhuish and De Sulaberry, royal engineers. In consequence of this augmentation, the men of the infantry acting as overseers and mechanics on the lines, rejoined their respective regiments; and the posts thus vacated were occupied by the newly-arrived detachments of military artificers.⁶

The whole force of the corps in Portugal amounted in July to 8 sergeants, 5 corporals, 16 second corporals, 3 drummers, and 145 privates; total, 177. Of this number a comparatively small party only was kept with the army, whilst the remainder were distributed to the lines, Sobral, Oeyras, the Almada position, Peniche, Abrantes, Albandra, Fort St. Julian, &c. In conducting the works at those places, "the abilities and good conduct of the men were found of the utmost advantage." At Fort St. Julian particularly, where they were employed in the formation of four extensive jetties for the embarkation of troops in case of necessity, their skill and expertness were found of great importance. Sergeant John McKay had the executive superintendence of the work under the direction of Captain Holloway, R.E.

The detachment with the moving army was broken up into sections of five or six men to each division or corps, and one or other of them was at the blockade of Almeida, Fuentes d'Onoro, Albuera, Campo Maior, and the several other actions which occurred in the Peninsula during the campaign of 1811.

From Cadiz Sub-Lieutenant Davie and fifty men under Captain J. F. Birch of the royal engineers, were detached with Sir Thomas Graham's force, and landed at Algeciras 22nd February. Being armed with short swords only, Sir Thomas caused them to be furnished with such spare muskets, accoutrements, and ammunition as could be collected, to defend them-

⁶ Jones's 'Sieges,' vol. i., p. 90, 2nd edit.

selves if necessary on the march. They were then placed at the head of the column to remove obstructions and facilitate the advance of the army. On the 5th March, Barrosa was fought, and the detachment of artificers was present in the battle. Here sergeant John Cameron gave a manifestation of his zeal by leading to the charge a section of seven men. They pressed where the fight was warmest; and in a few moments lost one private—John Storie—killed and two wounded. The blue uniform of the artificers was distinctly seen among the red coats of the line, and Sir Thomas Graham ordered the instant withdrawal of the party to the rear, observing that he might want it for other work. The sergeant was to have been tried by a court-martial for taking the men into action without orders; but his bravery saved him.

In June a second-corporal and four military artificers of the Cadiz company under Lieutenant Harry D. Jones, were attached to Colonel Skerrett's expedition to assist the Spaniards in sustaining the siege of Tarragona; but the fortress fell while the British troops were in the roadstead. The party of artificers landed and occupied quarters in St. George's Barracks, near Mahon, in the island of Minorca, and returned to La Isla in July.

In the following October, two artificers were sent from Cadiz for the defence of Tarifa under Captain C. F. Smith, R.E. Two also were sent there from Gibraltar by Colonel Sir Charles Holloway, the chief engineer at the fortress. Ultimately the engineers' means were increased to seventeen men of all ranks, who were employed as overseers in strengthening the defences of the place, and they carried on their duty with energy and credit. One private was wounded on the 29th December. A detachment of variable strength continued at Tarifa until April, 1813, when it returned to Cadiz.

A reinforcement of twenty men under Sub-Lieutenant Stewart Calder, sailed in November on board the 'Tartar' transport for Cadiz, and landed before the end of the year. The artificer force there now counted 101 of all ranks.

Anholt, an island of Denmark in possession of the British, had been attacked by the Danes in March, and the fortifications

consequently were much damaged. No officer of the royal engineers being available for the duty of restoring the defences, corporal Alexander Borthwick of the royal military artificers, an experienced mechanic, was sent there in His Majesty's ship 'Helder,' with two privates as overseers. They landed in September and were quartered in Fort Yorke under Lieutenant John Bezant, the ordnance storekeeper. The marines on the island were employed on the works, and each received for his labour 2s. 4d. a-day. They worked with attention and spirit. In six months all the authorized renewals and improvements were executed; and in May, a further sum of 3,700*l.* having been voted for completing the defences of the island, additional works were commenced to place the fortifications in a state to sustain a regular siege. In preparing to meet an apprehended attack on the island by the Danes, corporal Borthwick made various effective arrangements for the disposition and employment of the working parties, and gained the thanks of the Military Commandant, Major Torrens, royal marines. Shortly after, Admiral Martin being of opinion that the fortifications were sufficiently tenable to stand an attack, the works were suspended; and in August, 1812, Borthwick and his overseers returned to England. For his conduct and services at Anholt he was promoted to be sergeant; and a commission to a sub-lieutenancy was to have been conferred on him, but in the interim he became involved in some serious irregularities, which prevented the reward and ultimately ruined him.

So many detachments had been provided for the colonies and the war, that appeals for reinforcements or more extended aid could only occasionally be attended to. From the Peninsula and elsewhere, therefore, representations had been made of the necessity for increasing the corps, and augmenting the engineers' means for carrying on with efficiency the duties of the department. The proposals at length met with due consideration; and on the 28th May a warrant was issued for an improved organization of the corps, enlarging its establishment to an extent commensurate with the precautions which the disturbed state of Europe rendered advisable.

The warrant sanctioned an increase of 1,347 men, abolished the rank of company-sergeant-major, added to the number of the sub-lieutenants, and divided the corps into four battalions of eight companies, each company being constituted as follows :—

Sub-Lieutenant	1
Sergeants	5
Corporals	5
Second-Corporals	5
Drummers	3
Carpenters	15
Masons	10
Bricklayers	6
Smiths	4
Wheelers	2
Collar-makers	2
Cook	1
Miners ⁷	30
	—
Total	89

The establishment of the corps was fixed as under :—

Staff {	Adjutants ⁸	4
	Sergeant-majors	4
	Quartermaster-Sergeants	4
	Drum-major	1
Sub-Lieutenants	32	
Sergeants	160	
Corporals	160	
Second-Corporals	167	
Drummers	96	
Privates	2,240	
	—	
Total	2,861	

exclusive of the three companies of Maltese military artificers.

The annual expense of the corps, not including working pay and other fluctuating contingencies, amounted to 87,736*l.* 14*s.* 3*d.* At this period 5 sub-lieutenants, 1 sergeant-major, and 130 men were employed on the recruiting service.

⁷ A third of whom were to be gardeners, hedgers, or canal-diggers, but only to be enlisted on special authority from head-quarters.

⁸ These appointments were never conferred. The whole business of the corps was carried on by an Adjutant, who held his office independently of the battalions.

In all practicable cases, general and field-officers were deprived of the command of companies, which now ceased to be stationary, but were removed by rotation of relief from one station to another, the same as the companies of the royal artillery. The employment of men on detached duties was also discouraged, and companies were composed of a convenient strength to enable them to move in bodies.

Upon the stationary condition of the corps a celebrated officer of the royal engineers has made the subjoined correct remarks:—"From the close of the American war till the year 1811, all the companies of royal military artificers were kept permanently fixed at their respective stations, both at home and abroad, where they remained for life, in what may, for military men, be styled a state of vegetation; so that they were, at that period, a vast number of men who had actually grown grey in the corps, who had never entered a transport, nor made a single day's march from the head-quarters of their company. To the men at Gibraltar and other foreign stations the service of the corps was thus rendered almost equivalent to transportation for life. Everywhere they intermixed with civilians; they married in a proportion unknown in any other corps; so much so, that the number of women and children belonging to one company was often equal to that of a battalion of the line."⁹

Under the new arrangement the companies were distributed as follows:—

Companies.		Companies.	
Woolwich	6	Cork	2
Chatham	2	Gibraltar	3
Portsmouth and Gosport .	3	Newfoundland	1
Plymouth	2	Halifax	1
Dover	2	West Indies	2
Guernsey	1	Cadiz	2
Jersey	1	Portugal	4

⁹ Pasley's 'Elementary Fortification,' note A, p. iv., vol. i.

¹⁰ There was a William Painter at Gibraltar, whose affluence was something extraordinary. He enlisted into the corps in July, 1798, and though a man of very useful intelligence, only attained the rank of second-corporal in 1807. He tried to procure his discharge to return to his estate in Cornwall, but such was the pressure for men, his desire was negatived. His humble position,

with detachments from the above to Eastbourne and the Sussex coast, Hythe, Cape Breton, New Brunswick, Ceylon, Cape of Good Hope, Sicily, the Ionian Islands, and Madeira.

The companies at Cadiz were the sixth and seventh of the first battalion; and those in Portugal were the fifth, sixth, seventh, and eighth of the second battalion. At this time the corps counted a force of nearly 1,500 men. More than half were employed in foreign possessions and colonial defence. The remainder, distributed in home garrisons and the Channel Islands, included a large proportion of aged men, invalids, and recruits. By the end of the year the reconstruction of the companies was completed; and from continual accessions of squads of recruits, rapidly equipped and disciplined, the corps was soon in a condition, to a greater extent than heretofore, to meet such incidental necessities as might arise.

Eleven sergeants were commissioned to be sub-lieutenants during the year. Some joined from the royal artillery. All were distinguished either as soldiers or artificers, particularly Sub-Lieutenant Munro, who was an "ingenious and skilful mechanic," and his inventions, which met with general approbation, were attended with considerable saving to the Government. The captain of his company, in making a record of his acquirements, wrote that Lieutenant Munro "was the most

however, did not prevent his living in ease and luxury. He kept his servants, horses, and, it is said, his carriage, and entertained and enjoyed very good society. Well could he do all this, for, coupling with his own receipts his wife's settlement, he possessed an income of *eleven hundreds pounds a-year!* He died at the Rock, August 13, 1811, aged 45 years. By his Will he left 5000*l.* stock to his two sons—John, and William Gribble; 300*l.* to Sub-Lieutenant Falconer and his family, and a few smaller legacies to relatives and an attached servant, besides considerable landed property, houses, and the usual legal addenda of "messuages, tenements, and hereditaments" at Gwennap in Cornwall to his elder son John, "and his heirs for ever." The widow, under a *curtesy*, was in receipt of 550*l.* a-year.

As if to show how likely fortune is to be overtaken by calamity, Sub-Lieutenant Falconer, five days after the death-bed remembrance of the corporal, was fired at from an open window by private Samuel Fraser. The ball luckily missed him, but whizzed sufficiently near to be alarming. The ruffian was sent to a condemned regiment in commutation for his sentence of one thousand lashes!

zealous and intelligent non-commissioned officer whom he had met in the course of his services."¹¹

¹¹ He invented an engine for nipping lead shot, used for years in the royal laboratory, but for which an impostor and spy, named De Haine, received a reward of 500*l*. While filling the office of inspector of ordnance stores, he made various improvements in the mechanical and intrenching tools. He also detected many extraordinary frauds in the deliveries made by contractors. In one attempted imposition only, he saved the Government 2000*l*. He designed and constructed a life-ladder, which was frequently used with success at fires, and an ingenious mortar-mill which occasioned a great saving of expense to the department. At Chatham he invented many useful tools, implements, and apparatus, and his services were repeatedly acknowledged in the order books of the establishment.

1812.

Plymouth company instructed in field duties—Engineer establishment at Chatham—Major Pasley appointed its director—Discipline and drill of corps—Its character—Sir John Sinclair ex-private—Title of corps changed—Captain G. Buchanan—A sergeant acrobat—Cuidad Rodrigo—Exertions of a company on the march to the siege—Repairs to the fortress—Siege of Badajoz—Difficulties in removing the stores to the park—Duties of the sappers in the operation—Gallant behaviour of Patrick Rooney and William Harry—Also of a party at Fort Pieurina, and of Patrick Burke and Robert Miller—Hazardous attempt to blow down the batardeau in the ditch of the lunette, and conduct of corporal Stack—Bravery of a party in mining under the bridge of the inundation—Distribution of the Peninsular companies and their services—Bridges of Yecla and Serrada—Reinforcement to Spain—Salamanca—Burgos, and boldness of Patrick Burke and Andrew Alexander at the siege—Bridge of Alba—Carthagenia—Reinforcement to Cadiz; action at Seville—Reinforcement to the Peninsula and distribution of the sappers—Green Island—Tarragona—First detachment to Bermuda.

MAJOR PASLEY, R.E., on his appointment to the Plymouth station, occasionally practised his company in sapping and mining. He was one of those officers who took pains to improve the military appearance and efficiency of his men, and to make them useful either for home or foreign employment. He is believed to have been the first officer who represented the advantage of training the corps in the construction of military field-works.

After the failure of Badajoz in 1811 the necessity of this measure was strongly advocated by the war officers. Then it was recommended to form a corps under the name of royal sappers and miners, to be composed of six companies chosen from the royal military artificers, which after receiving some instruction in the art, was to be sent to the Peninsula to aid the troops in their future siege operations.¹ Early in this year

¹ Jones's 'Sieges,' 2nd edit., ii., p. 390.

[1812] the suggestion was repeated by Sir Richard Fletcher; and Lord Wellington having also, in the most forcible manner, brought the subject to the notice of the Secretary of State,² a warrant was issued under date of the 23rd April for the formation of an establishment for instructing the corps in military field-works.

Lord Mulgrave, the Master-General, selected Chatham as the most suitable place for carrying out the royal orders, and appointed Major C. W. Pasley director of the establishment. The exertions of that officer at Plymouth naturally singled him out for the post. The better to effect his purpose, he published for the use of the corps, elementary works on fortification, geometry, &c. of the greatest simplicity; and they have ever since been the text-books of the institution. In addition to sapping and mining, his system comprised bridge-making, pontooning, the use of ropes, mechanical appliances, and all other arts and contrivances, which the corps, in its connection with the engineer department, is likely to be called on to perform. "Uniting," says Sir John Jones, "great zeal and unwearied perseverance with good talents" and judgment, Major Pasley "succeeded in extending the course far beyond these objects," and not only "filled the ranks of the corps with good scholars, good surveyors, and good draughtsmen," but enabled many, after quitting the service, to occupy with ability and credit, situations of considerable importance in civil life.³

The formation of the school at Chatham increased the means for discipline and drill. Other stations, stimulated by the example, paid greater attention to their enforcement. The injurious system of changing officers incessantly was now abolished; and the juniors, among a stated number of the second captains, first lieutenants, and second lieutenants of the royal engineers, were appointed regimental officers of the companies. Sir John Jones has recorded that "the men generally were of superior acquirements and well-disposed," and the above changes

² 'Wellington Dispatches,' 1845, v., p. 508.

³ Jones's 'Sieges,' 2nd edit., ii., p. 392.

had the best possible effect upon their general behaviour.⁴ "By linking officers and men together," he added, "and closely connecting their mutual interests, discipline and pride were given to the soldier," and character to the corps.⁵

More fully to accord with its recognized duties the Master-General on the 4th August, ordered that the royal military artificers should be hereafter styled, Royal Military Artificers or Sappers and Miners.⁶

Captain G. Buchanan, the adjutant, resigned the appointment, and Captain Rice Jones, under commission dated 1st February, succeeded to it. During his period of office, Captain Buchanan, besides attending to its many official requirements and details, performed duty on the works like other officers of engineers. By his application and exertions he ruined his health. Captain Rice Jones was relieved from the duties of the district, and the pay of the appointment was increased from 6*s.* to 10*s.* a-day.⁷

⁴ Among the recruits at this period was Sir John Sinclair, Bart., who, on the 12th August, 1812, enlisted in the name of John Smith. Through various misfortunes he was reduced from affluence to poverty. Noticed by Colonel Pilkington, R.E., for his uniform good conduct and attainments, he was promoted to the rank of second-corporal, and provided with a quarter at the main-guard in the royal arsenal. His lady sometimes visited him in all the pride of her station, but his own rank was as yet unsuspected. From a comrade—afterwards Sub-Lieutenant H. B. Mackenzie—he frequently borrowed plain clothes to elude arrest in the streets, and invariably proceeded to the Treasury by water to receive his allowance. He was at length dogged to Woolwich, and, on the 31st August, 1813, being taken, was thrown into the debtors' side of Newgate, from whence he was removed to the Fleet Prison, where, for a year and a half he was confined, and was then only released by an error in law. Thirteen months' sickness and distress followed his release, during which time he was supplied with means by an acquaintance of his earlier and happier days. All the while the whereabouts of John Smith was unknown, but, advised by his friend, he confessed himself a deserter, and in imploring pardon and indemnity for past errors, solicited to be received for life in the New South Wales Corps. The pardon was granted, and being relieved from further service in the sappers, he was again left at liberty to follow his own inclination.

⁵ Jones's 'Sieges,' 2nd edit., ii., pp. 390, 391.

⁶ Sir John Jones, by mistake, vol. ii. p. 390, makes the alteration of the name of the corps antecedent to the creation of the establishment at Chatham.

⁷ Soon after this change, an act of gross indiscipline occurred, which will afford a tolerable notion of some of the singular characters who held rank in

The siege of Cuidad Rodrigo began on the 8th and terminated on the 19th January when the fortress was carried by storm. In this siege eighteen rank and file of the royal military artificers were present, of whom one was killed and ten were wounded. In carrying on their duties they were sometimes annoyed by the presence of light balls thrown by the enemy into the sap. The instant they alighted some bold sappers, heedless of the peril they incurred, rushed to the spot, and in a few seconds extinguished them with sand-bags or smothered them by shovelling earth upon the flames.⁸ The conduct of the party during the operations was praised by Lord Wellington.⁹

To join the siege party, the fifth company second battalion of forty-one men, had been embodied at Alhandra from the different districts of Torres Vedras, and marched for Cuidad Rodrigo on the 2nd January. It had in charge a large assortment of intrenching tools to be used in the works before that fortress. The weather was bitterly cold, a considerable quantity of rain had fallen, and the roads were cut into deep ruts and covered with pools. Frequently the jaded mules dropped from fatigue; and to relieve them, the men were constantly compelled, either to lead them instead of the disaffected muleteers, or take the labour of the animals themselves. After a trying and toilsome journey of seventeen days, the company arrived in front of Cuidad Rodrigo on the night of the 19th January, but took no part in the storming.¹⁰

the corps. A sergeant's guard usually mounted in the sappers' barracks at Woolwich. One morning sergeant Millar was appointed to the new guard, and during the ceremony of "mounting," was posted in front of it. Lieutenant Eaves, the officer on duty, gave the usual words of command. "Sergeant, to your guard, march!" Millar no sooner heard it, than he whirled his halberd in the air, and as every one stood amazed to see the upshot of this mad manœuvre, the pike turned point downwards and stuck in the earth. At this moment, to complete the extravaganza, Millar pitched on his hands, and with his legs towering erect in the air, paddled, with all the flexibility and steadiness of an acrobat, to his wondering guard!

⁸ Jones's 'Sieges,' i. p. 369, 3rd edit., and note added by Colonel Harry D. Jones.

⁹ 'Wellington Dispatches,' 1845, v., p. 476.

¹⁰ Sir John Jones, in his 'Sieges,' i. p. 130, 2nd edit., records, by mistake, the arrival of the company on the 15th instead of the 19th January.

The above company and detachment were afterwards employed in restoring and improving the defences of the place. Paid by measurement for their labour, they greatly exerted themselves, notwithstanding the bitter weather to which they were exposed. Corporal James Douglas was intrusted with the charge of the restoration.

In the siege of Badajoz from 16th March to 6th April, the military artificers bore an important part. There were present 115 of all ranks, being portions of the fifth and seventh companies, second battalion, from Ciudad Rodrigo; and the sixth of the second battalion from the Almada position. A company from Cadiz comprising men of the sixth and seventh companies, first battalion, did not join till nearly the conclusion of the siege. The company disembarked at Ayamonte and ascended the valley of the Guadiana on the Portugal side, partly by boats and partly by marching. No British soldiers, save this company, had ever been in that part of Portugal.

All the engineers' means for the operation were conveyed from Elvas to Badajoz under charge of the corps, for which purpose 120 pairs of bullocks were pressed into the service. The effectual removal of the stores was accomplished under great difficulties. From the desertion of the drivers, taking with them their oxen, and the weakly condition of others, many of the sappers frequently yoked themselves to the abandoned burdens, and in carrying them through the Guadiana at the fords, were sometimes borne down the stream by the rapidity of the current. Nearly all the stores, however, reached the depôt at the appointed time.

In the distribution of the men, a strong party was nominated for the duty of the park, to repair tools, make scaling-ladders, platforms, &c., and the remainder, told off into seven brigades, performed good services as overseers and leading sappers in the trenches and the batteries. Sub-Lieutenants A. Wallace and R. Gibb who joined in January, volunteered their services as assistants in the trenches, and both discharged their duties "extremely well." Their conduct was noticed in flattering terms in a letter to General Mann, the inspector-general of fortifications.

Soon after commencing operations, corporal Patrick Rooney signalized himself by laying gun platforms in the day-time under a warm fire from the enemy. No less conspicuous was private William Harry, who opened in daylight under fire of the Picurina, the embrasures of a masked battery. In executing these dangerous services, their firmness and skill had the effect of stimulating the workmen to the prompt performance of similar exploits.

At the storming of Fort Picurina the royal military artificers who preceded the columns, conducted themselves with the "greatest gallantry and coolness." Particular mention is made of those who accompanied Captain Holloway of the royal engineers, in leading the reserve column to the place. Encumbered with ladders and axes, they broke through a line of palisades on the covertway, planted the ladders against the counterescarp, and then, descending into the ditch, moved the ladders across to the scarp with the greatest "steadiness and precision." Instantly they mounted, and after tearing down the fraises to a sufficient extent for the escalade, ascended the ramparts and dashed through the embrasures into the fort. Private Patrick Burke, a bold soldier, took a leading part in the assault and was amongst the foremost that entered the place. On the parapet Captain Holloway fell severely wounded. Lance-corporal Robert Miller rushed to his rescue, and at imminent personal peril, guarded his body and bore him in safety to the camp.

Late in the siege a hazardous attempt was made by Lieutenant Stanway, R.E. to blow down the batardeau in the ditch of the lunette for the purpose of drawing off the inundation. He was accompanied by an officer and twenty men of the royal military artificers, of whom lance-corporal William Stack gave proof of prominent zeal and daring. The powder-barrels were duly placed against the dam and fired; but the effect intended was not produced, and the party returned to the trenches without loss.

In the final assault of Badajoz, selected men of the corps accompanied each of the columns to the breaches, bearing

ladders, hatchets, crowbars, &c., and executed the duty allotted to them with the utmost bravery. After storming the lunette St. Roque, a party of the royal military artificers, under Lieutenant Wright, R. E. displayed expertness and courage in mining under the dam and bridge of the inundation. Of the general services and conduct of the sappers "during the operations of the siege and in its close," it is recorded that they "distinguished" themselves.¹¹

Privates William Bond and Edward Doran were killed, and five rank and file wounded at the storming. In the trenches, during the operations, corporal John Blackadder was killed, and Sub-Lieutenant Wallace wounded. Many others also were wounded, but the precise number cannot be traced.

Soon after the capture, the detachment of the sixth and seventh companies, first battalion, returned to Cadiz, Major-General Cooke having represented the desirableness of maintaining the corps in adequate strength to carry out the defensive operations under his orders.¹² The sixth of the second battalion was attached to the expedition for besieging Tarragona,¹³ and portions of the fifth and seventh companies, second battalion, remained at Badajoz to assist in the repairs of the breaches, and in improving the defences of the town. One private was killed by the unexpected explosion of a blast when he applied the match to fire it. The restorations were effected before the close of the year, and to mark the date, some masons of the corps built the number of the year with 24-pound shot in the escarp wall of the face of the bastion La Trinidad.

¹¹ 'Wellington Dispatches,' edit. 1845, v., p. 579.

¹² *Ibid.* v., p. 650.

¹³ In the Dispatch to the Earl of Liverpool, dated Fuente Guinaldo, 10th June, 1812, the Earl of Wellington states, "I have likewise sent from this country to Gibraltar Lieutenant-Colonel Jones and four subaltern officers of engineers, and two companies of military artificers, including all the sappers there are with the army," to join the corps d'armée under Lieutenant-General Lord William Bentinck, "to make an attack on the eastern coast of the Peninsula, with the troops from Sicily."—Wellington Dispatches, 1845, v., p. 706, 707. The above company, 92 strong, was the only one despatched from Portugal, but one of the Maltese military artificers from Messina was added to the engineers' means for the siege, which made a combined sapper-force of 134 strong.

The bridges of Yecla and Serrada, which spanned the Yebra—a branch of the Douro between Salamanca and Ciudad Rodrigo—were mined in December 1811 by Spanish miners, with a few privates of the sappers as overseers, under the direction of Lieutenant W. Reid, royal engineers. Owing to the flinty nature of the cement giving the compactness of rock to the structures, it required a fortnight's unceasing toil—day and night—to drive the shafts. The mines were fired in April, following, when one arch of the Yecla was blown down, and a pier and two arches of the Serrada were destroyed.

Sub-Lieutenant C. Booth and ninety-five men reinforced the companies in Spain under Sir Richard Fletcher. Nine men also joined from Madeira. Both parties landed in April increasing the artificer force to 273 of all ranks. All the effective men were attached to the different divisions of the army, or were dispersed on various duties throughout the country. Those remaining at Badajoz were instructed in sapping and mining under Lieutenant Harry Jones of the royal engineers.

In June, nine rank and file were present under Lieutenant-Colonel Burgoyne, R.E., at the siege of the fortified posts at Salamanca. Private James Durant was killed in the trenches on the night of the 17th June, and four privates were wounded. Thanks for their good conduct in the siege of the forts was conveyed to them in general orders.¹⁴

Eight of the corps were present in August at the capture of the Retiro at Madrid, and at the siege of Burgos in September and October. All were employed as overseers in the park and the trenches. Corporal M. Devclin was killed, and the remaining seven were wounded. The whole party proved themselves to be good soldiers and skilful miners. Deriving their instruction, in great part, from the labours of previous sieges, they knew the best methods to achieve success. At Fort Christoval the want of experienced miners rendered it impracticable to crown the glacis and prevent the garrison removing the debris from the foot of the breach. At Burgos, on the contrary, though

¹⁴ 'Wellington Dispatches,' 1845, v., p. 724.

the assaults were frequent before the place fell, this handful of sappers, assisted by some miners from the guards, successfully worked up to the fortress, and formed effective breaches by mining, in the castle walls.¹⁵ Private Patrick Burke, a distinguished stormer at Badajoz, was remarked for his usefulness and resolution in the explosion of a mine; and private Andrew Alexander for his valour in leading the workmen to crown the crater of a mine on the enemy's glacis before the breach. The fifth company, second battalion, was sent in advance with stores for the siege but arrived too late to share in the operation.

In the retreat to the frontier of Portugal a few men of the corps mined the bridge at Alba on the Tormes, under Captain Goldfinch of the engineers. An eye-witness who observed their exertions says, "In crossing the bridge, we found the sappers hard at work mining and laying barrels of gunpowder to blow up the centre arch."¹⁶ The bridge was accordingly destroyed to check the advance of the enemy. This small party also assisted in the hasty intrenchments thrown up to defend the castle, and was present in repulsing the attack on the place.

In January a corporal and nine privates were detached from La Isla to Carthagena to strengthen the fortifications there. Private Thomas Grewer was killed in springing a mine. The detachment returned to La Isla in April, 1814.

A draft of twenty-eight non-commissioned officers and men landed at Cadiz in April to reinforce the sixth and seventh companies, first battalion. In August following, a sergeant and ten rank and file were present with Colonel Skerrit's force in the action at Seville on the 27th of the month. They rejoined their companies in September.

Late in the year Lieutenant Matson of the royal engineers, having under his command Sub-Lieutenants R. Turner and C. Gratton and 135 non-commissioned officers and men, joined the corps in the Peninsula. Many of them had been instructed in

¹⁵ Jones's 'Sieges,' notes by Colonel Harry D. Jones, i., p. 135, 377, 3rd edit.

¹⁶ 'United Service Journal,' 2, 1829, p. 284, 285.

the formation of military field-works. The total of the artificer force in Spain and Portugal in December, reached the following numbers :—

Lisbon, Badajoz, and with the army in the field .	303
Alicant	92
Cadiz	103
Tarifa	11
Carthageua	6
	—
Total	515

including Sub-Lieutenants Wallace, Gibb, Booth, Turner, and Gratton. During the year the casualties in the detachment under Sir Richard Fletcher were, nine invalided and forty-three deaths. In May the number sick counted thirty-one; in December it was increased to sixty-one.

At Greca Island, opposite Algeciras, four privates were employed in repairing the defences early in the year under Lieutenant A. Brown of the corps. When completed they returned to Gibraltar.

The first company of Maltese Artificers of forty-one total, and one smith of the royal military artificers, left Messina in June under the command of Major Thackeray, R.E., with the expedition against Tarragona. At Port Mahon, Minorca, they were joined by the sixth company, first battalion. Both companies soon afterwards landed at Alicant, and portions of them were employed on such occasional services as the course of events demanded.

Bermuda was this year appointed a station for the corps. Two sergeants, one drummer, and fifty rank and file, embarked on the 21st August on board the 'Catherine,' freight-ship, and arrived at the island 20th November. The detachment generally were inferior artificers and ill-behaved men. Throughout the voyage they were discontented and mutinous; and after landing, animadversion and punishment for a long time had but little effect in checking their excesses and insubordination. Captain Cunningham, royal engineers, commanded the party.

1813.

Designation of corps modified—Uniform—Working-dress—Arms—Mode of promoting non-commissioned officers—Rank of colour-sergeant created—Company to Canada—Reinforcement to Bermuda—Sub-Lieutenant Mackenzie appointed Town-Major there—Sickness at Gibraltar—Services of company in East Catalonia—Malha da Sorda—Services on the advance to Vittoria—Bridge at Toro—Blockade of Pampeluna—Pyrenees—Stockades near Roncesvalles—San Sebastian and services of the corps at the siege—Valour of sergeants Powis and Davis—Of private Borland; and of corporal Evans—Casualties in the siege—Restoration of the fortifications—Pontoon train—Bidassoa—Bridge across it, and conduct of privates Owen Connor and Nowlan—Vera—Nivelle, and behaviour of corporal Councill—Bridge over that river—Bridges over the Nive, and daring exertions of private Dowling—Fording the Nive, and posts of honour accorded to corporal Jamieson and private Borland—Strength and distribution of corps in the Peninsula—Recruiting.

To correspond with the intentions of the Government with respect to the future duties of the corps, the title was again changed on the 5th March, from "royal military artificers or sappers and miners," to "Royal Sappers and Miners." Some mistrust and discontent were occasioned by this second alteration, but conciliatory explanations restored confidence and satisfaction.

A change of dress followed the change of name. This originated with the war officers in the Peninsula. Working with the line at the sieges, it was considered desirable to assimilate the dress of the two services; and scarlet with blue facings was introduced to render the men less conspicuous to the enemy and less subject to danger. No material alteration was made in the cut and frogging of the coat. For particular parades, the white breeches and long gaiters were continued, except in the Peninsula, where grey trousers and ankle

gaiters were substituted. The chaco—a singular concoction from the German mitre, preserved in Hogarth's "March to Finchley," and the "smoke-jack"—was much higher in front than in rear and decorated with yellow cords and tassels. A short white feather, worn at the left side of the chaco, just peered above the curve of the fan. See Plate X.

The working dress consisted of a plain red jacket with short skirts, grey trousers with red stripes, short spats, shoes with brass clasps, and a leather cap worn lengthways, or square, bearing on its front leaf in brass, the initials of the corps, and subsequently a crown and garter ornament. This much-disliked head-covering was a remote but unsightly variety of the cocked hat; and in lieu of tassels was furnished at the corners with black silk ribbon ties of some length. See Plate XI. Some companies wore white linen overalls, buttoned the whole length of the outer seam. At Cadiz, previous to the general change, the companies wore grey trousers with a black stripe down each outer seam, and a grey cloth forage-cap, trimmed with black braid, and the letters R. M. A. on the left side of the cap.

Greater attention was now paid to arming the corps. Heretofore, in this respect, many irregularities had crept in. At Newfoundland the detachment was armed with swords, cutlasses, and accoutrements of every shape, saved from the American war. In the West Indies the companies used the shattered remains of old armouries and black accoutrements of various patterns. In Sicily the military artificers could only muster a few foreign cumbersome firelocks; whilst the Maltese artificers were unable to appear with a weapon of any kind. For a number of years the Gibraltar companies wore the obsolete accoutrements and cartouche-boxes of a disbanded Newfoundland regiment; and a party of the corps on its way to the Peninsula, did duty with pikes and blunderbusses. Among the sergeants the swords and belts were very dissimilar. Permitted to purchase their own arms, more attention was paid to fancy and ability of payment than uniformity. These and other anomalies were progressively removed from

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gaiters were substituted. The crest a singular concoction from the crown an mitre, presented in Hogarth's "March to Finchley" and the "military" — was much higher in front than behind and decorated with yellow cords and tassels. A plume of white feathers, worn at the left side of the chaco, just above the curve of the fan. See Plate X.

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Plate X

Royal Signals & Co.





Sgt. Shapere & Men



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the corps in consequence of the improved method of officering the companies.

In March an important plan was adopted for the promotion of non-commissioned officers. All men at home recommended for advancement, were sent to Woolwich to be examined. If found competent as artificers and soldiers, they were especially instructed in a uniform system of routine and drill, and returned perfect to their companies. A few years, however, showed the expense and inconvenience of the system, and it was necessarily relinquished.

In July the rank of colour-sergeant was granted to the corps. One was appointed to each company with the pay of 2s. 9½d. a-day, and was distinguished by the badge of the open colour and cross swords on the right arm. Sixpence a-day was also added to the pay of the sergeant-majors, which raised it to 4s. 1½d. a-day.

The third company, third battalion, of eighty-one men under Lieutenant G. Philpotts, R.E., and Sub-Lieutenant James A. Stephenson, sailed for Canada on board the 'Zodiac' transport on the 23rd April, and landed at Quebec on the 5th June. They had been trained in the field duties of the department at Chatham, and were the first of the corps ever employed in the Canadas. Nothing satisfactory is known of their services; but they appear to have been much dispersed through the country, the greatest numbers being at Burlington Heights, Prescott, Point Henry, York, and Kingston. The last station was the head-quarters of the company.

In the summer the detachment at Bermuda was increased to a company by the arrival of thirty men under Sub-Lieutenant Hugh B. Mackenzie,¹ from his Majesty's ship 'Ardent.'

At Gibraltar the companies suffered much from sickness during the year. Ophthalmia was also very prevalent. In December a malignant epidemic appeared in the garrison and nineteen deaths occurred in the companies. Nine other deaths

¹ In 1816 this officer was appointed Town-Major at Bermuda, and from the able manner in which he discharged its duties, was honoured with the confidence and approval of his patron, Sir James Cockburn.

took place in the year, and twenty-four were invalidated. The three companies at the Roek were now reduced from 267 to 141 of all ranks.

The sixth company, second battalion, attached to the Anglo-Sicilian army at Alicant, sent during the year portions of the company with three expeditions undertaken by Sir John Murray and Lord William Bentinck, who were present in the several movements and affairs of the campaign, including the action at the Biar Pass, battle of Castalla, siege and capture of Fort Belaguer, and the second and third sieges of Tarragona. Thirty-nine men of the Maltese sappers and miners accompanied these expeditions. Detachments of both corps were also cantoned, at different intervals, at Valencia; and thirty men of the company made, in the island of Ivica, a liberal provision of fascines, gabions, and platforms, for the last siege of Tarragona. After Suchet evacuated the place, and Lord William had marched to Villa Franca, the royal and Maltese sappers and miners commenced to clear and repair the breaches, and to restore, generally, the fortifications. Until April 1814 they continued so employed, when, the works having been placed in as defensible a state as before their recent destruction,² they sailed to rejoin the force under Lord William Bentinck in Italy.

With the exception of a few scattered detachments, the companies in the Peninsula under Sir Richard Fletcher were concentrated at Malha da Sorda, and in January the seventh company, first battalion, from Cadiz, also joined there. All were practised as occasion permitted in the construction of field-works under Lieutenant E. Matson, royal engineers. Sub-Lieutenant Gratton, who was appointed adjutant, drilled the companies and conducted the roster.

On the army breaking up cantonments, the seventh company, first battalion, and the fifth and seventh companies, second battalion, with Sub-Lieutenants Calder, Gratton, and Wallace, were attached to the pontoon train. The royal staff corps also accompanied it. Both corps assisted in the formation of

² 'United Service Journal,' iii., 1814, p. 77, 78.

bridges for the passage of the army. Carrying the pontoons down the steep banks of the Esla was an arduous service, but the bridge was thrown across the river with promptitude. Without loss or material casualty, the companies reached Vittoria, but were not present at the battle. At Zamora and Toro parties were left to construct earthworks for cover in the event of a retreat. Others stationed on the Douro and the Esla, guarded and used the flying bridges over those rivers whenever required by the troops.

The eighth company, second battalion, with Sub-Lieutenant Turner, was attached to the light division and encamped with the 43rd regiment. At night, while the Toro bridge was still burning, the company repaired the broken arch with ladders, trees, and planks, under the direction of Lieutenant Edward Matson, R.E.³ and was present at the battle of Vittoria on the 21st June, but not actively engaged. One private was severely wounded; and Sub-Lieutenant Turner received three shots about his person, but remained unhurt.

At the blockade of Pampeluna, from 25th June to 1st November, a detachment of twelve sappers and miners was employed and superintended the working parties under the direction of Major Goldfinch, royal engineers. Private James Napier was killed.

The seventh company first battalion, with Sub-Lieutenant Calder, attached to the corps of the army under the command of Lieutenant-General Sir Rowland Hill, was present at the operations in the Pyrenees, including the actions at Maya and Roncesvalles.

Under Lieutenant Peter Wright of the engineers, this company, assisted by working parties from the line, erected several musket-proof stockade-redoubts on the summits of the ridges in the neighbourhood of Roncesvalles; and as the weather was extremely cold, accompanied with rain and sometimes snow, the interior was so constructed as to serve the purpose of a barrack to shelter a garrison of about 200 men. Young trees were found

³ Sir W. Napier, in his 'Peninsular War,' attributes, by mistake, this service to Lieutenant G. Pringle, R.E.

in great abundance on the mountain sides, which were sawn in two for the work, and "the berms were filled up with a triangle of earth," to prevent the enemy creeping up the slopes and firing into the loop-holes. Attention was also paid to providing the troops with sufficient sustenance and the means of defence for a fortnight. Water was obtained from a cask sunk in the centre of the stockade, and an ample supply of loaded shells was procured from a foundry in the neighbourhood, to roll down the mountain should the enemy attempt to pass at its base, or to hurl into the ditch should he assail the garrison. The stockades were also provided with small ordnance when the situation required a more powerful armament.⁴

The fifth, seventh, and eighth companies, second battalion, and detachments of the sixth and seventh companies, first battalion, were present at the siege of San Sebastian from the 11th July to the 8th September. The second company, second battalion, joined there on the 20th August from England, and was the first company in the corps that appeared in the scarlet uniform. All the men composing it had been instructed at Chatham, and were derisively styled "Pasley's cadets." The greatest number at the siege counted five Sub-Lieutenants—Gratton, Stratton, Turner, Wallace, and Johnson, and 305 non-commissioned officers and men. The eighth company, second battalion, with Lieutenant Turner, was posted on the Cofre hills, and the other companies on the isthmus. The men were divided into three reliefs; each relief was on duty eight hours, but when the works required to be pressed, the periods of rest were shortened to meet the emergency. The sub-lieutenants acted as assistant engineers. A large party of the corps did duty in the park, and the remainder were employed as overseers of the working parties. They also had to place the gabions, fascines, platforms, &c., open and repair the embrasures, and execute all services requiring more than ordinary skill, such as commencing the saps and leading their progress. In the early

⁴ Manuscript, Royal Engineer Establishment. The model in the Model Room at Brompton, showing the details of one of the stockades, was made under the direction of Sub-Lieutenant Calder.

part of the siege the batteries and communications were wholly constructed by the sappers; but from the 16th July, these services, except in occasional instances of difficulty and danger, were performed by the line.

In both assaults parties of the corps assisted in carrying and placing the ladders for the stormers; others bore axes, crowbars, and intrenching tools. In the second assault it is recorded, that the party with picks and shovels "long persevered, with cool intrepidity, to form cover on the face of the breaches, but in vain." The assault, however, ultimately succeeded. As well in the trenches as at the stormings, the sappers and miners distinguished themselves by their usefulness, intelligence, and gallantry.⁵

Here may be given a little incident to show how cool were the sappers in carrying on their duties. Colonel Pasley has stated that "several of the embrasures of the breaching battery were cut in broad daylight, under fire, by a party of the corps under Lieutenant E. Matson, R.E., after the guns in a part of the battery previously finished, had actually opened against the fortress."⁶

Another instance is equally worthy of notice. "At one time,"¹¹ according to Major Reid, "the trunk of a large poplar tree completely stopped the progress of the men and defied all their efforts to move it, until a daring sapper gallantly jumping from the trench, stood exposed until he moved it from the head of the sap, and returned without being wounded."⁷

Striking instances of individual exploit follow, which are creditable to the soldiers whose names are associated with their performance. Sergeants William Powis and John Davis accompanied the first assault. Forced down the breach with the retreating stormers, they perceived Captain G. G. Lewis, R.E., lying badly wounded, exposed to the enemy's fire; and Davis,

⁵ Sir Thomas Graham, in 'Wellington Dispatches,' vi., p. 650, edit. 1845. Jones's 'Sieges,' ii., p. 391, 2nd edit.; and Pasley's 'Elementary Fortification,' note D, p. ix., vol. 1.

⁶ Pasley's 'Operations of a Siege,' ii., p. 246, note.

⁷ 'Instructions for the Defence of Fortresses,' translated by Major Reid, R.E., 1823, p. 20.

who but a few moments before had been wounded in the arm, returned with Powis to the breach and carried off their officer to the trenches. In effecting this gallant and humane act, Davis was a second time struck by a musket-ball, through which he lost an eye. By Major Pasley he was reported to be "a man of extraordinary merit and abilities, and a most skilful and ingenious artificer."⁸

No less distinguished was private Hugh Borland at the second storming. In placing his ladders he discovered that they were likely to become useless, from the joints being insecure, and while in the act of binding the ends together with his braces—an act of supererogation which the service scarcely contemplated—a ball pierced the root of his tongue and killed him.

Santa Clara, a rocky island off St. Sebastian, had been taken, and it was necessary to communicate with the officer of engineers there on a matter of great importance. It being broad daylight, no boat could venture across the bay without the certainty of being sunk. Corporal Thomas Evans therefore volunteered to execute the service. He immediately stripped himself, tied his cap round his neck with the despatch in it, and plunging into the stream, performed, under fire from the castle, this gallant exploit unscathed. The distance to the island was nearly a mile, and he returned with an answer in about an hour.

The casualties at the siege were as follows:—

At the sortie—one killed; private James Hicks: three taken prisoners,⁹ one of whom, private Owen Connor, was wounded.

In the trenches—four killed; second-corporals Findlay McDonald and Daniel Niblock, and privates Thomas Penhorwood and Peter Milne; Sub-Lieutenant Turner, wounded.

First storm—five killed; privates Samuel Clarke, James Dunn, William Corinack, Jonathan Millar, and James Morris: one died of wounds, private Stephen Teaff.

Second storm—four killed; second-corporal Henry Logan, privates Peter Walsh, John Flannagan, and Hugh Borland: twenty-nine wounded, of whom one died, second-corporal William Dodds.

⁸ From his perfect knowledge of the duties of field engineering, he was known among his comrades by the title of "Sap Major."

⁹ Corporal Charles Ford was one of the prisoners. He was of a respectable

Correct particulars of the wounded from the opening of the operations until the last assault cannot be obtained. The three prisoners taken at the sortie were returned to the corps on the 8th September. Not allowed, during their confinement, to throw up cover for their own safety, they were exposed in the castle, in the yard of the magazine, to all the fury of the siege.

On the removal of the troops from St. Sebastian, the fifth company, second battalion, was left at the fortress. Under the orders of Captain Frank Starway, royal engineers, it superintended a body of Spanish soldiers in reforming and restoring the fortifications. The company continued so employed for nearly five months after the abdication of Napoleon, and returned to Woolwich in September, 1814.

The remaining four companies moved with Lord Wellington's army, having in charge the stores and *matériel* of the department. On the arrival of the pontoon train at Passages, a strong detachment of the corps was placed under the direction of Lieutenant Piper, R.E., to assist in the formation of the required bridges.

In the passage of the Bidassoa on the 7th October, the sappers threw a pontoon bridge across the river near Irun. It was soon afterwards carried away by the tide; but, on being recovered, was speedily replaced.

About three miles higher up the river, at the foot of the Pyrenees, they also constructed a trestle bridge with a roadway

family, and had a brother a clergyman in the Church of England, presiding over the cure of the parish of Kilbeaconty in Ireland. In an article in the 'United Service Journal,' headed, "Captivity in San Sebastian," Captain Harry Jones, R.E., who also had been taken prisoner, alludes to this non-commissioned officer. "In the course of the day," he says, "I was asked whether I would like to speak to a corporal of sappers, who had been made a prisoner during the sortie. I was delighted at the prospect of seeing one of my old friends, but was greatly astonished, in the afternoon, by seeing a fine tall young man, a stranger, walking into the ward, dressed in a red jacket. He was the first sapper I had seen in the new uniform, as blue was the colour worn when I was taken prisoner. Upon inquiring when he joined the army from England, he replied, 'Yesterday morning. I was put on duty in the trenches last night, and was shortly afterwards brought into the town by the enemy.'"—'United Service Journal,' 1, 1841, p. 198.

of sleepers, covered by fascines and earth, under Captain Dickens, R.E. This bridge also was washed away by the violence of the current, and with it privates Owen Connor and John Nowlan, who at the time, were under the superstructure, fastening ropes from the land to the trestles to give stability to the bridge. Both these intrepid bridgemen, after a hard struggle, gained the shore.

The second company, second battalion, under Captain Pitts of the corps, was present in the action at Vera, and afterwards threw up a line of breastworks at the gorge of one of the passes through the mountains, and constructed several other works about the position.

At the battle of Nivelle, on the 10th of November, the four companies above mentioned were present but not actively engaged. Two or three small parties of the corps, however, had the honour of leading a strong force of the 27th regiment to the storming of a strong redoubt, under Lieutenant George West, R.E. They took with them long sand-bags, filled at the instant with fern, which they threw into the ditch; and jumping upon them, sprang to the parapet and entered the redoubt. Lance-corporal Edward Council of the corps, led one of the detachments to the storm and dashed into the works with the foremost soldier, who was a sergeant of the 27th regiment.

On the 11th November the second company, second battalion, threw a trestle bridge across the Nivelle, below Sarre, constructed from materials obtained from a farmhouse, under the direction of Captain Pitts and Sub-Lieutenant Stratton.

The seventh company, second battalion, being detached to Sarre, to arrange the hawser bridge for the passage of the Adour, the three remaining companies were present at the battle of the Nive, and the actions in front of Bayonne, from the 9th to 13th December. For the passage of the *corps d'armée* under Marshal Beresford and Sir Rowland Hill, the companies threw two bridges at Ustaritz, and repaired the shattered arches of another bridge at that place and one at Cambo. The first bridge thrown was made of pontoons under Captain

Boteler, R.E., in which private William Dowling distinguished himself by gallantly swimming across the river with the sheer line, and securing it to a picket on the enemy's side. When striking home his stake, he drew the fire of some French sentinels upon him, but returned unhurt. The second bridge resting upon eleven bays, was made by the second company, second battalion, under Sub-Lieutenant Stratton, directed by Captain Henderson, R.E., and formed from chance materials collected in the wood and the village. During the operations, another bridge was thrown by the sappers over a deep stream with a rapid current, beyond the Nive, and was formed of wine pipes and barrels, strengthened by two skiffs or chasse-marées, with a hastily-prepared roadway laid upon them.

Previous to the battle a few expert swimmers were selected to find the fords of the Nive, and to note the exact rising and falling of the tides. Corporal Alexander Jamieson and private William Braid found the three fords near Cambo. In the passage of the troops these two men, by appointment, guided the columns of Generals Byng and Barnes across the stream; and for their coolness and steadiness in executing the service, were rewarded by the Generals. The former received two doubloons, the latter one.

The four companies with the army were reinforced in November, by forty-nine men under Captain English, royal engineers, from England. On the 30th of the month, the total number in the south of France, at St. Sebastian, and Alicant, reached six sub-lieutenants and about 500 non-commissioned officers and men. The number sick in the different hospitals amounted to between sixty and seventy. The casualties during the year were, killed fifteen, deaths thirty-three, missing five, and invalidated thirteen. The head-quarters of the companies with Lord Wellington's army, were at Cambo, Ustaritz, and St. Jean de Luz, but the men were greatly dispersed and variously employed, in making redoubts, batteries, and entrenchments, and in the preparation of materials and appliances for the formation of bridges.

During the year the recruiting was carried on with great spirit. The number received by enlistment was 431, and by transfer from the militia 334. Six sub-lieutenants, one sergeant-major, and 144 non-commissioned officers and men, were employed on this service in the United Kingdom and Ireland. The corps now counted a total strength of 2,373, leaving still to complete it to the establishment 484 men.

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Wreck of 'Queen' transport; humanity of sergeant Mackenzie; heroic exertions of private M'Carthy—Quartermaster; Brigade-Major—Santona; useful services of corporal Hay—Bridge of Itzassu near Cambo—Orthes; conduct of sergeant Stephens—Toulouse—Bridge of the Adour; duties of the sappers—Flotilla to form the bridge—Casualties in venturing the bar—Conduct of the corps in its construction—Bayonne—Expedition to North America—Return to England of certain companies from the Peninsula—Company to Holland; its duties; bridge over the Maerk; Tholen; Fort Frederick—March for Antwerp—Action at Merxam—Esprit de corps—Coolness of sergeant Stevens and corporal Milburn—Distribution; bridge making—Surprise of Bergen-op-Zoom—Conduct of the sappers, and casualties in the operation—A mild Irishman—Bravery of corporal Creighton and private Lomas—South Beveland—Reinforcement to the Netherlands—Review by the Emperor of Russia—School for companies at Antwerp—Detachments in the Netherlands, company at Tournai—Movements of the company in Italy and Sicily—Expedition to Tuscany; party to Corfu—Canada; distribution of company there, and its active services—Reinforcement to Canada—Washington, Baltimore, New Orleans—Notice of corporal Scafield—Expedition to the State of Maine.

LATE in December, 1813, sergeant Richard Mackenzie with six invalids and their wives and children, embarked at Lisbon on board the 'Queen' transport. Separated during a tempest from the convoy, the vessel, after a dangerous passage, arrived off Falmouth, and entering the harbour, anchored at about half a mile from the shore to await a fair wind to sail for Portsmouth. On the 14th of January, at night, a violent storm arose; and early next morning, the ship, snapping her cable and parting her anchor, drifted on the rocks off Trefusis Point near Falmouth. The unabated severity of the wind kept the vessel constantly bumping upon the rocks, and in a short time the 'Queen' broke amidships. As long as practicable the crew and passengers clung to the gunwale and rigging, but the long-boat being at last disengaged, numbers crowded into it.

Sergeant Mackenzie was about the last who entered it; and even then, though the chance of life was hanging upon the prompt effort of the moment, he caught up a poor orphan boy shivering from cold and fright, and pushing him into the vessel *first*, followed after, and wedged himself in the bow of the boat. Without rudder or oars, the boat, scarcely able to hold the weight she bore, drifted to sea. Masses of the wreck floated about her and beat against her sides. Shock succeeding shock soon loosened her timbers, and the bottom giving way, the human freightage was cast into the sea. In less than two hours, out of 336 souls, 195 were lost. Two of the number with three women and their children, belonged to the party of sappers. One was private James M'Carthy, who had gained the shore on a fragment of the wreck, and plunging into the sea again, perished in an heroic attempt to save the wife of a comrade.

The commissions of Adjutant and Quartermaster, hitherto held by one officer, were separated in February; and quartermaster-sergeant James Galloway was promoted to be Quartermaster from the 1st of that month, with the pay of 8s. a-day, and 18*l.* 5*s.* a year for a servant. His dress and appointments were assimilated to those of the subaltern officers of royal engineers, with the exception of the head-dress, which was a cocked-hat, plumed with flowing cock-tail feathers. On the 20th of December following, the Adjutant, Captain Rice Jones, was advanced to the staff appointment of Brigade-Major; which rank has ever since been borne by the chief executive officer of the corps.

After the passage of the Bidassoa, Captain Wells, with two men of the eighth company second battalion, marched to Santona to co-operate with the Gallican, or fourth Spanish army, under General Barco. The historian of the Peninsular war has stated, that *some* sappers and miners were sent to quicken the operations of the Spanish officers, but a French writer, erring beyond all excuse, has magnified the *two* men into a *whole* battalion.¹ Under their captain, they superin-

¹ Napier's 'Peninsular War,' vi., p. 502, edit. 1840.

tended the prosecution of various field-works; and on account of his usefulness and intelligence, lance-corporal Hay was styled assistant engineer. Several villages in the vicinity of Santona were called upon to supply a certain number of scaling ladders for the operation, and corporal Hay, furnished with authority from General Barco, visited those localities, superintended the making of the ladders, and had them conveyed to the park. Both the sappers were present in the escalade of the fort of Puntal on the 13th February, and at the storming of the town and fort of Laredo on the 21st. Throughout the operations, corporal Hay was particularly noticed for his ability and zeal. Santona ultimately capitulated, and the two sappers rejoined their company in front of Bayonne.

Early in January ten artificers of the seventh company, first battalion, assisted by fifty Spanish soldiers, threw a very efficient bridge across a loop of the river Nive at Itzassu near Cambo, under the direction of Sub-Lieutenant Calder. The bridge was constructed by order of General Hill at the request of the Spanish General Morillo, to establish a communication with the rear and a brigade of his division which had not crossed the stream. A ferry had formerly existed at the spot by means of a small canoe which the enemy, in his retreat, had taken the precaution to sink. It was recovered by the sappers and turned to advantage in the operation. The site chosen for the bridge was accessible and convenient, being directly in rear of the division. For some distance along the shore the north side had a perpendicular face, high and craggy with projecting ledges; whilst the opposite shore was low and shingly, and inundated in wet weather. The bed of the river was rocky and uneven, showing such abrupt variations in its level, that piles or trestles could not be used for the formation. In some places the depth was 15 feet; in others not more than 4 or 5. Boats or craft of any kind could not be procured, and the expedient of a bridge of casks was therefore resorted to.

Barrels for the purpose—four feet long by two feet at the swell—were obtained from a wine manufactory in the village; chestnut planking, nails and bolts from different houses; trees

from the adjacent plantations to form the framework and shore piles; and bars of iron grating, taken from the vaults of a country churchyard, were converted into a chain of 20-inch links, and stretched across the river. This chain was fastened at one bank to a huge fragment of rock, brought from a distance by means of a hastily-constructed sledge; and at the other it was held firmly by one of the ordinary methods. The number of casks employed in the formation were thirty-five, arranged in five floats or piers of seven each, two piers being lashed together at each end of the raft, 18 feet from either shore, and one in the centre with a space between of 12 feet from either float. The piers were fixed in strong cradles or frames, and by simple connections each maintained a reciprocal bearing upon the other. From the low or south shore the raft was approached by a jetty 120 feet in length, resting on young trees driven into the soil in a double row, 8 feet wide and 10 feet asunder; and from the other by a wide gangway supported on a sunken rock, which was heightened to the required altitude by a pier of stout masonry built at the moment. The superstructure consisted of planks secured to frames, and also to baulks longitudinally laid on the floats; and when all was completed, the bridge was held in position by means of poles, 8 feet in length, running from the piers and linking to small double chains, which again were moored to the great chain cable by a series of stout hanger hooks. The slopes to the raft at each end were easy and natural, and contrivances were effected which permitted the bridge to ride with the tide without disarrangement. On both sides a hand-rail was placed for the convenience of the troops, which gave it a neat and finished appearance; and though executed with the hurry which a pressing movement demanded, it was so firmly put together that it fulfilled in every respect the objects of its construction, without even sustaining a break from the force of the current or fury of the storm.²

² Manuscript. Royal Engineer Establishment. The details of the construction of this bridge have been considered sufficiently interesting to be preserved in a model at the royal engineer establishment at Chatham.

The above company with its sub-lieutenant, and the eighth company, second battalion, struck camp in February and moved forward with the army. The former company was attached to the column under Sir Rowland Hill, and the latter to Marshal Beresford's. Both companies, numbering 130 of all ranks, were present at the battle of Orthes on the 27th of February, but their services in the action were of little importance. A portion of the companies being attached to the pontoon train, assisted to re-establish the ruined bridge of Berenx during the night of the 26th; and on the 27th, a small party under sergeant Thomas Stephens, who had distinguished himself in the demolition of the flood-gates at Flushing, destroyed a barricade in front of a bridge which led into the town of Orthes. In this little rencontre, sergeant Ninian Melville and private Samuel Needham were wounded, the latter mortally.

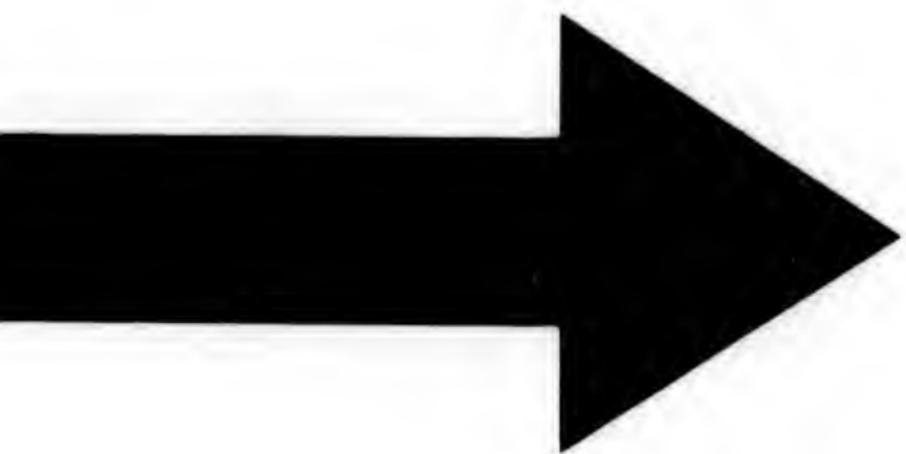
These companies, still attached to the advancing army, aided in forming the several pontoon and flying bridges required for the passage of the troops, both on the march from Orthes and just before the battle of Toulouse. In this action, fought on the 10th of April, the two companies were present, but were not required to perform any service worthy of especial remark.

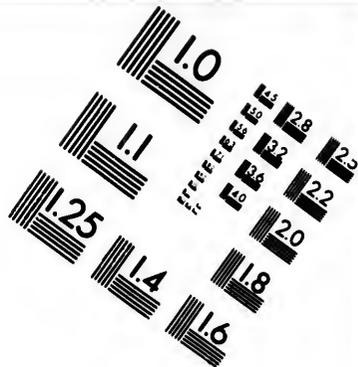
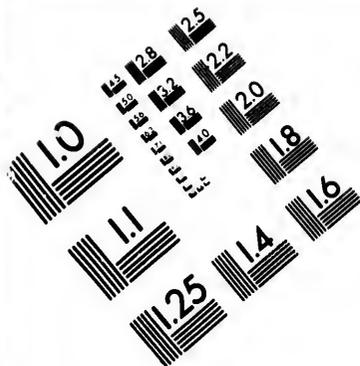
During the winter of 1813, the seventh company, second battalion with Sub-Lieutenant Wallace, was detached to St. Jean de Luz to prepare a bridge for the passage of the Adour; and early in January, Sub-Lieutenant Stratton with the second company, second battalion, was sent to Socoa to hasten its completion. These companies with the artificers of the guards and staff corps, and large parties of the royal navy, worked incessantly at the undertaking under the direction of the engineers.³

In the middle of February, the necessary apparatus and stores being ready and every preliminary arrangement completed, the greater part of the two companies were shipped on board the *chasse-marées*, intended to form the bridge. In two

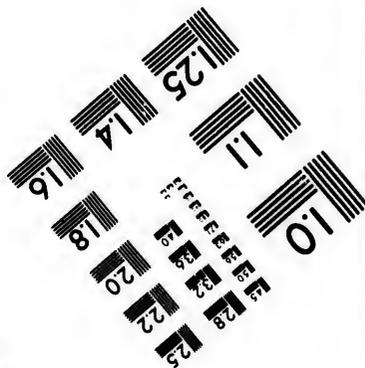
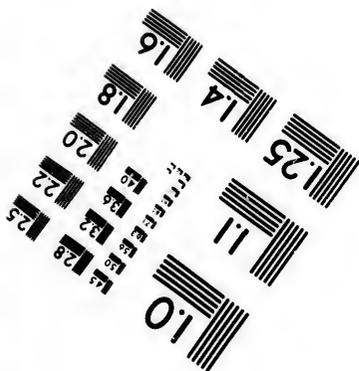
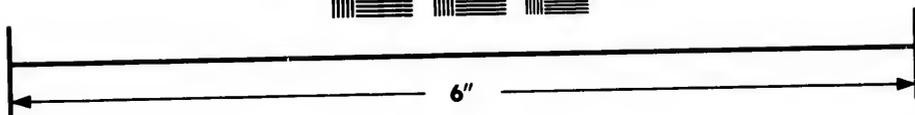
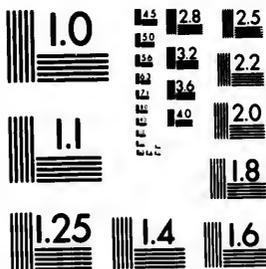
³ Jones's *Sieges*, ii., p. 107. 2nd edit.







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vessels six sappers were embarked, in others three, but the majority carried only two, who were destined to cut "away the waste boards to render the deck level, and also to spike down the timber, prepared with grooves to receive the cables, the moment the vessels should be moored."⁴

On the night of the 22nd, the flotilla put to sea and encountered some stormy weather on the passage. In the afternoon of the 24th it neared the Adour, when the sea, tossed into foaming waves by a driving gale, wore an aspect of peculiar danger. A high and angry surf being on the bar and the tide furious, many of the native crews ran below in terror and refused to navigate their boats. Several fell on their knees and spent much of their energy in earnest devotion. At length, urged to their duty by the angry threats of the engineers and sappers, most of the masters yielded a reluctant but desperate submission, and steering into the channel, one vessel after another cut through the frightful breakers and soon gained the position chosen for the bridge.

This hazardous service was not accomplished without loss to the sappers. In an instant, one vessel was engulfed on the bar, and second-corporal Patrick Power and private John M'Knight, perished. Another vessel had safely outridden the surf, but was overtaken by an overwhelming wave that dashed her to pieces. In this wreck, corporal James Gorman and private William Bunn were washed to the shore, and after several hours' insensibility and exposure to cold, reached their company in a miserable plight, the next morning.

In forming the bridge, the *chasse-marées* were anchored head and stern, about 30 feet apart; and as soon as the washboards were cut away and the grooved timbers spiked to the decks, the cables were stretched across the vessels from shore to shore, and the planks or superstructure quickly lashed to them. On the right bank of the river, the ends of the cables were secured to some 18-pounder guns half buried in the marsh; and on the left bank were hauled taut by mechanical ingenuity.

⁴ Jones's 'Sieges,' p. 109.

From the violent heaving of the vessels it was unsafe to fix the planks in the intervals between them, but there were not wanting men who thought less of the danger than the prompt execution of the service. With skill equal to their assiduity, the companies laboured in completing the bridge, even working throughout the night, and the structure was fully ready for the passage of the troops on the 26th of February.⁵ The boom was laid by the navy and completed soon after the bridge.

Admiral Penrose, in his despatch of 25th February, thus notices the services of the sappers, "That so many chasseur-marées ventured the experiment, I attribute to their having been one or more sappers placed in each of them, and a captain and eight lieutenants of engineers commanding them in divisions."⁶ The Admiral further stated, "that the sappers not only proved themselves good soldiers, but intrepid seamen."⁷ Major Todd of the royal staff corps, who assisted in planning the bridge, informed the author of the 'Peninsular War,' "that he found the soldiers, with minds quickened by the wider range and variety of knowledge attendant on their service, more ready of resource, and their efforts, combined by a more regular discipline, of more avail, with less loss of time, than the irregular activity of the seamen."⁸ Honourable mention is also made by the great historian of the intrepidity of the sappers; and in winding up his remarks upon the operation, he writes, "this stupendous undertaking must always rank amongst the prodigies of war."⁹

The subsequent charge of the bridge being confided to the royal staff corps under Major Todd, the two companies of sappers were removed to Bayonne to take part in the siege. Including the second company fourth battalion with sub-lieutenant Millar under Captain Blanshard, R.E., which arrived from Portsmouth in the 'Warren' transport, and landed at

⁵ Jones's 'Sieges,' ii., p. 118, 2nd edit. As a reward for their services, most of the men that belonged to the flotilla received a guinea and a pair of shoes.

⁶ Jones's 'Sieges,' ii., p. 117, 2nd edit.

⁷ Colonel Harry D. Jones, royal engineers.

⁸ Napier's 'Peninsular War,' vi., p. 542, edit. 1840.

⁹ *Ibid.*, p. 543.

Passages on the 16th March, the royal engineers had collected for the blockade four sub-lieutenants—Wallace, Gratton, Stratton, and Millar—and a body of nearly four hundred well-trained sappers and miners,¹⁰ who were chiefly employed as overseers in conducting the execution of the required field-works. A strong party was on duty in the trenches when the sortie was made from the citadel on the night of the 14th April, but no casualties among the men were reported. Throughout the operations the sappers and miners, from their skill and exertions, gave the highest satisfaction to their officers.

At Bayonne the last blow of the war was struck ; for as soon as the news of Napoleon's abdication had arrived, hostilities ceased. In May the five companies at Bayonne and Toulouse marched from their respective cantonments to Blanquefort and Bordeaux, where they were encamped for a few weeks awaiting the general evacuation of the country. An expedition being ordered to proceed to North America, the second company fourth battalion embarked with it on the 27th May ; and the other four companies, viz., the seventh of the first battalion and the second, seventh, and eighth of the second battalion, sailed from Poulliac on the 22nd June, and landed at Portsmouth the 10th and 14th July, leaving fifty-five men sick in France. The casualties in these companies for the half year were thirty deaths and one missing.

The sixth company second battalion was removed to Italy in April. The sixth company first battalion from Cadiz, and the fifth company second battalion from St. Sebastian, sailed from Spain the latter end of August, and arrived at Woolwich early in September. These two companies were with the last troops which left the Peninsula after the close of the war.

The fourth company second battalion, counting eighty-two men, with Sub-Lieutenant T. Adamson under Captain R. Thomson, left Margate with the expedition under Sir Thomas Graham, and landed at Williamstadt the 18th December, 1813. There the company suffered loss by the accidental burning of the barracks in which it was quartered. After removing the stores

¹⁰ Jones's ' Sieges,' ii., p. 126, 2nd edit.

from the shipping, parties were employed in preparing fascines and gabions, in bridge-making, constructing a landing place of faggots for the disembarkation of the cavalry, and in removing the platforms and heavy mortars from the ramparts at Williamstadt for carriage to Merxam.

These services being accomplished, the company was distributed to Klundert, Groat Zundert, Zandaarbuiten, Tholen, Steenbergen, and Fort Frederic near Lillo. Among other duties the detachment at Zandaarbuiten formed, in a very expeditious manner, a bridge of country-boats over the river Maerk under two young lieutenants of engineers, which served for the conveyance of the heaviest artillery. The boats were of different shapes and sizes, collected for the occasion, and the materials for the superstructure were of irregular scantling, partly collected in the neighbourhood and partly felled on the spot.¹¹ At Tholen a corporal and eight men under Lieutenant Eyre, R.E., attached to the Prussians, built a battery on the bank of the river for the protection of a flying bridge; and at Fort Frederic a party restored a battery for two guns, which afterwards held an unequal contest with a French eighty-four gun ship, and prevented her proceeding to Bergen-op-Zoom with provisions. No less than forty-one, including the commander, were killed and wounded on board the man-of-war, while the casualties at the battery only amounted to one killed and two wounded.

Leaving sixteen men at Tholen and Zandaarbuiten, the remainder of the company, armed with short swords, felling-axes, saws, &c., and guarding an establishment of mules drawing about one hundred waggons laden with trenching tools, commenced the march for Antwerp. They followed the royal artillery, and reliefs of twenty men were, by turns, repeatedly ordered to the front to remove abattis and other obstructions that were met with on the route. From intense frost and a heavy and continuous fall of snow blowing in their faces, they encountered many difficulties and suffered extremely during the journey.

¹¹ Puseley's 'Elementary Fortification,' note c, p. viii., vol. 1.

Merxam being taken on the 2nd February the company and a strong force of the guards and line, began the erection of batteries to attack the fleet at Antwerp. By command, no relief was permitted to the sappers, and they continued on duty for seventy-two hours without intermission. Their steady labours at the Napoleon battery of sixteen guns, and their skill in revetting the embrasures, and in attending to the more perilous parts of the works, were the wonder of both officers and soldiers. Sir Thomas Graham, in general orders dated Merxam, 5th February, did full justice to the zeal and exertions of the sappers, and stated, "that they deserved the highest praise." Two privates were wounded.¹²

Sergeant William Stevens and corporal Thomas Milburn distinguished themselves by their coolness and bravery in superintending the laying of platforms and making a splinter-proof magazine under a heavy fire. Recommended by Colonel Carmichael Smyth, the commanding royal engineer, the former was forthwith appointed colour-sergeant, and soon afterwards commissioned to a sub-lieutenancy in the corps; and the latter was promoted to be sergeant.

After the failure at Antwerp, the head-quarters of the company went into cantonments at Rosendaal, and parties were detached to Groat Zundert, Fort Henrick, Calmthout, Eschen, and Brieschaet. At Groat Zundert seven men under corporal James Hilton conducted some experimental bridging in the presence of Sir Thomas Graham and Colonel Carmichael Smyth, with the view of adopting the easiest plan for crossing ditches in future enterprises. Sir Thomas was struck with the simplicity of the corporal's arrangement and the rapidity of

¹² Here is a practical exemplification of *esprit de corps*. Whilst engaged in the attempt to destroy the shipping in the basin of Antwerp, his Royal Highness Prince William frequently visited the Napoleon battery with several military officers. On one of those visits a mounted veteran in the suite of the Prince approached private John Brennan, and said, "Sapper, will you hold this horse for an old guardsman?" Brennan, who was very busy at the time with his shovel, turned his face towards the officer, and feeling that as a sapper he was two or three removes above a groom, replied, "Egad, sir, I'd sooner be shot layin' saud-bags."

its execution; and as a proof of his approbation gave him a Napoleon.

On another occasion, that distinguished general took particular interest in the formation of a ditch bridge and even laboured himself in its construction. From the unevenness of the banks the baulks did not lie firmly. Private James McKay was in the act of obtaining the desired steadiness, when Sir Thomas took a spare spade, cut some sods, and assisting to place them in the required positions, only gave up when the work was satisfactorily accomplished.

In the surprise of Bergen-op-Zoom on the 8th March, parties of the company were attached to each of the columns appointed for the attack. There were about forty men in all, who were provided with axes, saws, and crowbars, and also a few ladders to scale the walls of the fortress. At about half-past ten o'clock the attack was made. The sappers cut down the palisades, crossed the ditches, planted the ladders, and leading the way in the escalade, were the first soldiers on the enemy's ramparts. They then pushed forward to remove any obstacle that opposed the advance of the assailants, and persevered in their several duties till the place was captured. A reverse, however, awaited the British: the enemy renewed the attack with unwonted vigour, and in a few hours regained the fortress. During these extraordinary operations the following casualties occurred in the detachment: Sub-Lieutenant Adamson was killed by a cannon-ball on the glacis when advancing. About twelve were wounded, of whom two mortally—privates John McKeer and James Munro—and ten were taken prisoners, and conveyed to Fynaart, but shortly afterwards released. Of the conduct of the sappers in this *coup-de-main* Colonel Carmichael Smyth has left it on record, that the company conducted themselves with the utmost coolness and courage, and the Master-General, in a letter dated 2nd April, was pleased to express himself highly satisfied with the zealous conduct of the Royal Sappers and Miners on the above occasion.¹³

¹³ The gentle Brennan, about whom an anecdote is told in a previous page, very reluctantly quitted the ramparts. Finding, that to save himself,

The gallant behaviour of corporal James Creighton and private Edward Lomas is deserving of notice. After breaking through a palisade on the ramparts, they dashed forward and were challenged by a vigilant sentinel, who fired and shot Lomas in the thigh and then charged Creighton. Creighton parried the bayonet with his axe, and, seizing the Frenchman's musket, a desperate struggle ensued. The sentinel, who was a powerful man, at length threw his antagonist violently to the ground, and stamping his foot on his breast, endeavoured to wrest the firelock from the corporal's grasp. His strength spent, Creighton could scarcely maintain the contest, when Lomas, yet bleeding from his wound, rushed to the rescue of his comrade and struck the Frenchman with a pole-axe on the back of his head. The blow was fatal. Lomas now armed himself with the musket and ammunition of the sentinel, and pressing forward into the fortress, his resolution and daring were further signalized by his killing two other Frenchmen, and wounding two more. The latter he delivered over as prisoners of war to sergeant Thomas Milburn of the company, first breaking their muskets in their presence, and then dispossessing them of their accoutrements.¹⁴ Corporal Creighton followed Lomas in the adventure, but was too much fatigued and weakened to be of material service.

Soon after the reverse at Bergen-op-Zoom, the greater part

retreat was inevitable, he turned his back on the fortress, and with a scowl, such only as an Irishman could make, growled out, "Bad luck to the whole ov yees!" With this mild curse, so unusual in a hot-headed, free-spoken Milesian, he scampered down the ladder, escaped without wound or touch, and finally halted, still breathing the anathema, "Bad luck to the whole ov yees!" The incident is only remarkable for its freedom from those horrible epithets and curses so common in Irish execrations. Brennan was applauded for his bravery at the storming by Captain Robert Thomson, and his subsequent exertions and constancy in the restoration of the defences of Antwerp and Ypres, where he had large parties of Hanoverian troops and Dutch peasants under his superintendence, led to his promotion first to lance-corporal and then to corporal.

¹⁴ Lomas was discharged in 1816 by redaction, and being a young soldier, received no pension. Some thirty years afterwards, he applied for a pension, and his exploits being still remembered, he was granted 6*d.* a-day.

of the company was sent to South Beveland and attached to the engineer brigades of Captains R. Thomson and Oldfield, to be employed in the attack of Fort Batz. The night that ground was to have been broken news arrived of peace. The company returned into cantonments at Rosendaal, then changed its headquarters to Horst, and in May assembled at Antwerp, where it remained, with the exception of some small detachments, to the end of the year.

In July another company—fourth of the third battalion—under Lieutenant P. Cole, arrived in that city from Woolwich. It was sent there to assist in the demolition of its fortifications and arsenal, as, by treaty, it was decided that Antwerp should only be a commercial port. On the advice, however, of the Duke of Wellington, who inspected that great naval dépôt on his way to Paris, the operations were suspended.

While stationed at Antwerp both companies were quartered in the Hotel de Salm, where the French had established their headquarters and sapper barracks. When the Emperor Alexander of Russia visited the city, the two companies were turned out with the garrison to receive the Czar, and specially attracted his majesty's attention. In September the companies, under the command of Captain Oldfield, were inspected at Antwerp by Lieutenant-General Clinton, who expressed himself highly pleased with their appearance.

The idea that the sappers should be properly educated, led, even in an enemy's country, to the establishment of a school for their professional instruction, and they were permitted the privilege of assisting their officers in the preparation of projects for the destruction of the docks and several fronts of fortification. The drill too was strictly attended to, and to keep up their military spirit and bearing, they were marched two days a week into the country, and joined the troops at all garrison parades. Captain Oldfield, the resident engineer, commanded the companies.

The strength of the sappers in the Netherlands was now 152. The sub-lieutenants belonging to them were James Adam and Edward Sanders. For several months of the year the parties

detached were employed at Liere, Schilde, Graven Wesel, Brussels, Tournai, and Mons. Subsequently the fourth company, third battalion, was wholly removed to Tournai, and employed in the repair of the citadel, under the command of Captain W. D. Smith.

The sixth company, second battalion, from Tarragona, with Sub-Lieutenant Gibb, landed at Genoa from the 'Mercury' transport on the 4th May; and on the 11th June following removed to Messina, leaving a small party at Genoa. Other detachments were also employed at Savona, Palermo, and Faro.

Sixteen men of the Maltese company at Palermo were attached to Lord William Bentinck's Tuscany expedition, and served at Leghorn, Pisa, and Lucca from February to April. In the latter month the company of Maltese sappers at Tarragona was increased to forty-nine men. In May, it landed at Genoa, and changed its quarters to Palermo in June, where both detachments were incorporated into a company of 110 strong. In November seven men of the Maltese sappers were detached to Corfu.

The third company, third battalion, in Canada retained its head-quarters at Kingston; but throughout the campaign was much dispersed on various important duties to York, Point Kerry, Fort Niagara, Snake Island, Montreal, Ganonoque, Fort Wellington, Prescott, and Bridge Island. Parties are also traced at the attack and burning of Oswego under Lieutenant Gossett, and at the assault of Fort Eric under Lieutenant Phillipotts. In the latter service they received the acknowledgments of Lieutenant-General Drummond for their ability and exertions.

A second company—fourth of the fourth battalion—embarked for service in Canada in April, and disembarked at Quebec from the 'Belfield' transport in June. In August the company was attached to the expedition under Sir George Prevost, and was present at the attack on Plattsburg, where they constructed sand-bag batteries, temporary bridges of felled trees, and planted the ladders against the walls for the storm. Subsequently to the assault, the company removed to Lacolle, and,

after fortifying Ash Island, wintered at Prescott. During the campaign parties were detached to Montreal, Cascade-Montmorenci, Isle-aux-Noix, Turkey Point, and Burtonville.

Captain Blanshard's company—second of the fourth battalion—which sailed from Bayonne on the 27th May, was transhipped in July from the 'Thames' frigate to the 'Golden Fleece' transport, and landed at Benedict in the Patuxent on the 19th August. Marching with the troops, the company of sixty-two strong was present in the action at Bladensburg on the 24th, and had three men taken prisoners, two of whom were wounded. At Washington the company was employed in burning the Senate-house,¹⁵ President's palace, War-Office, and other public edifices and establishments. Fully expecting that the British would fall, as at Saratoga, a prize to the republic, the President, in the extravagance of his anticipations, had prepared a sumptuous repast to entertain the chiefs of the captive British staff; but so singular are the chances of war, it fell to the lot of the sappers instead of the staff to do justice to the President's hospitality. Afterwards the company was present in the action near Baltimore and at the attack of New Orleans. In the latter they were joined by the seventh company, first battalion, with Sub-Lieutenant Calder under Captain A. Emmett, who disembarked from the 'Bedford' and 'Maria' transports. Both companies were of great service

¹⁵ Private Henry Serafield behaved with spirit in overpowering two armed sentinels in the Senate-house, and taking them prisoners. A more uncompromisingly independent man perhaps never lived. Once he complained, in a petition to George IV., of the conduct of an officer, but it ended without the concession of the redress which he unwarrantably sought from His Majesty. In February, 1831, he endeavoured to save the lives of five boys who had fallen into Mulgrave Reservoir, at Woolwich. An orange had been thrown on the ice by some reckless fellow, and the unfortunate youths, scrambling after it, fell into the water. Serafield was soon on the spot, and at imminent personal risk, crossed the broken ice on ladders, and, with ropes and grappels, succeeded in rescuing the poor boys, but not till all life had departed. The first youth was got up in ten minutes after the catastrophe. For his judgment and intrepidity on the occasion he was promoted to be second-corporal, and the Royal Humane Society granted him a pecuniary reward. Pensioned in November, 1833, he afterwards obtained a lucrative situation on a railway, and died at Bletchington, of cholera, in September, 1849.

during the operations and at the assault. The casualties were one missing and four wounded—one mortally.

A party of one colour-sergeant and six men under Captain Nicolls, from Halifax, Nova Scotia, was attached to the expedition under Sir John Sherbrooke, and served, in August and September, at the capture of Moose Island, Castine, and Belfast, in the State of Maine.

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Siege of Fort Boyer—Alertness of company on passage to New Orleans—Return of the sappers from North America—Services and movements of companies in Canada—Also in Nova Scotia—Captures of Martinique and Guadeloupe—Services and movements of companies in Italy—Maltese sappers disbanded—Pay of Sub-Lieutenants—Ypres—Increase to sappers' force in Holland; its duties and detachments; notice of sergeant Purell—Renewal of the war—Strength of the corps sent to the Netherlands—Pontooners—Battle of Waterloo—Disastrous situation of a company in retreating—General order about the alarm and the stragglers—Sergeant-major Hilton at Brussels—Notice of lance-corporal Donnelly—Exertions of another company in pressing to the field—Organization of the engineer establishment in France—Pontoon train—Magnitude of the engineer establishment; hired drivers; Flemish seamen—Assault of Peronne, valour of Sub-lieutenant Stratton and lance-corporal Councill—Pontoon bridges on the Seine—Conduct of corps during the campaign—Corporal Coombs with the Prussian army—Usefulness of the sappers in attending to the horses, &c., of the department in France—Domiciliary visit to Montmartre.

In February of this year nine men were present at the siege of Fort Boyer, near Mobile, and their services on the occasion have been cited as a remarkable proof of the utility of the corps. Sir Charles Pasley thus writes concerning the party:—"The first night of the operations soldiers of the line only were employed. From a want of skill and experience in the nature of the duties required of them, and there being very few engineer officers to direct, they collected in groups, instead of being spread out as they ought to have been. Consequently, out of one small party of twenty men, fourteen were killed and wounded by a single discharge of grape-shot; and such confusion ensued, that very little progress was made in the course of that night. On the second night of the siege, the small party of sappers was employed in addition to the troops of the line. By the assistance of these few men the officers of engineers were enabled to regulate their working party to so much advantage, that

before morning they had completed a parallel of 200 yards in extent within 50 yards of the enemy's works, besides approaches in advance, which, being filled with sharpshooters, the Americans were unable to show themselves at their guns, and the fort surrendered. It is proper to explain, that as the army sailed from the Mississippi in divisions, the main body of the royal engineer department had not arrived at the period of the attack. The nine men who so particularly distinguished themselves happened to be on the spot before the others, because, being all carpenters by trade, they had been lent to the Admiral to repair the boats of the fleet."¹ One private was wounded.²

After a detention of about six weeks from contrary winds, the eighth company, second battalion, with Sub-Lieutenant P. Johnston under Captain Harry D. Jones, cleared the channel on the 25th December and sailed for New Orleans. While off Madeira, the company was served out with the serviceable carbines and blunderbusses belonging to the transport, and drilled to the use of the carronades on board. These measures were necessary from the presence of American vessels and privateers hovering about the convoy. The company was consequently kept perpetually on the alert until it landed at Dauphine Island on the 28th February, too late to take part in the war.

Hostilities closed in North America with the capture of Fort Boyer, and the three companies with the force under Major-General Lambert, re-embarked at Dauphine Island for England in March. The eighth company, second battalion, returned to the 'Dawson' transport, and the other two companies were put on board the 'Hyperion,' and all arrived at Woolwich in June following.

The two companies in Canada were continually on the move fortifying the frontiers. The third of the third battalion maintained its head-quarters at Kingston; and the fourth of the fourth battalion commenced the year at the Holland River. It was next removed to Penetanguishine Harbour, where half

¹ Pasley's 'Elementary Fortification,' i., note D, p. x. * 'London Gazette.'

of the company under Captain W. R. Payne, completed the military arrangements for establishing a naval dépôt. It then proceeded to York; afterwards to Fort George, Sandwich, and Drummond's Island, on Lake Huron. From one or other of the companies, parties were thrown out to Fort Niagara, Turkey Point, Amherstberg, Fort Wellington, Montreal, Coteau de Lac, and Lower Canada. In carrying on the various duties of the department, the sappers, who were employed as overseers of military working-parties, were found of great advantage.³ During the year, eighteen men deserted from the companies, most of whom were seduced from their allegiance by sergeant Robert Hunter of the corps. When he headed the deluded party into the States, he was off Fort Grockett, River St. Clair, on his way from Sandwich to Michilimachinac, Lake Huron.

From the company at Halifax detachments were sent on particular duties to the harbour posts, but chiefly to the works at Sherbrooke's Tower on Manger's Beach.

On the 2nd March, one sergeant and eight rank and file embarked at Barbadoes for special service under Captain A. Brown, R.E. On the 28th May, the party was increased to thirty-three men of all ranks, and was present with the force under Lieutenant-General Sir James Leith at the captures of Martinique on the 5th June, and Guadaloupe on the 9th August. In the latter attack the sappers were engaged with the artillery at the guns. The head-quarters of the sappers were then changed from Barbadoes to Guadaloupe; and the establishment of the corps in the West India command was reduced from two companies to one.

The sixth company, second battalion, and sixty men of the Maltese sappers at Messina, embarked at Milazzo on the 17th May and landed at Naples on the 27th. On the 2nd July following they re-embarked, and arrived at Genoa on the 11th of that month. There the Maltese sappers were reinforced by the landing of the remainder of the company from Messina on the 18th October. The number of the whole reached 101 men,

³ Pasley's 'Elementary Fortification,' i., note B, page vi.

including the small party which rejoined the company from Corfu in April. Throughout the year, detachments of the sixth company, second battalion, were maintained at Palermo and Faro; and a party of two sergeants and nineteen rank and file, sent on a secret expedition, was afterwards on duty for a few months at Milan and Marseilles.

Under a royal warrant, dated 5th October, the two companies of Maltese sappers stationed at Malta and Gozo, were disbanded; and the war company—retained for general service—was assimilated in all essential respects to the royal sappers and miners. The establishment of the company was fixed at one sub-lieutenant, five sergeants, five corporals, five second-corporals, three drummers, and seventy privates; and its strength was sustained, from time to time, by transfers of Britons, Maltese, Sicilians, and Italians—all properly-qualified artificers—from the regiments serving in the Mediterranean. The designation of the company—"Maltese Sappers and Miners"—assumed in 1813 for the sake of uniformity, was confirmed by the warrant, and the colour of the dress was changed from blue to red.

On the representation of four sub-lieutenants, the regimental allowances of officers of that rank were brought under consideration. On active duty the pay was found to be inadequate to meet the requirements of the service. In the Peninsula, the officers with the army had to endure much hardship, and were continually menaced with pecuniary difficulties and embarrassments. Aware of these facts, Lieutenant-Colonel Burgoyne and Major Rice Jones backed the appeal by forcible recommendations to Lieutenant-General Mann, and on the 9th November the Prince Regent was pleased to increase the pay of the sub-lieutenants from *5s. 7d.* to *6s. 7d. a-day*.

In January the fourth company, second battalion, moved from Antwerp to Ypres, where they were quartered in the bishop's palace and adjoining convent, which had been sacrilegiously converted by the French into an engineer establishment. The defences of Ypres had not been repaired since the fortress was taken by the French in 1794. Two considerable

breaches were in the body of the place and the various outworks were in a dilapidated condition. The officers of engineers and the company were employed in restoring the works to a state to resist a field attack or a coup-de-main. This last contingency, however, was not calculated upon until Napoleon had regained the capital and the royal family fled to the frontier. The startling intelligence was announced to the resident engineer—Captain Oldfield—at six o'clock one evening, and by the same hour next morning, parties of sappers under two officers of engineers had opened the sluices and covered, with inundations, the two breaches on the Bailleul front. Immediately after, large military parties under the direction of the sappers and the officers of royal engineers commenced the work of strengthening the fortress, and further assisted by labourers of all ages intermixed with stout women and sturdy girls from the town and adjacent villages, the fortress was renewed with singular despatch. Sub-Lieutenant Adam, who was appointed assistant engineer, superintended the restoration of the body of the place near the Lille gate and the outworks in front of the Menin and Dixmude gates; he also attended to the repairs of the communication boats and bridges, barriers, posterns, &c. With the exception of the sappers, the garrison was entirely composed of foreign troops who could not speak a word of English, and as the sappers had only mastered a few elementary snatches of the Flemish language, the duty of superintendence was not accomplished without difficulty.

To the force in Holland was added the fifth company, second battalion, which embarked at Woolwich on the 2nd January, and landed at Antwerp the same month. This company and two others already there, were employed for several months in improving the defences of the frontiers of the Netherlands, particularly at Ypres, Tournay, Mons, Menin, Dendermond, Ath, Namur, Charleroi, and Brussels. The various works were subdivided amongst the non-commissioned officers and privates, each of whom was held responsible for the proper execution of the work intrusted to his superintendence. The peasants and

women under the direction of each counted from 20 to 100, and even more, according to circumstances.⁴ Sergeant John Purcell had from 300 to 400 *women* under his orders at Ypres; and from some winning peculiarity in his mode of command, obtained from their willing obedience and energies an amount of labour that was almost astonishing. No less than about 1,800 peasants and 2,000 horses were engaged in these works, and, by all accounts, they were conducted with the greatest regularity and despatch. Sir Charles Pasley attributes no inconsiderable credit to the sappers for their assistance in the general services of the frontier;⁵ and the Master-General, the Earl of Mulgrave, in a letter dated 4th April, expressed his "warm approbation of their zeal and exertions." The Duke of Wellington also on visiting the frontier, awarded similar praise to the officers and sappers, particularly for their efficient labours at Ypres.

Meanwhile Napoleon, breaking his captivity in Elba, reappeared in France, and wherever he journeyed, was enthusiastically welcomed by his former legions. As by a spell, the army gathered under the wings of his eagles, and again lifted him into the imperial seat from which he had been so recently expelled. Europe was once more thrown into commotion by the event, and to crush the lofty hopes and pretensions of an intolerable ambition, war was at once declared by the Allies against the usurper.

At the instance of the Duke of Wellington,⁶ who requested "the whole corps of sappers and miners" to be sent to Brussels to join his Grace's force, seven companies of the corps, instructed in their art, were hurried off to Ostend between the 24th March and 10th June, and distributed with all possible haste to those frontier posts and fortresses in the Netherlands that most required their services. Those companies were the

Third and sixth of the first battalion;
Second and eighth of the second battalion;
First and seventh of the third battalion; and
First of the fourth battalion:

⁴ Pasley's 'Elementary Fortification,' i., note B, p. vi. ⁵ Ibid.

⁶ 'Wellington Dispatches,' viii., p. 18, edit. 1847.

and they were employed in constructing indispensable field-works, or improving the fortifications at Ostend, Ghent, Nieuport, Tournay, Oudenarde, Boom, Escaneffe, Antwerp, Lille, Liefkenshoek, and Hal. Not less than 20,000 civil labourers with very strong military parties, were employed on the line of works extending from Ostend to Mons, and it was due to the intelligent manner in which the sappers carried out the duties of overseers, that this important field operation was so efficiently executed. Hal was the dépôt from which the engineer brigades were equipped. The three companies in the Low Countries, before the campaign opened, were the fourth and fifth of the second battalion, and the fourth of the third battalion. The total strength of the whole ten companies reached the following numbers:—

Sub-Lieuts.	Sergeants.	Corporals.	Second Corporals.	Drummers.	Privates.	Total.
10	35	32	42	19	644	782 ⁷

The Sub-Lieutenants were A. Ross, J. Sparks, W. Stratton, P. Johnston, W. Knapp,⁸ J. Armstrong, A. Turner, C. Gratton, J. Adam, and E. Sanders.

In order that the organizations of every description with the army should be as complete as forethought could make them, the Duke of Wellington recommended the employment of two companies of seamen as pontoneers. No exertions were omitted to give effect to his Grace's wishes, and 200 hardy man-o'-war's men, with Captain Charles Napier, R.N., at their head, were speedily embarked in the 'Euryalus' to join the army as bridgemen for the campaign. Meanwhile the Duke, who was unaware of the extensive character of the instruction imparted to the sappers at Chatham, was informed, that the companies of the corps in the Netherlands had, for the most part, been trained in the art of constructing military bridges, and had acquired an expertness in all the details and management of floating equipments under the careful tuition of Lieutenant-Colonel Pasley,

Corroborated by the official State on the 18th June, 1815. See 'Gurwood,' vol. viii., App. xiii., p. 392, edit. 1847.

⁸ Died at Tournay, 16th June, 1815.

that promised to equal the most gigantic requirements of the service. His Grace, only too glad to learn this agreeable intelligence, revoked his original intention, countermanded the landing of the seamen, and thus the duty of forming the bridges for the passage of rivers, was wholly confined to the royal sappers and miners.⁹

At the battle of Waterloo the royal sappers and miners were not engaged. Three companies, however, were brought conveniently near to act in the event of their services being needed; and two companies with the pontoons, were quartered at Malines. Of the former companies, the first company, fourth battalion, is considered to have behaved with discredit in quitting the field without sufficient reason, and losing, in the precipitancy and confusion of the march, its baggage and field equipment. But the stigma seems to have been attached to the company without an adequate investigation of the circumstances under which the retreat was imperatively resorted to.

The details of the affair are as follows:—On the 17th June the company moved from Hal by Braine-la-leud towards Waterloo, marching the whole of the night, and was on the position when the action commenced on the morning of the 18th. After a time, it was ordered to the rear by Major Sir George Hoste, and accordingly it marched to the furthest end of the village of Waterloo under Lieutenant W. Faris and Sub-Lieutenant R. Turner. There the company remained till between three and four o'clock P.M., when Lieutenant C. K. Sanders, R.E., joined it. About this time a brigade of Hanoverian artillery and cavalry, and several of the British cavalry, were retiring. The latter had vainly laboured to penetrate the retreating crowds, and informed Lieutenant Sanders that the French were at the other end of the village. In a wood on the right, discharges of musketry were heard, and both officers and men, who hurried away from the battle, corroborated the general testimony, that the enemy not only had

⁹ 'Wellington Dispatches,' edit. 1847, (2 & 12 May,) pp. 55, 81.

possession of the wood, but in a short time would cut off the British from the road. Still incredulous of the alarming rumours which reached him, Lieutenant Sanders sought more decisive information as to the reported advantages of the French, and at length, satisfied with the additional affirmations of hundreds of officers and soldiers, who threatened in their flight to overrun the company, he at once ordered it to retire. The circumstances fairly justified this step. But the company had not proceeded far before it was unavoidably thrown into difficulties and disorder. To relieve itself from the masses was impossible. Driven in rear, and encompassed by overwhelming numbers of different regiments, it was borne along at a very rapid rate, in the vortex of the confusion. By the presence of cavalry and cannon, and of capsized waggons and baggage, its march was interrupted and its files broken. Many of the men, therefore, who could not keep up were dispersed among the fugitives; the brigade of waggons, stopped by insuperable obstructions on the road, was abandoned, and the company thus routed lost many of its knapsacks and most of its intrenching tools, baggage, and horses.¹⁰ Such are the

¹⁰ To show how serious was the alarm, and how great the number of fugitives, the following extract from general orders, dated Nivelles, 20th June, 1815, will fully testify:—

“ 3. The Field Marshal has observed that several soldiers, and even officers, have quitted their ranks without leave, and have gone to Bruxelles, and even some to Antwerp, where, and in the country through which they have passed, they have spread a false alarm, in a manner highly unmilitary and derogatory to the character of soldiers.

“ 4. The Field Marshal requests the General Officers commanding divisions in the British army, and the General Officers commanding the corps of each nation of which the army is composed, to report to him in writing, what officers and men (the former by name) are now, or have been, absent without leave since the 16th instant.

“ 5. The Field Marshal desires that the 14th article of the 14th section of the Articles of War may be inserted in every orderly book of the British army, in order to remind officers and soldiers of the punishment affixed by law to the crime of creating false alarms.”—‘Gurwood,’ viii., p. 156, edit. 1847.

Nearly 2000 men were returned “missing,” the greater number of whom were said to have gone to the rear with wounded officers and soldiers.—‘Gurwood,’ viii., p. 151, edit. 1847. But the probability is, that very few of this strength returned into the battle, but, worked upon by the alarm, helped to swell the force of the renegades. Under the circumstances, the retreat of the

facts of this ill-understood affair, which deserve to be viewed more with regret than animadversion; but Colonel Carmichael Smyth, jealous of the honour of the corps, and feeling this apparent taint upon its character, was highly displeas'd, and

company of sappers is fairly exonerated, press'd as it was by masses of troops of all nations, who fled from the field in infamous haste and terror.

It is right to go a step further, and show what was the effect of the alarm at Brussels—24 miles away from the position; and thus notice the conduct of one who should be recognized in these pages. Some hours before the company arrived at Brussels, the panic was so complete, that the inhabitants flew in all directions from the horrors of an anticipated calamity, and not a few of the soldiers quartered in the place swelled the rout. Sergeant-major Hilton in charge of a detachment of sappers, prepared for the worst by packing the plans, charts, &c., of the engineer department, and also the military baggage of the commanding royal engineer. As all his own drivers had disappeared, he harnessed a couple of horses in readiness to move should necessity force him. A Belgic servant of Colonel Carmichael Smyth's, who had been in the French service, ought to have assisted, but showing signs of treachery, an altercation ensued, in which, to save himself from the cut of a sabre, the sergeant-major wounded the shins of the Belgian with a stroke from a crowbar. Expecting no aid from this faithless foreigner, the sergeant-major looked about for more reliable intelligence respecting the rumoured reverse at Waterloo. While doing so the Commandant of Brussels accosted him, which led to his explaining the course he intended to pursue to preserve the plans, &c., from falling into the hands of the enemy. After remarking that there was no fear of the French reaching the city, the Commandant desired him to order the provost, with all the disposable men of his guard, to wait upon him immediately at the Rue Royale. Sergeant Hilton promptly complied; but the provost—this paragon of order and discipline—could not be found; and his irresolute men were only too desirous of following in the wake of the winged crowd. At last about nine of the guard accompanied the sergeant-major to the Rue Royale, where the Commandant ordered him to station the men across the road leading to Antwerp. "Stop every waggon," he roared, furious at the insane sight that everywhere met his gaze, "and run any one through who attempts to pass in violation of your orders!" The terror of the citizens was at its highest, soldiers of every country were pouring into the capital; all was confusion and haste; the streets were lined with vehicles in endless variety, and each owner was striving to out-ride his neighbour in the frantic chase. It required to be firm at such a time, and the sergeant-major, quite as stern as the Commandant, drew his sword, and opposing himself and his small guard to the onward movement of the vans, stemmed with difficulty the flight. Quickly the horses were withdrawn from the shafts, to prevent the possibility of whipping them forward; and turning a waggon with its broadside to the stream, the outlet was thus partially closed. So great now was the pressure from behind that waggon drove on waggon, and smashing in the roadway, the passage was at length blocked up with an impenetrable barricade, which effectually checked the efflux of the fugitives to Antwerp, and calmed the agitation of the people.

refused to recommend the officers and men of the company for the Waterloo honours and advantages.¹¹

Another company ordered to Waterloo on the 18th June, gained much praise for its firmness and regularity in pushing up to the field. This was the eighth company, second battalion, under Sub-Lieutenant Patrick Johnston. At 2 o'clock on the morning of the 18th it marched from Antwerp, and on arrival at Brussels Lieutenant Johnston, finding that the captain of the company as well as the commanding royal engineer and his staff were in the field, at once moved on for Waterloo. Crowds of wounded soldiers, anxious runaways, dismantled waggons and cannon, greatly impeded the march. From all he met he received the most discouraging advice, but amid the general panic and the numerous obstacles he had to contend with, he resolutely pursued his march and reached the village

¹¹ The only soldier of the corps actually in the battle was lance-corporal Henry Donnelly, who was orderly to Captain and Brigade-Major, now Major-General Oldfield, K.H. He was present on the 17th and 18th, and Colonel Carmichael Smyth, who was seriously indisposed on the night of the 17th, was much indebted to him for his care and attention. His claim to a medal was warmly advocated by the Major, who testified to his presence in the field for two days, but Colonel Smyth never would allow that he was entitled to it. At the final rejection of his just right corporal Donnelly was so much affected, that shortly after he went into hospital, and died on the 25th July, 1817.

The claim of corporal Donnelly had been officially recognized at one time in the following order by the officer commanding his company:—

“Company orders. Argenteuil, August 6, 1815. In consequence of private Henry Donnelly being present at the battle of Waterloo, he is entitled to two years advance of service. He will therefore be mustered according to the regulations of his Royal Highness the Prince Regent, dated 29th July, 1815.—(Signed) Ed. Covey, Lieutenant Royal Engineers.” And he was so mustered until July 1816, when Colonel Smyth ordered its discontinuance, making at the same time these remarks:—“The sapper in question rode out a horse of Major Oldfield's on the 17th, and returned to Brussels on the morning of the 18th, without having seen an enemy or heard a shot fired. He was in Brussels during the actions of the 16th and 18th; and under these circumstances I should have been guilty of a dereliction of duty to have certified that he was entitled to a medal, and which he could hardly have worn on the parade of his company, in preference to the very good non-commissioned officers and men of that company, who have constantly done their duty much to my satisfaction and their own credit; and who could not but have felt aggrieved to have seen a mark of distinction bestowed upon private Donnelly without his having in any way deserved it.”

of Waterloo at 4 o'clock P.M., in a state that reflected great credit upon the discipline and perseverance of the company. Late in the evening, after firing had ceased, as there were many inducements to plundering and straggling, Lieutenant Johnston withdrew the company a short distance on the Brussels road, and placed it in an empty barn till next morning, when it commenced its march for Paris. In applauding the company for its steadiness and order under trying circumstances, Colonel C. Smyth alluded in a particular manner to the meritorious conduct of Lieutenant Johnston. Neither the officer nor his men were considered entitled to the Waterloo medal and extra service; and for several years afterwards many of the company claimed these advantages with unprecedented pertinacity, but without effect.

"The experience of former defects in the Peninsula," wrote Lieutenant-Colonel Pasley, "led to the more perfect organization of the field establishment of the royal engineer department." On the 20th June orders to effect the arrangement were issued by Colonel C. Smyth. "Every division of the army had one engineer's brigade attached to it; each brigade consisting of a complete company of well-trained sappers and miners, with drivers, horses and waggons carrying entrenching tools sufficient to employ a working party of 500 men, besides a proportion of artificers' tools, and other engineer stores."¹² The number of companies so distributed was six. "A captain and a certain number of subaltern officers were attached to each brigade, and were responsible for the discipline of the men and efficiency of the horses," &c.¹³

Four companies were attached to the pontoon train, "which," according to the same authority, "consisted of eighty pontoons, besides store-waggons, &c., and was drawn by nearly 800 horses, the whole being under the command of Brevet-Major Tylden of the engineers, assisted by a due proportion of captains and subalterns of the same corps."¹⁴ The second company, fourth battalion, under Sub-Lieutenant Samuel

¹² Pasley's 'Elementary Fortification,' i., note f, p. xii.

¹³ Ibid.

¹⁴ Ibid.

M'Lean, of sixty-seven total, having joined the army from England soon after the disposition, was also added to the pontoon train.

The total of the engineer establishment with the army and in the Netherlands, under the command of about sixty officers of engineers, amounted to 10 sub-lieutenants and 838 soldiers of the royal sappers and miners, and, adds Lieutenant-Colonel Pasley, "550 drivers in charge of 160 waggons, pontoon carriages included, and more than 1,000 horses." Besides medical officers and other non-combatants, and a large force of peasants employed on the works, "a small number of Flemish seamen, accustomed to rivers and coasting navigation, was attached to each division of the pontoon train."¹⁵ The hired drivers, paid at 1s. 6d. a-day each and rations, were provided with a uniform of grey clothing, having red cuffs and collars to their round jackets; and the Flemish seamen, receiving each an allowance of 2s. a-day and rations, were dressed like British sailors, having on the front of their low glazed caps, painted in white, the word "Pontoneer."

All the companies of the corps moved with the army towards Paris, leaving a few small detachments dispersed in Flanders. The second company, second battalion, attached to the first division, was present at the capture of Peronne on the 26th June under Sub-Lieutenant W. Stratton and two captains of engineers. The ladders used on the occasion were collected in the neighbourhood, but being too short were lashed together. The company had the honour of leading the brigade of guards to the assault,¹⁶ and behaved remarkably well.¹⁷ Preceding the column, they threw a number of fascines and faggots, hastily prepared by them, into the ditch of the hornwork, and thus enabled the troops to pass its swampy bottom into the body of the place.¹⁸ A party of the company advanced under a heavy fire to force the main entrance. No ladders

¹⁵ Pasley's 'Elementary Fortification,' i., note F, p. xii.

¹⁶ Ibid. i., note D, p. ix.

¹⁷ 'Wellington Dispatches,' viii., p. 176, edit. 1847.

¹⁸ Colonel Carmichael Smyth's 'Plans of attack upon Antwerp,' &c., p. 9, and plan.

were carried with it, nor any sledge-hammers or instruments by which to force it open. Daring men were in the batch, and their first impulse, forlorn as it was, urged them to mount the gate. Lieutenant Stratton and lance-corporal Edward Councilll soon gained the top, and tearing themselves over the spikes which crowned it, jumped into the place, tore down the fastenings, and pulling the gate open, admitted the troops. In leading the stormers into the work, Captain Alexander Thompson, R.E., and Lieutenant Stratton were severely wounded, as also two men of the company. Corporal Councilll was dangerously wounded in the breast.

For the passage of the army to Paris, a pontoon bridge was thrown over the Seine at Argenteuil early in July. Twenty pontoons were employed in its formation, and also some trestles, which were placed next to the banks of the river. On its completion, the Duke of Wellington, who was present during the greater part of the operation, first passed over leading his horse, and then the whole army with its artillery and baggage.

From the acute winding of the Seine it was again necessary to pass the troops over the river, and a pontoon bridge similar to the one laid at Argenteuil was thrown at Aniers. The fifth company, second battalion, and seventh company, third battalion, constructed these bridges. Some Flemish seamen assisted in their formation, confining their exertions chiefly to mooring the pontoons. Skilful as they were as sailors, their want of previous training as pontoneers, rendered them far less serviceable than the royal sappers and miners.¹⁹ The bridges were maintained for some months on the Seine, facilities being afforded for continuing the navigation without interruption. For this purpose an opening was made in the centre of each bridge, and when required to be re-established for the passage of the troops, the floating rafts were lashed in their places and removed again when the occasion was served. A sufficient detachment under Sub-Lieutenant James Adam was posted for a season at Chatou, to attend to a similar duty at the bridge

¹⁹ Pasley's 'Elementary Fortification,' i., note F, p. xii.

thrown there by the Russians. Three companies with forty pontoons were also stationed at Epinay.

After the capture of Paris, the Earl of Mulgrave, then Master-General of the Ordnance, in a letter dated 11th July, expressed his high appreciation of the zealous, able, and beneficial exertions of the officers and soldiers of the corps during the successful progress of the campaign; and also of the services of the officers and men at the different fortresses.

Corporal Joseph Coombs, of the fourth company, second battalion, detached to Maubeuge on the 23rd July, under Captain Harding, royal engineers, was present at the sieges of Philipville, from the 7th to 18th August, and Rocroy on the 15th and 16th following. He was with the army commanded by Prince Augustus of Prussia, and was the only British sapper engaged. On leaving that army in October, Captain Harding said that the corporal had conducted himself extremely well, and was both intelligent and active in the different services in which he had been employed.

During the year a number of hired drivers deserted. They were generally ignorant of their duties and many of them of bad character. To take care of the horses was the principal object of the chief engineer and his officers. Obtaining an equal number of foreign drivers to replace the vacancies occasioned by desertion, afforded no promise of advantage or improvement. It was, therefore, determined, to make an experiment by appointing the royal sappers and miners to the duty. Accordingly, the number of men required was attached to the horses, and "from their peculiar habits of zeal and exertion, they made no difficulty of reconciling themselves to this novel occupation of grooms and drivers." The experiment was eminently successful. "The horses were kept efficient and in proper condition;" and, "but for this measure, a number of valuable horses must have been ruined, and the pontoon train, as well as the engineers' brigades, by degrees, have become totally unserviceable."²⁰

At Paris the sappers were called upon to perform a domi-

²⁰ Pasley's 'Elementary Fortification,' i., note F, p. xii.

ciliary visit to the capital, which probably is the only instance on record of British soldiers being so employed in an enemy's country. The Duke of Wellington having been informed that arms were carried nightly into Paris from Montmartre, desired Sir Thomas Brisbane, commanding the seventh division of the army, to order Captain Harry Jones, R.E., to take the company of sappers attached to the division, with such tools as might be necessary, and examine rigidly every part of Montmartre where it was probable arms might be concealed. The officer commanding the troops stationed within the intrenchments, had orders not to allow any person to pass out, until Captain Jones had completed his examination. The sappers were employed nearly the whole day in making the search. Every cellar, house, and garden was examined; no place where it was possible to conceal arms was unexplored, but the result was unsuccessful. No doubt, however, existed, that the information communicated to the Duke of Wellington was well founded.

1816—1818.

Movements in France—Return of six companies from thence to England—Strength of those remaining, and detachments from them—St. Helena—Return of company from Italy—Disbandment of the war company of Maltese sappers—Battle of Algiers—Conduct of corps at Valenciennes—Instances in which the want of arms was felt during the war—Arming the corps attributable to accidental circumstances—Training and instruction of the corps in France—Its misconduct—But remarkable efficiency at drill—Municipal thanks to companies at Valenciennes—Dress—Bugles adopted—Reduction in the corps—Sub-Lieutenants disbanded—Withdrawal of companies from certain stations—Relief of company at Barbadoes—Repairing damages at St. Lucia; conduct of the old West India company—Corfu—Inspection of corps in France—Epaulettes introduced—Sordid conduct of four men in refusing to wear them—Murder of private Milne, and consequent punishment of corps in France by the Duke of Wellington—Return of the sappers from France.

AFTER the capitulation of Paris, the royal sappers and miners were encamped in the vicinity of the city. Late in the year they were removed to other stations on the northern frontiers of France; and until the formation of the army of occupation, were constantly changing their quarters and furnishing detachments for particular services at different places.

To meet the arrangements for reducing the army in France, six companies quitted the country for England in January. Four embarked at Boulogne and two at Calais. The former arrived at Woolwich on the 9th February and the latter on the following day.

Five companies remained with the army of occupation and were attached to divisions as follows:—

1st division	. 8th com., 2nd batt.	. Sub-Lieut. P. Johnston.
2nd division	. 1st com., 3rd batt.	. Sub-Lieut. W. Stevens.
3rd division	. 4th com., 2nd batt.	. Sub-Lieut. J. Adam.
Pontoon train	{ 2nd com., 4th batt.	. Sub-Lieut. S. M'Lean.
	{ 5th com., 2nd batt.	. Sub-Lieut. C. Gratton.

Their united strength counted 435 of all ranks, and they were quartered at Valenciennes, Raismes, Cantain, Bellain, St. Amand, Pernes, Denain, and Houdain. These places were the chief stations of the corps until its removal from France in 1818. Parties were also detached to Cambrai, St. Pol, and other places. Raismes was the head-quarters of the pontoon train. Each company attached to the train had twenty pontoons with stores and waggons in charge. The second company, fourth battalion, was attached to the right bridge of the train, and the fifth company, second battalion, to the left. The former bridge was permanently stationed at Raismes, but the latter was repeatedly moved from village to village for service and instruction, making its chief halts at Raismes and Aubry.

On the 26th January the seventh company, fourth battalion, of forty-eight total under Sub-Lieutenant A. Wallace followed Napoleon to St. Helena, and landed from the 'Phaeton' frigate on the 13th April. Major Emmett, R.E. took command of the company on its arrival. In carrying on the duties of the island the men were much detached and separated. Many acted as overseers of the Chinese and line workmen, and were found very useful in their several occupations. The head-quarters were at St. James', and parties at different periods were employed at Prosperous Bay, Turk's Cap, Sandy Bay, Great Pound Ridge, Horse Pasture Point, Lemon Valley, Rupert's Hill, Rupert's Valley, Ladder Hill, &c. Besides attending to the repairs of the barracks and public buildings and strengthening the sea-defences, the company rendered efficient assistance in the building of a residence for Napoleon at Longwood. The structure was of one story only and contained about forty rooms. It was, however, never occupied, as the ex-emperor expired before the furniture had been arranged in the several apartments.

On the evacuation of Italy the sixth company, second battalion, under Sub-Lieutenant R. Gibb, sailed from Genoa and landed at Gibraltar on the 17th March. Two months after, a fourth company was added to the engineer force on the Rock,

by the arrival, in the 'Kenney Castle' transport, of the first company, fourth battalion, from Portsmouth.

The Maltese company of sappers quitted Genoa with the British troops and landed at Malta in March. It continued to maintain its military organization and character until the 31st March, 1817, when, by the Prince Regent's command, it was disbanded. This was the *last* company of the Maltese sappers and miners.

On the 27th August the seventh company, first battalion under Captain William Reid and Major William Gosset, R.E., "had the high honour," says Sir John Jones, "of participating with the fleet," under Lord Exmouth, "in a splendid naval triumph." This was the battle of Algiers. "Under the idea," adds Sir John, "that it might become necessary to land and destroy some of the batteries and works covering the harbour of Algiers, the company," eighty-four strong, "was embarked with the fleet; but owing to the daring intrepidity and able nautical manœuvres of Lord Exmouth, their services as miners were rendered unnecessary."¹ Throughout the action, therefore, they fought with the seamen at the guns of the 'Queen Charlotte' and the 'Impregnable,' and gained equal credit with the navy and marines for their "noble support."² Sub-Lieutenant S. Calder and fifteen rank and file were wounded, of whom private David Campbell mortally. The company returned to England in the 'Queen Charlotte' and the 'Glasgow' frigate in October, and as a reward for their services each soldier received a gratuity of two months' pay.

Comparatively unnoticed, from the nature of their duties, it was seldom that the sappers and miners were referred to in the despatches of general officers; but the rule seems to have been infringed by Lieut.-General Sir Charles Colville, who on quitting his command at Valenciennes early in 1817, offered the following tribute to their merits:—

MY DEAR SIR CHARLES,

London, 19th April, 1817.

I am unwilling to part with those whom I regard so much, without bidding them adieu, and therefore request you will accept yourself, and have

¹ Jones's 'Sieges,' ii., p. 391, 2nd edit.

² 'London Gazette.'

the goodness to express to the other officers of the royal engineers of the Valenciennes' staff and pontoon train, as well as those who were attached to the late third division, my sincere good wishes for their continued honour and welfare, and that you and they and the officers and privates of the royal sappers and miners will accept my thanks for the promptitude and correctness with which my wishes were met by them, during the time I had the honour to have them under my command.

I am, &c.,

(Signed) CHARLES COLVILLE.

Lieut.-Colonel Sir C. F. Smith, R.E.

Arming the corps efficiently had for years been a subject of discussion and representation. Lord Mulgrave, the Master-General, however, could not be persuaded of the necessity of the measure, and under the opinion that a working corps ought not to be armed, sent detachments to the Peninsula equipped only with swords. The evil of this was greatly felt, as the sappers could not march across the country without being guarded by other troops. For the same reason the company attached to the light division, which was required for the siege of Bayonne, was unable to join. Upwards of 400 sappers were employed in that siege, and might, had they been equipped with fire-arms, have rendered important assistance in repelling the disastrous sortie.

Eleven companies were sent to the Netherlands in a similarly defenceless state. Before moving them, Earl Mulgrave was ready to abide by the views of the Duke of Wellington on the point, as his Grace promised to consider the question when the first company should arrive; but no farther notice appears to have been taken of the subject, and the whole eleven companies landed without a firelock.

When the alarming and unfounded reports of the retreat of the British from Waterloo reached Malines, Major Tylden, with the pontoon companies under his command, assumed a posture of defence; but the attitude, from want of arms, was necessarily impotent and embarrassing. This gave the Major a notion, when afterwards crossing the plains of Waterloo, of arming the companies with muskets and accoutrements scattered on the battle-field; the idea, however, from some regimental considerations was not carried out.

On one occasion, near St. Denis, all the sappers of the army, nearly 1,000 strong, were assembled to witness an execution, and strange to add, in that imposing force there was not a single fire-arm! At another time there was an inspection of the pontoon train of eighty pontoons and other carriages, with horses, drivers, and pontoneers, occupying a line of road nearly two miles in length. The sappers were present in their whole strength, but without a musket in their ranks to show the quality of protection they could afford to the immense charge intrusted to them. Fifty men with fire-arms could easily have destroyed the whole force in ten minutes. These instances and others equally striking, occurring in an enemy's country, were strongly brought under the notice of the higher powers; but, where representations and remonstrances founded on the necessities of the service failed to obtain attention, accidental circumstances at last gained the desired object. At the great reviews in France, the bridges required for the passage of the army were thrown the evening previously, and the sappers consequently were free for any other duty. Usually they were employed to represent the enemy, and to show the line of the enemy's position to advantage it was considered best to effect it by musketry fire. Orders were therefore given, on the 8th October, to supply the companies with muskets and bayonets from the stores at Valenciennes; and from this trivial incident may be dated the period from which the corps was properly and uniformly armed.

To keep up the training and efficiency of the corps in France, Sir James Carmichael Smyth issued to each non-commissioned officer and fifty of the most steady and intelligent privates, books and useful articles for their instruction and improvement. Schools were also established for the men, and prizes liberally awarded for industrious application and advancement. To perfect the corps in the use of the firelock and marching evolutions, five serjeants from the light infantry regiments in France were specially appointed to the duty. Each company was also required to execute a certain portion of field-work every year and reports of individual progress in instruction were prepared

weekly, which were carefully examined, and promotion distributed according to merit. The pontoon train, which was constantly in motion and sustained a high character for activity and usefulness, was only expected to do half the work demanded from the divisional companies; and this course of professional and general education, based upon the system of Lieutenant-Colonel Pasley, was scrupulously enforced until the companies quitted France in November, 1818.

Notwithstanding all this attention on the part of the officers, there was much misconduct prevalent in the sappers. During the period that eleven companies were with the army, courts² martial were very uncommon, and the punishments infinitely fewer than were found necessary to keep only five companies in order. This suggests a difficulty not easily explained; for, when the six companies were removed from the country in 1816, the weeds from the other five were sent to England, and their places supplied by privates of unexceptionable character.

So rigid indeed had the drilling been enforced that at the last reviews in the vicinity of Valenciennes, the correct manner in which the royal sappers and miners were handled by Captain Harry D. Jones, when representing the enemy, excited general approbation. Their light infantry evolutions even emulated those of their old companions in arms of the light division, whose only business was that of constant exercise in the requirements of the parade and in martial movements and combinations. The formation of "rallying square" by the companies was particularly commended; and those who did not justly appreciate their military attainments from the semi-civil nature of their many employments—expected to see them fly, as the cavalry, in its impetuous charges over the plain, furiously approached their compact and immoveable phalanx.

While these disciplinary exercises were in operation, it happened that the fourth company second battalion at Valenciennes, was suddenly called upon to extinguish a fire in the town. So well applied were their efforts in this humane service that the flames were speedily suppressed amid the thankful shouts of the people. This seemingly was not enough to mark

their gratitude, and therefore the mayor and corporation in full municipal costume bearing the symbols of their offices, waited upon Captain Harry Jones to express the deep acknowledgments of the inhabitants "to the officers and men of the corps for their conduct on the occasion." In his orders of the 2nd November, Captain Jones added, "The activity displayed by the non-commissioned officers and privates as well as the cheerfulness with which they executed all orders reflects the highest credit upon them. The bold conduct of private Thomas James deserves to be particularly mentioned," and he was appointed a lance corporal.

Early in the year the high-fronted chaco was superseded by a black felt cap of more military pretensions than was formerly worn. It was embellished with yellow cords and tassels, which fell with chivalric gaiety upon the left shoulder. The sergeants and staff sergeants wore white heckle feathers, gold bands and cords, with gilt scales and ornaments.—See Plate XII. 1823.

In March the drums throughout the corps were abolished and bugles adopted. The rank of drummer was also changed to accord with the alteration, and drum-major James Bailey, the first of the rank, was now styled bugle-major.

The return of peace gave rise to a gradual reduction in the corps. On the 16th August, 1816, twenty-five men per company were lopped off. This took away 800 men, reducing the corps from 2,861 to 2,061 of all ranks. By the royal warrant of the 4th February, 1817, an entire battalion was disbanded, and a further diminution of ten privates and one drummer took place in each of the remaining twenty-four companies. From the staff was taken one adjutant, one sergeant-major, and one quartermaster-sergeant, and also the whole of the sub-lieutenants, thirty-two in number.³ The establishment of the

³ Generally the sub-lieutenants were commissioned into the corps from the ranks of other regiments, as a patronage to the military friends of the Master-General. Many of them had distinguished themselves in the field, were good drills, and fine-looking soldiers; but though considered at first to promise well, they disappointed the expectations formed of their probable usefulness. Wanting the necessary ability and weight, they were neither respected in the army nor by the corps; and unable, therefore, to give the satisfaction which was reasonably hoped for, the first reduction ordered after the peace, embraced th

corps was thus decreased to twenty-four companies of 1,258 of all ranks.⁴

In consequence of these orders, the companies at Dover and Spike Island were withdrawn, as also the detachment at Guernsey. The force at Gibraltar was reduced from four to three companies, and the strength at Woolwich and Chatham was brought down to a fluctuating establishment of five companies.

The company discontinued on the works at Spike Island, sailed for Barbadoes on the 17th December, 1817, on board the 'Thames of London' freight-ship, to relieve the old company which landed there in January, 1794. The vessel encountered some very stormy weather on the voyage, from the effects of which Lieutenant Rogers, R.E., who commanded the company, died when near Madeira, and the charge of the men devolved upon Captain Robert Dupont of the royal artillery. Not a single irregularity was committed by the sappers during the voyage, and on their arrival in Carlisle Bay on the 18th January, Lord Combermere, the governor, expressed in orders his high satisfaction of their excellent conduct as reported to him by Captain Dupont.

On the landing of the new company, the old West India hands, dwindled to twenty-eight in number including sergeants, were sent to St. Lucia, and assisted in repairing the damage done by a recent hurricane. In March following, they arrived in England and were disbanded. In summing up their character, Colonel William Johnston, of the engineers, thus

abolition of the rank.—Pasley's Mil. Pol., pp. 18, 19, Introduction. Their removal from the corps was, nevertheless, alluded to in terms of "extreme regret" by Colonel Carmichael Smyth in his orders of the 22nd April. In concluding his address at parting, he thus wrote, "With the conduct of the whole of the sub-lieutenants Colonel Carmichael Smyth has had every reason to be satisfied, but more particularly with those who, having been longest under his command, he has had more occasion of knowing. If, in the course of future service, he should have any opportunity of being useful to them, he assures them he will embrace it with pleasure."

⁴ In addition to this total 180 men of the companies in France were borne on the strength as supernumeraries, until December, 1818.

wrote, "They are a drunken set, and require to be thought of and provided for like babies;" but, nevertheless, he urged that the sapper force in Barbadoes should be always maintained complete, as it would act as a check upon the contractors, and enable the estimates to be carried into execution with more despatch, economy, and superiority of workmanship in almost all the details, than if an equal number of artificers were derived from the country.

A company of fifty strong, intended for the service of the palace of the Lord High Commissioner at Corfu, embarked at Portsmouth on the 4th May, and after a month's detention at Malta reached its destination in August. The employment of the company was chiefly confined to clearing away the rock, by blasting, for the foundations of the palace, and in executing such other miscellaneous services as were required. From local disagreements regarding the working pay of the company, the men were precluded from taking part in the artistic details of the palace, and eventually, from the same cause, it was removed from the island.

Colonel Carmichael Smyth made his last general inspection of the corps in France in May, and in complimenting the companies for the excellency of their discipline, interior economy, and improvement in the field duties, awarded to fifteen non-commissioned officers and men—the most advanced in the course of instruction—a silver penholder each as a token of his approbation.

This year, the companies in France substituted yellow worsted epaulettes for the plain shoulder-strap, the expense of which was borne by the men themselves. Among the companies there were four unepauletted privates who at all times fell in, like branded castaways, in the rear of their company. The badges had been placed on their shoulders, but, more mean than avaricious, they refused to pay for them. Feeling none of that becoming pride which has always been so largely developed among even the commonest soldiers, they were publicly stripped of the epaulettes intended to give them distinction, not allowed to disfigure the ranks with their pre-

sence, and ultimately removed in contempt to England. The circumstances of this curious proceeding are given in the following spirited order of Colonel Carmichael Smyth.

“C. E. O. Head Quarters, Cambrai, 30th May, 1816.

“The commanding engineer has received a report that four men of Captain Stanway’s company, viz., privates—

Patrick O’Kean,
Andrew Graham,
James Ballingall,
James Seoble,

have refused to sign their accounts, alleging that they have no right to pay for the additional fringe for their epaulettes, as sanctioned by the commanding engineer’s orders of 4th April, 1818.

“Colonel Carmichael Smyth had not an idea that, in the whole of the five companies in this country under his command, four men of so sordid and mean a disposition would have been found. He holds them up to the contempt of their comrades, as void of every feeling that ought to actuate a soldier with pleasure or pride in the character or appearance of the company to which they belong.

“He directs that the epaulettes may be forthwith cut off their shoulders, and that they are in future to parade upon all occasions in the rear of the company until an opportunity offers to send them away from it altogether. They will be removed to either the Gibraltar or West India company, being perfectly unworthy of serving with this army.

“Colonel Carmichael Smyth feels confident that the non-commissioned officers and men of the sapper companies with this army must be sensible of their improved state of discipline, regularity, and appearance, and how much in consequence, their own individual happiness and respectability are increased. The character, conduct, and appearance of a corps, reflects good or evil upon every soldier belonging to it as the case may be.

“The sapper companies have fortunately established a respectable character, and are well thought of in this army. The epaulettes have been adopted as distinguishing them from the infantry. The sapper’s duty requires much more intelligence, and much more previous training, than that of a common infantry soldier. He is better paid and better clothed, and ought to conceive himself happy at being permitted to wear a distinction showing that he is a sapper. Such, no doubt, will be the view taken of the subject by every non-commissioned officer and sapper who feels any way interested in the welfare and respectability of the corps.

“The sooner men who have not this feeling are got rid of the better. They are unworthy of belonging to this army.

(Signed)

“JOHN OLDFIELD.

“Major of Brigade.”

On the 19th June, private Alexander Milne of the corps was found in a wheat-field, near Raisnes, murdered! A number of the men of his company had been in the habit of breaking out

of their quarters after tattoo roll-call, and spending the time of their absence in gambling. Some were said to have been playing with the deceased on the night of the murder. Strong suspicion attached to the card-party, but as the perpetrator of the deed could not be discovered, the Duke of Wellington, convinced that the murderer was in the ranks of the corps, ordered *all* the sappers and miners with the army, both near and distant, to parade every hour of every day from four in the morning till ten in the evening, as a punishment for the crime; and as the order was never rescinded, it was enforced—with only a slight relief—until the very hour the companies quitted France.⁵ Several of the officers and many of the men were worn out and laid up with fevers by the rigour of the penalty, and its execution fell with singular hardship upon one of the companies which, quartered with the division encamped near St. Omer, was, at the time, seventy miles away from the place of the murder!

Early in November, on the breaking up of the army of occupation, the eighth company, second battalion, took charge of the pontoons and stores to Antwerp, and the other four companies marched from Cambrai to Calais, where, as arranged by General Power with the French governor, they were encamped on the glacis on the east side of the town. This was requisite, as by the treaty of the 3rd November, 1815, no troops of the army of occupation could be quartered within any of the fortresses not specified in the treaty. At Calais the companies

⁵ The orders issued for the infliction of this discipline were as follows:—

“Head Quarters, Cambrai, 25th June, 1818. In consequence of the circumstances connected with the murder of Alexander Milne, of Captain Peake's company, which have appeared upon the proceedings of a court of enquiry, the Field Marshal has directed that the rolls of the royal sappers and miners may be called, until further orders, in their several cantonments every hour from 4 in the morning until 10 at night, all the officers being present; and that a daily report thereof may be made to head-quarters.”

“Head-Quarters, Cambrai, 18th July, 1818. In consequence of orders from His Grace the Commander of the Forces, the rolls of the several companies of royal sappers and miners will be called every two hours from 4 in the morning until 10 at night, in place of every hour as directed in the C. E. orders of the 25th ultimo.”

remained about a week, assisting in the embarkation of the army and the shipment of the cavalry horses. In this service the sappers became so expert, that a regiment was embarked and many were landed at Dover during the same tide. All the companies arrived in England before the end of November. One sergeant and twenty men, under Lieutenant Hayter, of the engineers, after the sailing of the troops, guarded the military chest both at Calais and on the passage, and rejoined their companies, when the important duty for which they were selected was completed.

1819—1824.

Reduction in the corps—Distribution—Sergeant Thomas Brown, the modeller—Reinforcement to the Cape, and services of the detachment during the Kaffir war—Epidemic at Bermuda—Damages at Antigua occasioned by a hurricane—Visit to Chatham of the Duke of Clarence—Withdrawal of a detachment from Corfu—A private becomes a peer—Draft to Bermuda—Second visit to Chatham of the Duke of Clarence—Fever at Barbadoes—Death of Napoleon, and withdrawal of company from St. Helena—Notice of private John Bennett—Movements of the company in Canada—Trigonometrical operations under the Board of Longitude—Feversham—Relief of the old Gibraltar company—Breastplates—St. Nicholas' Island—Condition of company at Barbadoes when inspected by the Engineer Commission—Scattered state of the detachment at the Cape—Services of the detachment at Corfu—Intelligence and usefulness of sergeant Hall and corporal Lawson—Special services of corporal John Smith—Pontoon trials—Sheerness—Notice of corporal Shorter—Forage-caps and awards.

By the royal warrant of 20th March, 1819, the peace establishment of the corps was further reduced, from twenty-four companies of 1,258 total, to twelve companies of 752. Of this number the staff embraced one brigade-major, one adjutant, one quartermaster, two sergeant-majors, two quartermaster-sergeants, and one bugle-major. The organization of each company was fixed at the subjoined detail:—

1	colour-sergeant,
2	sergeants,
3	corporals,
3	second-corporals,
2	buglers,
51	privates.

Total . 62;

and the whole were distributed, with regard to strength, con-

sistently with the relative wants of the several stations. These stations were Woolwich, Chatham, Portsmouth, and Plymouth; Gibraltar, Corfu, Bermuda, Barbadoes, St. Helena, Kingston in Upper Canada, and the Cape of Good Hope.¹

A reinforcement of thirty men, under Lieutenant Rutlerford, R.E., arrived at the Cape of Good Hope on the 24th July. In consequence of hostilities with the Kaffirs the detachment marched 700 miles to the south-eastern frontier. It traversed a wild and thickly-wooded country, where there were neither bridges nor roads; and in the absence of soldiers of the quartermaster-general's department, facilitated by their exertions the progress of the troops. In places where civil artificers could not be procured at any rate of wages, they executed various services and works of defence for the security and tranquillity of the settlement. On one occasion they constructed a temporary bridge of pliance materials, to span one of the principal rivers of the country, which was swollen by floods, and rendered deep, rapid, and dangerous. The bridge was thrown in six hours, and the whole of the force, about 2,000 horse and foot, a demi-battery of guns with ammunition waggons, about 100 baggage waggons with commissariat supplies, camp equipage, &c., crossed in perfect safety, in three hours. "Without the assistance of these sappers," writes Colonel Holloway, R.E., "the river could not have been passed without much delay, loss of property, and perhaps loss of life;" and, "both on the

¹ The companies at Newfoundland and at Halifax, Nova Scotia, returned to England late in 1819. To the former company belonged sergeant Thomas Brown, who was discharged from the corps in November, 1819, after a service of twelve years. In 1821 the late Sir William Congreve appointed him modeller at the royal military repository, Woolwich, which situation he has held for thirty-six years with great credit. In that period he has made 125 models, chiefly of field artillery, pontoons, bridges, and miscellaneous military subjects. The greatest number are deposited for exhibition in the Rotunda, and the remainder in the rooms of instruction for the officers and non-commissioned officers. Many others also, which were defective or out of repair he has renewed or remade. His principal works, considered with regard to the skill and artistic excellence displayed in their construction, are the model of a fortified half octagon, showing the approaches and plan of attack, on a scale of 22½ feet to an inch, and a model of St. James's Park as it was at the celebration of the peace in 1814.

frontier, and at the seat of government, they were always found of the utmost benefit." The detachment returned to Cape Town in December, when the remnant of the old party, which had been in the colony since 1806, quitted for England and arrived at Woolwich on the 5th September, 1820.

An epidemic fever of a severe character raged at Bermuda during the months of August and September, and out of a company of fifty-two total, no less than one serjeant, twenty rank and file, three women, and one child, fell victims to its virulence. Captain Cavalie S. Mercer who commanded the company, was also numbered with the dead.

From Barbadoes, thirty non-commissioned officers and men, under the command of Captain W. D. Smith, were detached to Antigua, in November, and worked in the engineer department, repairing the damage caused by a recent hurricane, until the January following, when they returned to their former station. Small parties, of fluctuating strength, were also detached to Trinidad, St. Lucia, Tobago, and Demerara, and had charge of different working parties at those islands for several years.

At Chatham on the 11th November, the Duke of Clarence reviewed the corps under arms; and after witnessing various field operations, including the firing of mines, the construction of flying saps, and the manœuvring of pontoons, inspected the model and school rooms. In the latter, he watched with great interest the system of instruction as carried out by Lieutenant-Colonel Pasley; and in expressing his perfect satisfaction with all he saw, added his opinion, that the establishment was one of great public utility.

On the 14th of the same month, thirty-four non-commissioned officers and men of the company at Corfu were withdrawn from the island in the 'Christiana' transport, and sailed for England. On arriving at Gibraltar, one serjeant and nineteen rank and file joined the companies there under an order from General Sir George Don; and the remaining twelve reached Chatham on the 2nd April, 1820. The conduct of the company during its brief tour of duty at Corfu, was reported to the Inspector-

General of Fortifications in very favourable terms, by Lieutenant-Colonel Whitmore, R.E.²

On the 5th June thirty-one men, chiefly masons and bricklayers, under Lieutenant Skene, R.E., arrived at Bermuda, to replace the men who had died during the epidemic. A party of variable strength, with the exception of occasional periods of temporary withdrawal, was permanently detached to execute the defences at Ireland Island.

In August the Duke of Clarence again visited Chatham, and a full routine of military and field operations was carried on for his inspection. With the works, the schools, and model rooms, his Royal Highness expressed his approbation in language that was both flattering to the corps and honourable to the institution.

In October the yellow fever again visited Barbadoes, but its violence, contrasted with former visitations, was considerably assuaged, and its fatality less felt among the population. Forty-six of the corps were present during its prevalence, and though nearly the whole of the number were attacked, only eleven died, and but fifteen were invalided. The loss in the company, however, was proportionally more severe than in any other corps in garrison, and the deterioration in the general health of the men drew the particular notice of the Commander of the Forces, who made repeated comments on it in his reports to England. In consequence of these reports, the company was relieved early in 1822, some months before the completion of its tour of service. Its character while in the West India command was flatteringly spoken of by Captain W. D. Smith, R.E. In one of his communications he wrote,

² To this company belonged private James Gordon, who lost an eye by accident in mining for the foundation of the palace, and was discharged at Woolwich 30th September, 1820, with a pension of 9*d.* a-day. Throughout his service of nine years he was a zealous and exemplary soldier, and bore about him the stamp and evidences of a loftier origin than his humble station gave reason to expect. Singular events in life sometimes occur that make contrasts at times appear almost fabulous. "The soldier turned peer," has hitherto been the player's jest, but it has at last become a veritable reality, for in September, 1848, this James Gordon, the private soldier, succeeded, as heir to his grandfather, to the titles of Viscount Kenmare and Lord Lochinvar.

"Its conduct, I have pride in saying, has been most exemplary."

Napoleon died at St. Helena on the 5th May, and his remains were deposited with quiet solemnity in an unpretending tomb, shadowed by a willow, in Slane's valley. The company of sappers at the station took part in the funereal arrangements. The stone vault was built by privates John Warren and James Andrews. The body was lowered into its resting-place by two privates of the company, and other privates, appointed for the duty, refilled the grave, and secured all with plain Yorkshire slabs. Thus, without epitaph or memorial, were entombed the ashes of the most extraordinary man of modern times. As the necessity for retaining the company, now reduced, by deaths and the withdrawal of a detachment in 1819, to twenty-five of all ranks, no longer existed, it quitted the island and arrived at Woolwich on the 14th September. Private John Bennett was detained for three months after the removal of the company, and during that period he was employed with the Clerk of Works, in giving over the stores of the engineer department to the island storekeeper.³

The company in Upper Canada changed its head-quarters in June, from Kingston to Isle aux Noix, and afforded parties for service at Quebec and Fort George, both of which were recalled to Isle aux Noix in August. In November, 1822, the greater part of the company was removed to Quebec, and the remainder were retained for the works at Isle aux Noix.

From July to November, a sergeant and nine men, chiefly carpenters and smiths, were employed by the Board of Longitude under Major Colby and Captain Kater, in the operations for determining the difference of longitude between the observatories at Paris and Greenwich; and visited ten of the prin-

³ Was an excellent clerk, and became in time a quartermaster-sergeant. After his discharge from the corps in 1843, he filled, for about ten years, important offices under the Surveyor-General of Prisons, and died while steward of Dartmoor Prison, in February, 1853, from a cold caught in that bleak quarter. The season was a peculiarly bitter and stormy one, during which three soldiers of the line, on escort duty, in crossing Dartmoor Heath, perished in the snow.

cial trigonometrical stations in England. Besides attending to the laborious requirements of the camp, the party erected poles, and constructed stages or platforms wherever needed, on commanding sites and towers, for purposes of observation; and were distinguished with the care of the philosophical instruments. In their professional operations of the season they took no part.⁴

In June, one sergeant and thirty-nine rank and file under Captain John Harper, R.E., were detached from Woolwich to Feversham, and after destroying the powder-mills and premises connected with them, returned to head-quarters in September.

The first company of the corps, which had been at Gibraltar since 1772 and was present at the celebrated siege a few years afterwards, was removed, in the course of relief, from that fortress to Woolwich in June.

Breast or belt-plates of brass, in place of buckles, were adopted early in the year by permission of General Gother Mann. All ranks wore a plate of uniform device and dimensions, and each soldier paid for his own. The device consisted of the royal cipher, encircled by the garter, bearing the name of the corps and surmounted by a crown.

A fluctuating detachment, not exceeding thirteen masons and miners under a corporal, was detached in the autumn from Devonport to St. Nicholas Island, and remained there for nearly four months repairing the fortifications.

At the fall of the year the engineer commission to the West Indies, composed of Colonel Sir James Carmichael Smyth, Major Fanshawe, and Captain Oldfield inspected, in the course of their professional tour, the fourth company of sappers stationed at Barbadoes under the command of Captain Loyalty Peake. Its state was most creditable. Since its arrival in the command it had only lost one man and that from an accident. Whilst other troops quartered under the same roof were

⁴ Captain Kater, in his account of the operations published in the 'Philosophical Transactions,' 1828, p. 153, notices, by mistake, this party as belonging to the royal artillery. There were, it is true, two gunners of the regiment present, but they were employed as servants to the officers.

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Printed by W. F. Hooper

UNIFORM, 1823.

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Plate XI.

Revol. Sappers & Miners



B&C

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UNIFORM, 1873.

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withered and sickly, the sappers were healthy—a fact that was ascribed to the attention of the officers, and the absence among the men of those intemperate habits, which in a hot and enervating climate, originate so many ailments.

The small detachment at the Cape of Good Hope was much dispersed at this period. The men detached are traced at short intervals at Cape Town, Kaffir Drift, Wiltshire, Port Elizabeth, and New Post Kat River.

The Corfu detachment of seven men was removed to Gibraltar, in the 'Frinsbury' transport, in December, and arrived at the Rock on the 6th March, 1824, bearing with it records of its uniform exemplary conduct and public utility. Being first-rate workmen, they were the leading men of their trades, and some of the best work at the palace was the result of their superior mechanical acquirements and skill. Sergeant John Hall was overseer and master carpenter for four years, and corporal Andrew Lawson, a man of considerable talent, was clerk of works, and also directed the masons and bricklayers.⁵ Captain Streatfeild in parting with them, wrote "They are a very

⁵ Such was the sense entertained of his services, that Sir Frederick Adam, the Lord High Commissioner, after the detachment had reached Malta, recalled him to Corfu to superintend the civil works on the island. His position thus became anomalous, and, as far as military law and usage are concerned, unexampled for privilege and emolument. Besides his regimental pay, he received an allowance of 3*s.* 3*d.* a-day working pay, (afterwards increased to 4*s.* 3*d.* a-day,) with a fine residence and free rations for his wife, family, and a servant. He had also a horse and boats at his command, was relieved from the performance of regimental duty, and was permitted at all times to wear plain clothes. Throughout the building of the palace, the Villa of Cardachio, and other important civil buildings, he was the clerk of the works, and Sir Frederic Adam took every occasion of applauding his talents and exertions. In April, 1834, after removal to Woolwich, sergeant Lawson was appointed clerk of works at Sierra Leone, where, after a brief period of service, during which he was bereaved of his wife, he died, leaving nine orphans to lament his loss. His eldest son was nominated to the appointment as the fittest person in the colony to discharge its professional duties, but the youth fell a sacrifice to the climate four days after his father's decease. The eight remaining orphans were generously cared for by Sir Frederic Mulcaster, the inspector-general of fortifications and the executive of the corps at the Ordnance Office, who obtained from the officers of royal engineers and the civil gentlemen of the department sufficient means to free them from that distress, to which the absence of this benevolent support would have inevitably reduced them.

honest, trustworthy set of men, and do honour to the corps." "The worst mechanic among them," said Lieutenant G. Whitmore, "would be almost invaluable in the corps." Before the company quitted Corfu, four deaths had occurred; four also took place in the small party that remained, one of whom, private Gamaliel Ashton, a bricklayer, was killed by falling from a scaffold while at work at the palace.⁶

Second-corporal John Smith was sent from Quebec in the summer to examine the freestone quarries of Nova Scotia and New Brunswick, and to report upon their capabilities and facilities for furnishing stones of certain dimensions for the service of the department. He started on his mission in a merchant schooner on the 7th August, and, with Captain Melville Glenie, of the 60th rifles, was nearly wrecked on the Beaumont shoals. The flag of distress and the shouts of the passengers being unheeded, corporal Smith procured an old musket and some powder, and having with some difficulty fired a few rounds from it, the situation of the vessel was observed by some pilots, who rescued the passengers. Next day the corporal re-embarked on board another vessel, and landing at Miramichi, visited the quarries there, and also at Remsheg, Pictou, Mergomish, and Nipisiguit. Upwards of two months were spent in completing his researches; and, returning to Quebec on the 16th October with specimens of the building stones and slates taken by him from the various quarries he had examined, he made a lucid report of their capabilities, &c., and detailed the terms upon which the owners of the properties were prepared to deal with the department. Colonel Durnford, the commanding royal engineer, expressed his entire satisfaction of the manner in which the duty was performed, and of the intelligence evinced by the corporal in his descriptive report.⁷

⁶ The remains of all were interred with unusual respectability, and the spots where they lie have been marked by neat tomb-stones—a graceful tribute from the survivors to the memory of the departed.

⁷ Smith, afterwards a sergeant, was a first-rate mason and foreman, and during his service of thirty two years, twenty-five of which were abroad, his abilities, experience, and precision were found of great benefit to the depart-

In September and October trials of the pontoons, invented respectively by Sir James Colleton and Lieutenant-Colonel Pasley, were made in the open part of the Medway near the Gunwharf, and at Rochester Bridge—on the 9th and 10th September, in the presence of a committee of seven officers of the royal artillery and royal engineers, Lieut.-General Cuppage, R.A., being the president; and on the 1st October in the presence of his Royal Highness the Duke of York. One or other of the rival systems was to supersede the use of the old English tin pontoons. To work the buoy pontoons of Sir James Colleton, seamen were lent from H.M.S. 'Prince Regent.' The third and sixth companies were employed with Colonel Pasley's decked canoes. The manœuvres were exceedingly laborious, and the men were exposed a greater part of each day to very heavy rains. They not only, however, did everything to the satisfaction of his Royal Highness and of the officers composing the committee, but several distinguished naval officers declared it was impossible that any operations with boats could have been better or more quickly performed.*

From early in November to the 21st January, 1825, a party of ten privates with second-corporal Robert Shorter, was employed at Sheerness under the command of Lieutenant E. W. Durnford, R.E., in boring to ascertain the nature of the strata with a view to determine its practicability for building some

ment. At Corfu, Vido, and Zante, he was entrusted with very important duties. Subsequently to his discharge in 1842 on a pension of 2s. 3 $\frac{1}{2}$ d. a-day, he superintended, on the part of the Admiralty, the building of the royal marine barracks at Woolwich by contract, and his vigilance prevented the employment of any of those artificers so commonly resorted to by contractors. He afterwards superintended for the Duke of Buckingham the building of a circular redoubt, partly of stone, for six guns, at his Grace's ducal residence at Stowe: and in the inscription on one of the piers, his name is thus associated with the work:—

Richard Plantagenet

Duke of Buckingham & Chandos.

Robert Wilcox, Captain Royal Navy.

John Smith, Sergeant R^d Sappers and Miners.

* Pasley's 'Narrative of Operations with the New Pontoons,' 1824. Sir James Colleton's 'Buoy Pontoons.'

permanent works of defence. The borings were carried on at all the salient points of the contemplated fortifications, ranging in depth from thirty to sixty feet. Borings were also made on the Isle of Grain, and the men of the party were occasionally employed at their trades in the engineer department. Corporal Shorter registered the daily progress and results of the operation;⁹ but, although the intended works were never undertaken, the borings were not without interest in adding their quota of information to the cumulative discoveries of geological research.

The leather forage cap introduced in 1813, was this year superseded by a dark blue cap, called the Kilmarnock bonnet, with a yellow band manufactured in the web, and a peak and chin-strap. The crown was of immense circumference. See Plate XIII. The corporals wore the chevrons of their rank above the peak. The superior ranks had blue cloth caps, with peaks, chin-straps, and gold lace bands. The Kilmarnock bonnets were purchased by the men; the leather caps had been supplied by the public.

About this period the army pattern sword for staff-sergeants and sergeants was adopted in the corps; but the swords introduced for the buglers were of the artillery pattern.

⁹ Shorter was afterwards stationed for fourteen years at Corfu. For seven of his twenty-seven years' service he filled the office of quartermaster-sergeant, and was honoured with an annuity and medal for his meritorious conduct. He retired from the sappers on being appointed a Yeoman of the Queen's Guard, and was the first non-commissioned officer of the corps who received a nomination to that ancient company. While he was all that could be desired in his corps in respect to efficiency and intelligence, in private life he was a thorough humourist, and the most simple incident, with scarcely an element for merriment in it, became by his droll inventorial recital, a subject of the richest amusement.

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UNIFORM & WORKING DRESS, 1875

UNIFORM & WORKING DRESS, 1875

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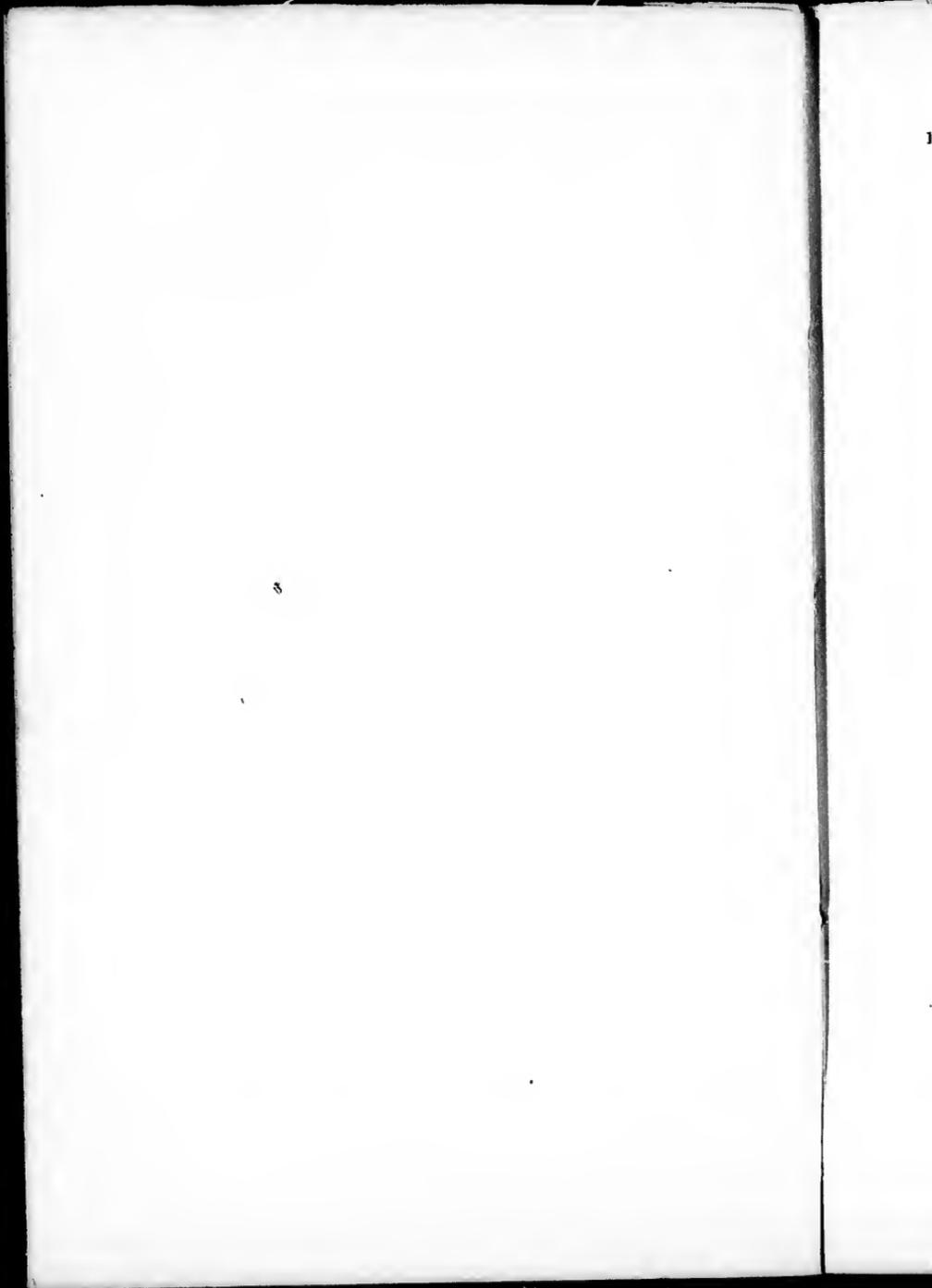
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CONFED A WORKING BREW. 1860

Illustration by V. V. Roman



1825—1826.

Dress—Curtaiment of benefits by the change—Chacos—Survey of Ireland—Formation of the first company for the duty—Establishment of corps; company to Corfu—Second company for the survey—Efforts to complete the companies raised for it—Pontoon trials in presence of the Duke of Wellington—Western Africa—Third company for the survey; additional working pay—Employments and strength of the sappers in Ireland—Drummond Light; Slieve Suacht and Divis—Endurance of private Alexander Smith—Wreck of 'Shipley' transport—Berbice; Corporal Sirrell at Antigua.

EARLY in the year the breeches, long gaiters, and shoes, ceased to be worn by the corps, and in their stead were substituted light blue trousers, with scarlet stripes, and short Wellington boots. The coat was stript of its frogging on the breast; and the skirts, with the slashes sewn transversely on the loins, were lengthened to the swell of the thigh. White turnbacks were added to the inner edges of the skirts, and brass grenades united the turnbacks near the bottom of the skirts. The working jacket was simply altered in the collar from the open to the close Prussian fashion, and the working trousers were dyed of a deeper grey.—See Plate XIII.

These alterations were followed by curtailments of benefits heretofore enjoyed by the corps, inasmuch as the stockings, shirts, and forage caps, annually issued with the clothing, ceased to be provided at the public expense. The allowances for oil and emery, and shoes, were also abolished; but in lieu of the one pair of shoes formerly issued, and the compensation for a second pair, the corps had the advantage of receiving, yearly, two pairs of short Wellington boots.

The low chaco of 1817 gave place to one of about ten inches

in height, bearing a goose feather of a foot long in an exploded grenade. The ornaments consisted of scales secured by lions' heads, the garter and motto encircling the royal cipher surmounted by a crown, and also a cluster of forked lightning, winged. For protection to the neck in wet weather, a varnished canvas ear-cover was attached to the back of the cap.— See Plate XIII. The ornaments on the staff-sergeants' chacos were of excellent gilt, and a band of rich silk, embossed with acorns and oak leaves around the top of the cap, gave it an elegant appearance. The sergeants' ornaments were manufactured of a metal resembling copper, and the black bands were of plain narrow silk. Both ranks wore white heckle feathers.

In June, 1824, a committee of the House of Commons recommended the trigonometrical survey of Ireland, with the view of apportioning equally the local burdens, and obtaining a general valuation of the whole country. The measure was sanctioned, and Colonel Thomas Colby, R.E., was appointed to superintend the work. It being intended that the survey should be conducted under military supervision, Major William Reid suggested the advantage to be derived from the co-operation of the royal sappers and miners in carrying out its subordinate details. Colonel Colby after due reflection, the result of a discussion of nearly six weeks' duration with Major Reid, considering the plan to be not only practicable but desirable, made known his wishes to the Duke of Wellington, then Master-General of the Ordnance, and on the 1st December, 1824, his Grace obtained a royal warrant for the formation of a company of sixty-two non-commissioned officers and men, to be employed in the operations of the survey in Ireland.¹

This company was at once organized at Chatham; and the men, selected from the most intelligent of the corps at the station, were specially trained for the duty by Lieutenant-Colonel Pasley. It, however, remained for Colonel Colby, in giving effect to his great and comprehensive system, to develop and enlarge the acquirements and efficiency of the men, by

¹ 'Report Army and Ordnance Expenditure,' Minutes of Evidence, p. 617. 'Naval and Military Gazette.' Pasley's 'Mil. Policy,' Introd., p. 37, 4th edit.

adapting them to the various details and necessities of this novel service. In doing so he encountered difficulties of no ordinary character; but eventually he succeeded in achieving the end he sought, not without credit to the mass whom he moulded and fashioned to the purpose, as well as great honour to himself.

By the augmentation of this company the establishment of the corps was increased to thirteen companies, of 814 of all ranks, including the staff. The first detachment of one colour-sergeant and twenty rank and file was conveyed to Dublin in March under the command of Lieutenant Edward Viers, R.E., and was soon removed from Mountjoy to Dromore, where, in April, further reinforcements arrived, completing the company to its establishment; and the whole were distributed in small sections to Antrim, Belfast, Coleraine, Dungiven, Londonderry, &c., from whence the corps, by degrees, traced its progress all over Ireland. Major Reid was appointed to command the *first* survey company, which was numbered the thirteenth.

On the 24th March, the sixth company, of sixty-two total, sailed for Corfu on board the 'Baltic' merchant transport, and landed there on the 14th May. This addition to the command was made at the instance of the Ionian government for the purpose of executing the works and fortifications at Corfu and Vido. By the warrant for raising this company, dated 4th April, 1825, the corps mustered fourteen companies, and counted 876 officers and soldiers of all ranks. All the regimental and working disbursements of the company, and of others arriving at the station in periodical relief, were for a number of years paid from the Ionian exchequer.

While the instruction of the first survey company was still in progress, steps were taken for the formation of another company for the same service. The Duke of Wellington expressed his conviction of the propriety of the measure from the satisfactory advancement already made in the professional education of the company raised for the duty early in the year. On the 4th April, 1825, therefore, his Grace obtained another warrant

for the employment of a second company in the operations of the survey of Great Britain and Ireland. This company was numbered the fourteenth; and being of the same numerical organization as the other companies, viz., sixty-two men, the establishment of the corps was raised from 876 to 938.

At Harwich, Hull, Newcastle-upon-Tyne, Liverpool, Cornwall, Fort George, as well as in London and Edinburgh, recruiting for these companies was carried on very briskly. Recruiting at Dublin was also permitted; and some draftsmen from the Dublin Society School were, about this period, enlisted for the survey companies. The Military Asylum at Chelsea and the Hibernian School were likewise canvassed to procure eligible boys for training; but such was the circumscribed nature of the education imparted to the children at Chelsea, that of the number selected to join the companies, a few only were found that gave promise of future aptitude and usefulness; and of those who succeeded, none ever distinguished themselves by their talents. From the Hibernian School ten boys were received, all of whom were clever and intelligent; but one lad far outshone his comrades, and in time, by his zeal, extensive mathematical attainments, and varied acquirements, gained the highest position in the sappers on the survey. The person alluded to is Quartermaster William Young.

The fourteenth company quitted Chatham for the survey, and landed at Belfast, its first head-quarters, on the 15th July.

On the 26th September, a trial of the capabilities of the pontoons invented by Sir James Colleton, Colonel Pasley, and Major Blanshard, took place at Chatham in the presence of the Duke of Wellington; and the men of the corps employed on the occasion displayed much zeal, spirit, and activity. Sergeant Jenkin Jones was particularly praised for his conduct in managing the pontoons of Major Blanshard; and as the Master-General arrived a day earlier than was expected, and ordered at night the exhibition to take place the next morning, much of the success of the efforts in favour of the cylindrical pontoons is ascribed to the sergeant's able and zealous arrangements and personal exertions. This induced Colonel Pasley to re-

commend sergeant Jones as a non-commissioned officer fit to be entrusted with any difficult or important detached duty, which might save the services of an officer. One private, William Berry, fell from a raft during the trial, and was drowned.

Sergeant William Addison and second-corporal James White embarked at Portsmouth on board the 'Despatch' in November for the coast of Africa, and were employed under the direction of Captain R. Boteler, R.E., in surveying the British dependencies and forts at Sierra Leone and the Gold Coast. The corporal died on the service, and the sergeant landed at Portsmouth 10th August, 1826, and rejoined his corps.

A third survey company, of sixty-two non-commissioned officers and men, was formed in December, under a royal warrant, dated 20th October, 1825, and was numbered the sixteenth. The establishment of the corps was thus augmented from 938 to 1,000 officers and soldiers. The rates of working pay authorized by the successive warrants were limited to the three ordinary classes of 6*d.*, 9*d.*, and 1*s.* a-day; but extraordinary powers were granted to Colonel Colby, of awarding increased rates, proportionate to the attainments and exertions of the men, up to 2*s.* a-day. The maximum allowance was rarely bestowed, and then only upon non-commissioned officers, whose undoubted talents and services rendered them deserving of the distinction which the exclusiveness conferred.

By the end of the year the effective men on the survey counted 109 of all ranks, who were chiefly dispersed in the field. Several were employed in offices as draftsmen and computers; but at this early period very few were intrusted with any particular responsibility. Civilian assistants, for the most part, were second to the officers, and aided in superintending the management of the districts; but in the field, the sappers took the lead as surveyors, never working as chainmen, or subordinately to the civilians. As the duty was new, their qualifications required tact and practice before a fair return of progress could be realized. In August very few had proved themselves of sufficiently matured acquirements to merit ad-

vancement to Colonel Colby's classes, and five only of the number had graduated as far as *1s. 4d. a-day*.

The third survey company proceeded to Ireland in September. In December the total force there numbered 129 of all ranks, and 61 men were under training at Chatham.

At the close of the year a party of the corps was attached to Captain Drummond to assist him in carrying on experiments and observations with his lamp and heliostat. The observing station was on Divis Mountain, near Belfast, and the season was fearfully inclement. Frequently the mountain and the camp were enveloped in snow, and the blowing of a keen cold wind made their situation anything but agreeable. On two or three occasions a storm visited their desolate location, and carried away in its blast, tents, baggage, and stores. Still the men were sturdy in frame, willing in disposition, and exerted themselves in the discharge of their duties under trials of no ordinary character. A few men of the party, thirteen in number, were removed to Slieve Naacht in Donegal, to exhibit the light, that it might be observed from Divis. The distance between the heights was sixty-six miles. The camp on Naacht was at an altitude of 2,000 feet, and the party peculiarly exposed. Few in number, they were ill able to buffet with the tempests of those cold regions; "and the tents were so frequently blown down," and had become so shattered and torn, "that, after the first few days, they abandoned them, and constructed huts of rough stones, filling the interstices with turf." On this bleak mountain the success of the light was first proved. At night the lamp was directed on Divis. It was then dark, and both the camps were covered with snow. The wind blew piercingly over the mountain tops, and almost flayed the faces of the men as they worked. But it was on that stormy night that the light, first seen by the sapper sentry, "burst into view with surpassing splendour," and afterwards became one of the most useful agencies in the prosecution of the survey.²

Of this mountain party one man in particular was noticed

² 'Prof. Papers,' iv.; preface, pp. *Δiv.* xvii.

for his hardihood and endurance. This was private Alexander Smith. In the morning he would leave the camp, and, after journeying about twenty miles, return to the height weighed down with a mule's load, and on gaining the summit, would after relieving himself of his burden, resume his work in the camp, without exhibiting any symptoms of fatigue, or evincing a desire for rest. On one occasion, having been at Buncrana, about ten miles from the station, he was returning late with his freight, comprising a side of mutton, a jar of spirits, a number of lesser articles, and a bag of letters. Wrapped up in his greatcoat, and his cap pulled over his ears, he commenced to pick his way up the ascent; but the tempest beat against him, the piercing wind opposed his progress, and the snow covered alike the lone traveller and the waste. As he encountered this war of elements, darkness closed upon him, and, losing his track, he passed the night exposed to the pitiless storm, wandering about on the mountain. At day-break he crawled into the camp - a picture that gave a melancholy interest to the wild landscape around; but such was his endurance, and such his fortitude, that beyond the pain of numbness, he felt no inconvenience from the sufferings and exertions of that dreadful night. The devotion of this man was the admiration of Captain Drummond, and his promotion to second-corporal was the reward of his willing zeal. Ultimately he reached the rank of sergeant, and was discharged in October, 1839, from a chest complaint, which traced its origin to his labours and exposure on Slieve Snacht.

The third company, of sixty strong, under Lieutenant Gregory, R.E., embarked at Woolwich, 26th February, on board the 'Shipleigh' transport for the West Indies, and was wrecked on the morning of the 19th April on the Cobbler's Rocks near Barbadoes. The ship had made the land at half-past ten o'clock the preceding evening, and, hauling up to S.S.E., the agent on board counselled that the ship should stand off till 3 o'clock. Soon after 12 at night, the master, contrary to the naval officer's advice, ordered the ship to stand for the land, and went to bed, leaving in charge a man who soon became

intoxicated and fell asleep. Thus left to herself, the vessel got out of her course, and about 3 A.M. dashed with a frightful crash upon the reef. At this time it was pitch dark, and the frequency of the shocks split and tore the ship in every direction. While the crew and the sappers were getting tackle ready to hoist the long-boat out, the cook-house caught fire, but it was promptly extinguished with wet blankets and sails. The freshness of the wind driving the sea against the shore, and the steepness of the cliffs which were higher than the ship's royal mainmast, made it impracticable to land a boat; but the boatswain, taking with him a deep sea-line, gained a craggy pinnacle on the rocks, and throwing it to a black fisherman on the top, who chanced to reach the spot at the moment, a six-inch tow-line was quickly passed to him, by which the troops, with their wives and families, in slings and cradles, worked themselves to the summit of the precipice. In ten minutes after the 'Shipley' became a total wreck, and the company lost its entire baggage, equipment, &c. Lieutenant Gregory was the last to quit the sinking ship. Being almost naked and barefooted, a number of greatcoats and ample land-carriage were sent for the company; and in this state, under an oppressive sun, they reached their quarters at St. Anne's on the evening of the 19th April.³

A party of this company was constantly detached to Berbice for the service of the engineer department; and second-corporal Thomas Sirrell, an able artificer, superintended the construction of the iron hospital at Antigua, where he died. To acquire a knowledge of the application of iron to be used in the erection of barracks in the West Indies, he had been specially employed for six months under Lieutenant Brandreth in the foundries at Birmingham.

³ 'Morning Herald,' June 5, 1826.

1827—1829.

Augmentation—Reinforcement to Bermuda—Companies for Rideau Canal—Reinforcement to the Cape—Monument to the memory of General Wolfe—Increase to the survey companies—Supernumerary promotions—Measurement of Lough Foyle base—Suggestion of sergeant Sim for measuring across the river Roe—Survey companies inspected by Major-General Sir James C. Smyth; opinion of their services by Sir Henry Hardinge—Sergeant-major Townsend—Demolition of the Glacière Bastion at Quebec—Banquet to fifth company by Lord Dalhousie—Service of the sappers at the citadel of Quebec—Notice of sergeants Dunnett and John Smith—Works to be executed by contract—Trial of pontoons, and exertions of corporal James Forbes—Epidemic at Gibraltar—Island of Ascension; corporal Beal—Forage-caps—Company withdrawn from Nova Scotia—Party to Sandhurst College, and usefulness of corporal Forbes.

GREAT inconvenience was felt in carrying on the public works abroad, from the inadequacy of the strength of the corps to supply the number of workmen for services in which their employment would have been useful and economical; and as very heavy expenses had been incurred, in having recourse to a greater proportion of civil workmen, at high wages, than would otherwise have been necessary, General Gother Mann, in July, 1826, submitted some suggestions on the subject to the Master-General and Board, and obtained their authority to carry out his plans.

In December, consequently, orders were given for the formation of a company of 81 strong, for employment on the works at Bermuda, and for augmenting the company already there from 51 to 70 privates. The company was accordingly formed in January, 1827, and with the reinforcement to complete the other company, sailed from Devonport in the 'Hebe' freight-ship, and landed at Bermuda on the 25th of May. The

sappers at the station were then divided between St. George's and Ireland Island.

A royal warrant, dated 26th March, 1827, confirmed the raising of the company for Bermuda, and ordered a further augmentation of two companies of eighty-one strong each for the works of the Rideau Canal in Canada. The fifteenth and seventeenth companies were appointed for this service under Captains Victor and Savage, R.E. The former landed there from the 'Southworth' transport on the 1st of June, and the latter from the 'Haydon,' on the 17th of September.¹ The establishment of the corps now reached nineteen companies, and counted, of all ranks, 1,262.

The sappers at the Cape of Good Hope were reinforced to thirty of all ranks by the arrival of one sergeant and eleven privates in August. At this period the men were chiefly employed at Cape Town and Graham's Town. Occasionally, men are traced at Wynberg, Franch Hoek, and Simon's Town. The detachment rendered essential aid in the execution of the services of the engineer department, and the necessity for maintaining its numerical efficiency was represented by Major General Bourke and Lord Charles Somerset.

The fifth company at Quebec, on the 15th of November, 1827, was present at the laying of the foundation stone of the monument erected to the memory of General Wolfe. All the masonic tools required for the ceremony were made by men of the company, and the stone was lowered into its bed by some selected masons with colour-sergeant Dunnett. The formal laying of the stone was accomplished by the Earl of Dalhousie and Mr. James Thompson, a venerable man in the ninety-fifth year of his age, the only survivor in Canada of the memorable battle of Quebec, in which Wolfe fell. A few days afterwards, the silver trowel used on the occasion was generously presented by his lordship to sergeant Dunnett.

Great interest was taken by the Duke of Wellington in the

¹ On the removal of the fifteenth company to Canada in March, the Portsmouth station was without a company until November, 1827, when the eleventh company was sent there from Chatham.

survey of Ireland, and he was anxious that it should be prosecuted with all possible despatch. Augmenting and completing the three companies being considered the most important means to facilitate that object, his Grace and the Honourable Board, on the 1st January, sanctioned an increase to the survey companies of nineteen privates each, and on the 13th of March, a further addition of thirty privates; both of which augmented the survey force from 186 to 273 of all ranks, and the establishment of the corps from 1,262 to 1,349 officers and men.

At the commencement of the survey, all promotion was suspended for a time, to enable Colonel Colby to select the ablest men for preferment. He found great difficulty in choosing individuals qualified for it; but in less than two years after, so satisfactory was the improvement made in the attainments and efficiency of the companies, that the Colonel felt it essential to create by authority, supernumerary appointments as a reward for past diligence and an incitement to future exertion. This measure was the more necessary, as the most important part of the work was performed by the non-commissioned officers, who were mostly detached in charge of small parties of the corps with an equal number of civil chainmen. Each non-commissioned officer was thus the chief executive of a certain portion of work, and was responsible for its correct and rapid execution to the officers of the divisions. On the 17th of January, the supernumerary appointments were sanctioned by the Duke of Wellington without limit as to number, and Colonel Colby made ample use of the reward. The advantage enjoyed by the supernumeraries extended only to pay, they receiving the rate of the rank to which they were appointed. Service in the supernumerary grades did not reckon for their benefit towards pension.

From the 6th of September, 1827, to the 20th of November, 1828, with occasional intervals of cessation, a detachment varying from two sergeants and twenty-three rank and file, to two sergeants and six rank and file, were employed on the measurement of Lough Foyle base in the county of Londonderry. A strong detachment of the royal artillery was also

employed on this service. The duties of the sappers did not extend to the scientific and more precise details of the operation, but were limited to those subsidiary services which were essential to the rigid execution of the former. Their attention, in fact, was confined to the labours of the camp, the placement of the triangular frames, pickets, trestles, and such other incidental services as were indispensable to obtain an exact level alignment for the application of the measuring bars. A non-commissioned officer invariably attended to the adjusting screws; another frequently registered the observations, another attended to the set of the rollers and the regulation of the plates; and a fourth, with a few men, erected the base tents, moved them forward to the succeeding series of bars, and looked to the security of the apparatus for the night.² All these duties, though of a subordinate nature, nevertheless required the exercise of intelligence, and much careful attention on the part of those employed.

In connexion with the base operations, the name of sergeant Thomas Sim of the corps, is noticed with credit. Carrying the measurement across the river Roe, about 450 feet broad, was, through his ingenuity, found a more simple matter than had been expected. After giving a good deal of consideration to the subject, the sergeant proposed a plan, which enabled the measurement to be completed in one day and verified the next. This was accomplished, by driving, with the assistance of a small pile engine, stout pickets to the depth of about six feet into the sand and clay, in the exact line of the base, then placing on the heads of the pickets, by means of a mortice, a stretcher perfectly horizontal, and finally, laying upon the upper surfaces of the stretchers, a simple rectangular frame, with two cross pieces to support the feet of the camels or tripods.³

By the month of August, the force of the sappers in Ireland amounted to 26 non-commissioned officers, 227 privates, 6 buglers and 11 boys, total 270. In September, the survey companies were inspected by Major-General Sir James Carmichael Smyth, royal engineers, and in his report he stated, "when the detached nature of the duty is considered, and how

² Yolland's 'Lough Foyle Base,' p. 25-27.

³ *Ibid.*, p. 28.

the soldier is necessarily left to himself, the appearance of the men under arms, as well as the zeal and goodwill they evince in the performance of a duty so new and so laborious, are very much to their credit." In March previously, Sir Henry Hardinge, in his evidence before the Select Committee on Public Income and Expenditure, spoke of the services of the corps on the survey, as being cheap and successful. To put the question fairly at issue, certain districts of the same nature were conducted, some by engineers with sappers and miners; others, with engineer officers and civil persons and it was satisfactorily proved, that the progress made by the sappers under military authority, was greater than that made by the civil surveyors, and the cheapness commensurate.⁴

On the 24th of January, sergeant-major Thomas Townsend was removed from the corps as second lieutenant and adjutant to the second battalion, 60th royal rifles, through the intercession of Lieutenant-Colonel Fitzgerald who commanded that regiment, and in the lapse of years became a captain. In 1844, he retired from the regiment by the sale of his commission, and obtained a barrack-mastership under the Ordnance.

To proceed with the formation of a new citadel at Quebec, it became necessary to remove a portion of the old French works called the Glacière Bastion, comprising the face and flank, about 260 feet in length and 25 feet in height, to give place to a new counterguard intended to cover the escarp of both faces of Dalhousie Bastion from the high ground on the plains of Abraham. This was done by mining, in which service the fifth company of the corps was employed. The whole operations being completed with the desired efficiency by the 19th of February, the Earl of Dalhousie, then Governor-General, accompanied by his staff and a vast assemblage of civil and military persons, attended to witness the demolition. The mines were to have been fired at three points to insure the entire mass coming down at once, but the sapper⁵ stationed at the third mine, without waiting for the necessary signals, applied his

⁴ 'Second Report Ordnance Estimates,' 1828, printed 12th June, 1828, p. 71, 72.

⁵ Corporal Daniel Brown.

match to the charge, and the whole of the mines, twenty in number, were simultaneously exploded, crumbling the escarp to pieces, without projecting a stone fifty feet from its original position, and levelling at one crash the whole of the work. The effect produced far surpassed the expectations of the officers employed. Of the services of the company, the commanding royal engineer, in his orders of the day, thus expressed himself: "To colour-sergeant Dunnett, sergeant Young, acting-sergeant Smith, and the non-commissioned officers and privates of the fifth company, Colonel Durniford begs that Captain Melhuish will convey his high approbation of the zeal and ability with which they have performed this portion of practical duty, and to assure them, that a report of it shall be made to the Inspector-General of Fortifications, in order that the success of the operations may be recorded to the credit of the fifth company."⁶ To mark his sense of the services of the sappers on the occasion, the Earl of Dalhousie, in a style of rare munificence, entertained them with a ball and supper on the evening of the 7th of March, in the casemated barracks erected by themselves in the citadel. All the wives, families, and friends of the company attended. Sir Noel and Lady Hill, the Honourable Colonel and Mrs. Gore, Captain Maule, aide-de-camp to his Excellency, the officers of royal engineers and artillery, and several officers of the garrison were present. After supper, the officers of the company and gentlemen visitors took their stations at the head of the table, and at the call of Captain Melhuish, the usual toasts were disposed of. After due honour had been paid to the toast for the health of the Earl of Dalhousie, Captain Maule then rose and spoke as follows:—

"Sergeant Dunnett and soldiers of the fifth company of royal sappers and miners, nothing will be more agreeable to me, than the duty of reporting to his lordship, the Commander of the Forces, the manner in which you have drunk his health. The trait in a soldier's character, which above all others, recommends him to the notice of his General, is a cordial co-operation

⁶ 'Memoir of a Practice in Mining at Quebec.'

on his part, heart and hand, in the undertaking of his officers more immediately placed over him. The fifth company of royal sappers and miners have ever eminently displayed this feeling, but on no occasion more conspicuously than lately in the demolition of the old fortifications. The skill with which this work was devised, the zeal and rapidity with which it was executed, and the magnificent result, will long remain a memorial of all employed in it; and if I may judge from the manner in which you have done honour to his lordship's health, this mark of his approbation has not been bestowed on men who will soon forget it. I beg all present will join me in drinking the health of Captain Melhuish, the officers, non-commissioned officers, and privates of the fifth company of royal sappers and miners."

Thanks being returned for the company by Captain Melhuish, sergeant Dunnett, in a most soldierlike manner, gave the health of the ladies and gentlemen who had honoured the company with their presence. Soon after, the company retired to the ball-room, accompanied by the officers and their ladies, and the festive entertainment was kept up with spirit and propriety until five o'clock the next morning.⁷

In the erection of the citadel at Quebec, the sappers were constantly engaged, and some of its chief work was executed by them. The superintendence was carried on by the non-commissioned officers—colour-sergeant Dunnett⁸ and acting-sergeant John Smith⁹ being the principal foremen. Soon after the arrival of the company, Mr. Hare,¹⁰ the foreman of works at Quebec, died; and on the completion of the works at Kingston, the master mason there was sent to Quebec; but so efficiently had the masons' and bricklayers' work been executed under

⁷ 'Quebec Mercury,' February, 1828.

⁸ Was the principal military foreman, and had under his charge from 100 to 200 masons, with their labourers. In the arrangement and management of this working force he displayed much tact and judgment, and his work was always laid out and executed with exactness and success. For his services he received a gratuity and medal and a pension of 1s. 10 $\frac{1}{2}$ d. a-day in April, 1834. He was soon afterwards appointed foreman of masons in Canada, where he died.

⁹ See page 260.

¹⁰ Joseph Hare had formerly been a sergeant in the corps, and on his discharge in October, 1822, was appointed foreman of masons at Quebec.

military supervision, that Colonel Durnford, the commanding royal engineer, ordered the recently-arrived master mason to attend to the repairs of the old fortifications and buildings, and not to interfere with the superintendents at the new citadel. The company quitted Quebec in October, 1831, with an excellent character, both as workmen and soldiers. Only five men had deserted during the period of the station, two of whom were recovered to the service and pardoned by the Earl of Dalhousie. This was another proof of his lordship's high estimation of the services and conduct of the company.

A select committee on public income and expenditure sat early this year to scrutinize the Ordnance estimates. By this committee the duties and services of the corps were considered. In the report upon the evidence adduced, the committee strongly recommended that all work which admitted of being measured should be done by contract, and that the sappers and miners employed on buildings at day-work should be diminished.¹¹ The effect of this measure was simply to confine the labours of the corps to the repairs and fortifications, and occasionally to building, without reducing its numerical establishment.

Another trial of pontoons took place at Chatham in July, and the exertions of the detachment employed on the occasion under Captain J. S. Macauley, R.E., were warmly acknowledged by Sir James Colleton, one of the competitors. Captain White of the royal staff corps, who was engaged on the part of Sir James, thus wrote of the sappers:—"During my long acquaintance with military men, I never witnessed in any troops a greater determination to perform to the utmost of their power the duty on which they were placed. Where all have done their duty with such energy, I cannot make any distinction in conveying to you my good wishes towards them, except in the conduct of corporal James Forbes, who appears to me to be a first-rate non-commissioned officer, and who has on this occasion done his duty in a manner highly creditable to himself."¹²

¹¹ 'Second Report Ordnance Est.,' 1828, printed 12th June, 1828, p. 25.

¹² See page 296.

An epidemic fever of nearly equal severity to the one of 1804 raged at Gibraltar in September and October. The greater part of the sappers at the Rock were seized with the complaint and nineteen died. Being quartered in the barracks near the unhealthy district and in the vicinity of the line of drains, the companies furnished the first victims to the disease;¹³ and to lessen the mortality which this circumstance was likely to induce, they were, for a time, encamped on a rocky flat below Windmill Hill. The deaths at the fortress during the prevalence of the fever were 507 military and 1,700 civilians.¹⁴

Lieutenant H. R. Brandreth, R.E., early in 1829 proceeded to Ascension, and having made a survey of the island, returned to England and reported on its capabilities for defence and eligibility for an Admiralty station. Lance-corporal William Beal was attached to that officer and employed under him from March to September. His duty was chiefly that of a clerk, but he also assisted in making the measurements of the survey, and in collecting geological specimens to illustrate the character of the strata. In the discharge of these services, his zeal and intelligence were found very useful, and on his return he was deservedly promoted to be second-corporal.

In June the forage caps were somewhat altered. The yellow band was abolished, and hoops and stiffening were forbidden. The cap was now of plain blue web, with leather peak and chin strap. The sergeants' caps were of plain blue cloth, hooped and stiffened, with three chevrons of gold lace in front over the peak. The staff-sergeants retained the gold bands.

Nova Scotia, which ceased to be a station for the corps in 1819, was again opened for a company this year, which landed from the 'Sophia' transport on the 10th June, 1829. A company of the corps has ever since been employed there in carrying on the ordinary works and fortifications, and in the erection of the citadel.

Twelve privates under corporal James Forbes, were, in September, for the first time, sent to Sandhurst to afford

¹³ 'United Service Journal,' i. 1831, p. 235.

¹⁴ Martin's 'British Colonies,' v. p. 79.

practical instruction in sapping, mining, &c., to the gentlemen cadets at the Royal Military College. The term extended over September and October, and the party returned to Chatham with the highest character. Much praise was awarded to corporal Forbes for his exertions and attainments, and his promotion to the rank of sergeant followed in consequence. From that time a detachment has, during each term, been attached to the college for the same useful purpose, and has invariably performed its duties with credit and effect.

1830—1832.

The chaco—Brigade-Major Rice Jones—Island of Ascension—Notice of corporal Beal—Detachment to the Tower of London—Chatham during the Reform agitation—Staff appointments—Sergeant M'Laren the first medallist in the corps—Terrific hurricane at Barbadoes; distinguished conduct of colour-sergeant Harris and corporal Muir—Subaqueous destruction of the 'Arethusa' at Barbadoes—Return of a detachment to the Tower of London—Rideau canal; services of the sappers in its construction; casualties; and disbandment of the companies—Costume—First detachment to the Mauritius—Notice of corporal Reed—Pendennis Castle.

THE chaco was altered this year to one of a reduced form, and decorated with yellow lines and tassels, which fell upon the shoulders and looped to the centre of the breast. The brasses comprised a radiated star with three guns, carriages, and sponges, surmounted by a crown. The scales were, for the first time, worn under the chin, and a goose feather ten inches long, was held upright by an exploded shell. The car-cover was removed, and a patent leather band was substituted.—See Plate XIV., 1832. The sergeants and staff-sergeants had chacos of a superior description with ornaments of fine gilt, bearing guns, carriages, and sponges of silver. The lines and tassels were of gold cord, and were worn only at reviews or on special occasions. Oil-skin covers were sometimes worn by the officers, and oil-skin cases for the feather by all ranks in rainy weather. Worsted mitts were also adopted at this time instead of leather gloves. The sergeants and the staff wore white Berlin gloves.

Major Frank Stauway, R.E., was appointed brigade-major

to the corps on the 8th June, vice Lieutenant-Colonel Rice Jones removed on promotion. The post had been held by Colonel Jones for seventeen years. Under his guidance, a successful check was given to those deep-rooted habits of indiscipline which had characterized the corps, and cramped its efficiency. This was not accomplished without encountering many obstacles; but firm in his purpose, and decided in his bearing and orders, he soon reaped the reward of his perseverance and diligence; and when the custom of the service required that he should relinquish his charge, he delivered the corps to his successor in a state that reflected upon him the highest honour.

Second-corporal William Beal returned to Ascension in August with Captain Brandreth, and continued with him till September, 1831. During this period he assisted in marking out the sites of the principal works proposed to be erected for the improvement and establishment of the colony as a naval victualling station, and performed his duty in an able and satisfactory manner.¹

Reform was, at this period, the turbulent cry of the country, and masses of the people in consequence of its delay, assumed a menacing attitude. Anticipating an outbreak in the metropolis,

¹ Was educated for a Baptist minister; but an introduction to Dr. Olinthus Gregory failing to realize his hopes, he enlisted in the corps in 1828. His intelligence caused him to be chosen for the two surveys of Ascension. He afterwards served at Bermuda, and at Halifax, Nova Scotia. At the former station he was wounded by the accidental firing of a mine whilst blasting rock, and submitted to the amputation of portions of his fingers with stoical composure. Wherever he went he took with him a small but valuable library, and was well read in the latest issues from the press. Byron, Carlyle, and some abstruse German writers, were his favourite authors. No man in his condition of life was, perhaps, as conversant with the roots and eccentricities of the English language as Beal, and his mental endowments rendered him capable of grasping any subject, however deep, and turning it to profit both in his duties and in his daily intercourse with men. Late in his service he attained proficiency as a draughtsman, and later still, an enterprising engineer in London submitted a plan for a system of sewers in the metropolis, which was accompanied by a report drawn up by this sergeant. He left the corps in April, 1849, with a pension of 2s.; and the knowledge and experience he had acquired by application and travel, are now being employed, with advantage to his interests, in one of the settlements on the Rideau Canal in Canada.

one sergeant, two corporals, and twenty-eight privates under the command of Lieutenant George Page, R.E., marched to the Tower on the 8th November. The two following days the detachment was under arms with the other troops to put down any attempt at insurrection, but both days passed off without any demonstration requiring the interference of the military. After constructing some temporary works in and about the Tower, the party returned to Woolwich 22nd January, 1831.

At Chatham during the same period, Colonel Sir Archibald Christie, the commandant, did the corps the honour of confiding to it the charge of the magazines within the lines. Repeatedly the guards were approached by suspicious persons; and on one occasion private John Herkes was fired at by an unseen hand, but the ball missed him and perforated the sentry-box. The vigilance of the men and the strictness with which they discharged their duty, gained them the highest credit.

Captain Edward Matson was appointed brigade-major to the corps on the 14th February, vice Major Stanway who resigned; and Captain Joshua Jebb was commissioned as adjutant to the establishment at Chatham from the same date in the room of Captain Matson.

Colour-sergeant James McLaren was the first soldier of the corps who received the gratuity and medal. The distinction was conferred upon him in April, and well he merited it, both on account of his excellent conduct and his good services at St. Sebastian, Algiers, New Orleans, and the Cape of Good Hope. He only survived the receipt of his honours a few days.

Barbadoes was visited by a hurricane at midnight on the 11th August, and its results far exceeded in magnitude the fearful storms of 1675 and 1780. The loss of life on this occasion was calculated at 2,500, and the wounded at 5,000 persons; while the value of property destroyed, exclusive of losses by the government and the shipping, was estimated at more than a million and a half of money. But in this universal devastation the military suffered but little. The company of sappers was quartered in the barracks at the parade-ground. The lower part, occupied by the artillery, lost only the jealousy

windows ; while the upper part, where the sappers were located, was considerably cracked, the roof uncovered, and several of the rafters broken, by the falling of the parapet upon them. Still with all this danger no accident happened which affected life or limb.² At the hospital the consequences were different. Strongly built and appearing to defy the most powerful storm, that building was blown down, and private Charles Shambrook crushed to death in the fall.³ During the hurricane it is recorded, that colour-sergeant Joseph Harris signalized himself at the hospital of the 36th regiment by his praiseworthy exertions in rescuing sufferers from the ruins ; and his skilful and zealous conduct was applauded by the officers who assisted him.⁴ Corporal Andrew Muir of the corps also, at great risk to his life, distinguished himself by his activity in every part where his assistance was required, and being a very powerful man, was eminently successful in relieving his suffering fellow-soldiers of various corps.⁵

Soon after the hurricane, the 'Arcthusa,' of Liverpool, a ship of 350 tons, was blown to pieces by gunpowder in the harbour of Barbadoes, by colour-sergeant Harris and a party of the 19th company under the direction of Major, now Colonel Sir William Reid. The destruction of the ship was effected by a number of successive small charges of gunpowder applied to the ship's bottom as near the keel as possible, and fired at high water ;⁶ and as it has not been discovered, in the history of engineering, that the entire demolition of a wreck was ever accomplished by these means, it is therefore memorable that the royal sappers and miners were the first who ever destroyed a sunken wreck by submarine mining.⁷

On the 7th October, the House of Lords threw out the

² 'Account of the fatal Hurricane at Barbadoes in 1831,' p. 89.

³ Opposite the General Hospital, a monumental tomb, erected by his surviving comrades, marks the spot where the mangled remains of poor Shambrook were interred. *Ibid.*, p. 95.

⁴ *Ibid.*, p. 94.

⁵ *Ibid.*, p. 97.

⁶ 'Prof. Papers, Royal Engineers,' ii. p. 36. 'United Service Journal,' iii. 1838, p. 37.

⁷ 'United Service Journal,' ii. 1839, p. 183, 184.

Reform Bill, and as consequent riots had occurred in various parts of the country, it was expected that an attack would be made on the Tower of London. To assist in repelling any attempt upon that fortress, two sergeants and thirty-three rank and file under the command of Lieutenant John Williams, R.E., were sent there on the 8th November, but after being under arms for a week, they returned to Woolwich, without any necessity arising for the employment of their services.

Late in December, second-corporal Edward Deane and private James Andrews, accompanied Captain C. Grierson to Western Africa, where they were employed in surveying the coast and the town of Bathurst. On this duty they were found particularly useful, and rejoined at Woolwich in June, 1832.

The Rideau Canal, began in 1827, was finished in the winter of 1831, connecting the trade and commerce of the two provinces of Canada, on which, by means of locks and dams, vessels are raised to a summit level of 283 feet in eighty-four miles, and again descend 165 feet in forty-three miles.⁸ The object of the undertaking was, in the event of a war with the United States, to have a secure water communication open between the lakes and Lower Canada.⁹ Two companies of the corps were employed on this service under the command of Lieut.-Colonel By of the engineers, whose name was given to the town which rose up in the wild spot selected for the headquarters. The earliest hut in Bytown, now a flourishing settlement, was built by the sappers. For the first summer they were encamped on a height near the Ottawa, but before the winter set in were removed into temporary barracks erected by themselves. Most of the work of the canal was executed by contract, but in some parts of the line where the engineering difficulties were great, sapper labour was chiefly resorted to—the non-commissioned officers acting as foremen of trades and overseers. Parties were detached during the progress of the canal to Merrick's Mills, Isthmus of Mud Lake, Upper Nar-

⁸ Speech of Major Selwyn, R.E. 'Graham's Town Journal, 1842.

⁹ 'Prof. Papers, Royal Engineers,' v. p. 157.

rows, rivers Tay and Richmond, Jones' Falls, Claffey's Mills, Newborough, and Isthmus of Rideau Lake.

Among the chief services rendered by the companies it is recorded, that a party levelled and cleared the channel of the river between Black Rapids and the head of Long Island. Over the canal they built a bridge connecting upper and lower Bytown, which still bears the designation of the "Sappers' bridge." In the construction of the first eight locks at the Ottawa, the companies participated to an important extent, and Sir Henry Hardinge, in his evidence before the Select Committee in March, 1828, alluded to their employment at some of the most difficult parts of the work towards the Ottawa.¹⁰ No less difficult was the work executed by them at Hog's bank. The dam there had been commenced by the contractor, but he ultimately abandoned the undertaking. Sixty men of the corps were withdrawn from the Ottawa to recommence it, and, with some hundred labourers, were employed at the dam all the winter of 1828 and 1829. Before the breaking up of the frost, the masonry was nearly completed with a base of 25 feet; but on the 6th April, 1829, the water found its way through the frozen earth, and making a breach in the dam, carried away everything opposed to it. This was the second failure. Still a third time it was attempted, and under the superintendence of Captain Victor of the royal engineers, a strong framework of timber was formed in front of the breach, supported and strengthened by enormous masses of clay, stone, and gravel, with a base of 250 feet, which successfully overcame the difficulty; and the dam, in 1837, was the most substantial work on the whole line of canal.¹¹

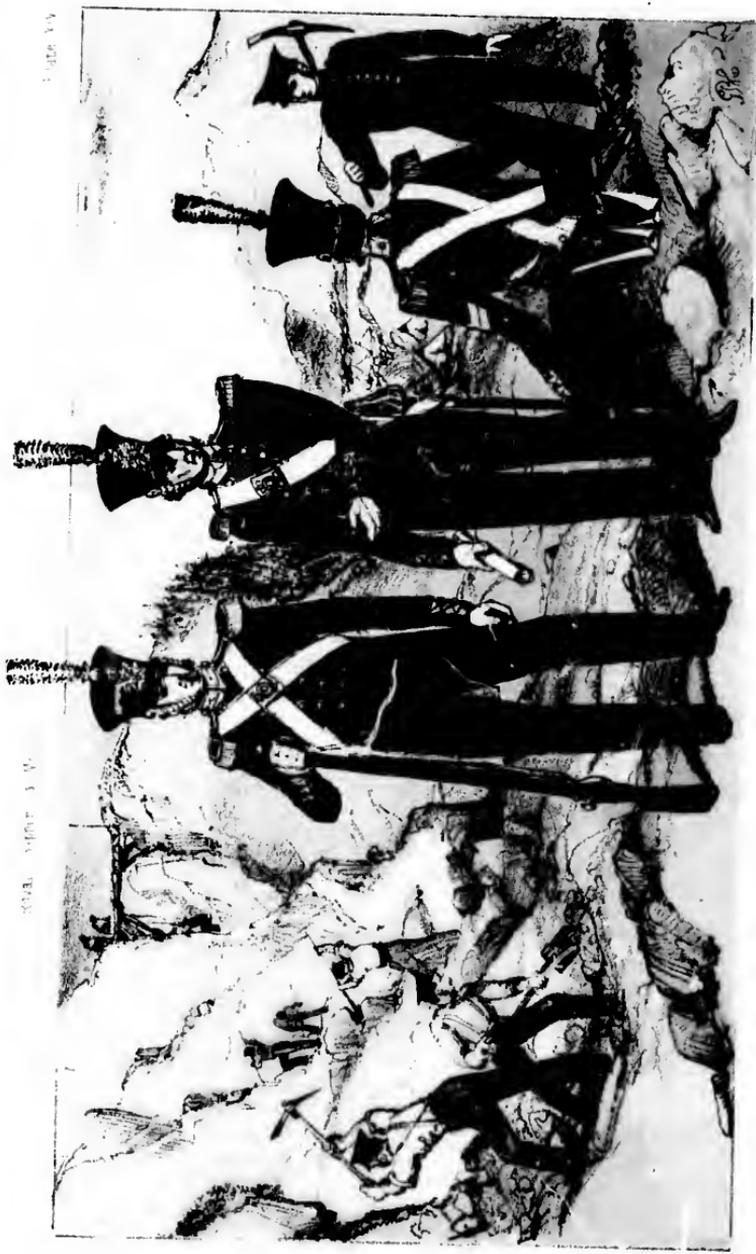
On the completion of the work, which cost upwards of a million of money, the two companies were disbanded in December. Their united strength on leaving England was 160, and the casualties during their period of service at the canal were as follows:—

¹⁰ 'Select Report Ordnance Est.,' printed 12th June, 1828, p. 82.

¹¹ 'Prof. Papers, Royal Engineers,' i. p. 86.

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Figure 10



1874. 1875. 1876.

1877. 1878. 1879.

1880. 1881. 1882.

ROYAL SWORDS, & MOUNTS



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Deserted	35	Of whom two were apprehended and
Transported	1	transported.
Died	16	
Killed	5	By blasting rock, either in the quarries
Drowned	1	or the canal.
Discharged	71	Thirty-seven at the Isthmus of Rideau
Invalids, and remnant of	} 31	Lake, and thirty-four at Bytown. ¹⁸
companies returned to		
England	—	
Total	160	

By the reduction of these companies the establishment of the corps fell from 1,349 to 1,187 of all ranks.

A material alteration was made in the clothing this year by changing the colour of the coat from scarlet to the infantry red, and the style and decoration of the dress were also modified, to correspond with the form of lacing adopted generally in the line.—See Plate XIV.

The coat of the bugle-major remained in all respects the same as before. The buglers also retained the scarlet, but the style of wearing the lace accorded with that of the privates. For the working dress, a round jacket with bell buttons bearing the corps device, was established, instead of the jacket with short skirts. Of both uniform and working trousers, the colour was changed from light blue to dark Oxford mixture; but the uniform trousers as formerly, were much finer than the working ones. The red stripe down the outer seam was two inches broad on the former, and half an inch wide on the latter. Laced boots were also introduced this year in place of the short Wellingtons, issued for the first time in 1825. The leather stock hitherto supplied by the public, was now made an article of necessaries and provided at the cost of the soldier.

A detachment of seven masons and bricklayers under corporal John Reed, embarked for the Mauritius on the 25th May and arrived there in the 'Arab,' transport, on the 13th November. This was the first party of the corps that had ever landed at the Isle of France. On board ship, great irregularity prevailed

¹⁸ Most of these men received 100 acres of land each as a reward for their services and good conduct, and several were provided with appointments on the canal.

among the troops; but corporal Reed's party behaved in so exemplary a manner, that the report of their creditable conduct was made the subject of a general order to the corps.¹³ The detachment was sent to the island at the recommendation of Lieutenant-Colonel Fyers of the royal engineers, for the purpose of leading and instructing the native artificers, and were quartered in some old slave huts at the Caudon. The first work undertaken by the sappers was the tower at Black River. While this was in progress, a reinforcement of one colour-sergeant, and twenty-two rank and file, under the command of Captain C. Grierson, R.E., landed from the 'Royal George,' freightship on the 22nd January, 1833, and afterwards assisted in the works at Black River, and also in the erection of two martello towers at Grand River. When these were completed, the services of the entire detachment were chiefly confined to the building of the citadel on the Petite Montagne.

In May six rank and file were detached from Plymouth to Pendennis Castle. In June of the next year the party was increased to two sergeants and eighteen rank and file, who were employed there until August in repairing the barracks and strengthening the ramparts.

¹³ Corporal Reed, when returning home an invalid from the Mauritius, was wrecked on the 17th July, 1836, in the barque 'Doneaster,' on the reef L'Agulhas, 70 miles S.E. of the Cape of Good Hope, and perished with his wife and family of four children.

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1833—1836.

Inspection at Chatham by Lord Hill—Ponoon experiments—Withdrawal of companies from the ports—Reduction of the corps, and reorganization of the companies—Recall of companies from abroad—Purfleet—Trigonometrical survey of west coast of England—Draft to the Cape—Review at Chatham by Lord Hill—Motto to the corps—Reinforcement to the Mauritius—Inspection at Woolwich by Sir Frederick Mulcaster—Mortality from cholera; services of corporals Hopkins and Ritchley—Entertainment to the detachment at the Mauritius by Sir William Nicolay—Triangulation of the west coast of Scotland—Kaffir war—Appointments of ten foremen of works—Death of Quartermaster Galloway—Succeeded by sergeant-major Hilton—Sergeant Forbes—Notice of his father—Lieutenant Dashwood—Euphrates expedition—Labours of the party—Sergeant Sim—Generosity of Colonel Chesney, R.A.—Additional smiths to the expedition—Loss of the 'Tigris' steamer—Descent of the Euphrates—Sappers with the expedition employed as engineers—Corporal Greenhill—Approbation of the services of the party—Triangulation of west coast of Scotland—Addiscombe—Expedition to Spain—Character of the detachment that accompanied it—Passages; action in front of San Sebastian—Reinforcement to Spain—Final trial of Pontoons—Mission to Constantinople.

THE corps at Chatham, consisting of two companies and a detachment, were inspected by Lord Hill, the Commander-in-Chief, on the 16th August, 1833, and his Lordship was pleased to express his approbation of their efficiency and appearance.

On the 20th of the same month, some experimental practice was carried on with Major Blanshard's cylindrical pontoons on the canal in the royal arsenal at Woolwich, in the presence of Lieutenant-General Sir James Kempt, the Master-General. In these trials two non-commissioned officers and twenty-four privates from Chatham assisted, and their activity and energy elicited the thanks of the inventor and the commendation of the Master-General.

On the recommendation of a committee appointed by the Master-General, the company at Plymouth with the detachment

at Pendennis, was removed to Woolwich on the 18th August, 1833, and the company at Portsmouth was also transferred to head-quarters on the 29th of the same month. For nearly fifty years a company had been quartered at each of those ports, and their withdrawal was caused by some approaching alterations in the construction and distribution of the corps.

The expediency of reducing it, and remodelling the organization of the companies, had been under consideration for months; and it was believed that even after providing an adequate establishment of sappers and miners proportionate to the strength of the infantry, the numbers of the corps might be so diminished as to lessen its expense 5,000*l.* annually. Major-General Pilkington, the Inspector-General of Fortifications, laid down the rule that 100 sappers was a fair number to be attached to 4,000 infantry, subject, however, to augmentation in particular cases, according to the nature of the country in which operations might be carried on. On these data, Sir James Kempt ordered, on the 30th August, 1833, the companies of the corps to be compressed from seventeen into twelve, and the establishment to be reduced from 1,187 to 1,070 of all ranks.

Under the same order, the eight general service and three survey companies were composed of the following ranks and numbers:—

	Colours- sergeant.	Ser- geants.	Cor- porals.	2nd corp.	Drum- Major.	Priv.	Total.	General Total.
	1	2	3	3	2	80	91 for 11 Comps.	1,001
The Corfu Company, paid by the Ionian Govern- ment, was unchanged in its establishment, and consisted of	1	2	3	3	2	51	62	62
								1,063
The Staff, including Brigade-major, Adjutant, Quartermaster, 2 Sergeant- majors, 1 Quartermaster-sergeant, ¹ and 1 Bugle-major, amounted to								7
								1,070
Making of all ranks a total of								1,070

¹ One quartermaster-sergeant was now reduced, and Francis Allen, who held the rank for twenty-two years, was discharged in October, 1833, and pensioned at 2*s.* 8½*d.* a-day, having completed a service of more than forty years. One of his sons, formerly in the corps, is foreman of works at Alderney, and another, until recently, was clerk of works in the royal engineer department, London district.

The distribution of the companies was fixed as follows:—

	Companies.
Woolwich	3
Chatham	1
Survey	3
Gibraltar	1
Corfu	1
Bermuda	1
Halifax	1
Cape of Good Hope	$\frac{1}{2}$
Mauritius	$\frac{1}{2}$
Total	<u>12</u>

The companies at Barbadoes and Quebec, and the second companies at Gibraltar and Bermuda, were recalled and incorporated with the newly-constructed companies, or reduced as the circumstances of the service required. The reduction was a progressive measure, and not finally effected till the 6th November, 1834.

A party of six rank and file was sent in January to Purfleet; and a like number continued for more than twenty years to be employed there in carrying on the current repairs to the departmental property with advantage to the public service.

In May, sergeant George Darbyshire and five rank and file were detached under Captain Henderson, of the engineers, on the trigonometrical survey of the west coast of England. The operations embraced the triangulation of the Lancashire and Cumberland coasts with the Isle of Man, and part of the coast of Scotland. The sergeant and one of the privates were employed as observers; the remainder assisted in the erection of objects for observation, stages, &c., and attended to the duties of the camp. The party quitted the mountains in October and rejoined their several companies.

In the same month, at the Cape of Good Hope, the detachment was augmented to half a company of forty-eight of all ranks. The necessity for this addition had been repeatedly represented by the commanding royal engineer at the station. Scarcely a bricklayer or mason could be found in the colony who had served an apprenticeship; and those who professed these trades were not only unskilful and indolent, but generally drunken and dissipated. It therefore became an object of

much importance to increase the sappers at the Cape to a number sufficient to meet the exigencies of the service.

On the 3rd June a company and detachment of the corps were reviewed at Chatham with the troops in garrison by Lord Hill, who expressed his approbation of the soldier-like appearance and effective state of the sappers.

His Majesty, in July, 1832, ordered the motto "Ubique quo fas et gloria ducunt" to be borne on the appointments of the corps, in addition to the Royal Arms and Supporters; and this year the cap-plates and breast-plates were made to accord with the King's command. The cap-lines or cords and tassels issued in 1830 were abolished this year, and the staff-sergeants were permitted to wear, instead of the forage-cap, a silk oilskin chaco of the same size and shape as the regimental chaco.

In July a reinforcement of fifteen rank and file landed at the Mauritius from the 'Valleyfield' freightship, increasing the detachment to a half company of forty-five strong.

On the 16th August the three companies and detachment at Woolwich were inspected by Major-General Sir Frederic Mulcaster, the Inspector-General of Fortifications, and the perfect satisfaction he felt at what he witnessed was made the subject of a general order to the corps.

For four years the cholera had been prevalent in many parts of Great Britain and the colonies, but owing to the admirable precautions adopted, the disease was not only less formidable, but much less fatal among the military than the civil population. In the royal sappers and miners the numbers seized with the malady were comparatively insignificant; and during this period, though the disease had visited most of the stations where companies of the corps were quartered, the fatal cases only amounted to sixteen men, five women, and four children. Those cases occurred at the following stations:—

	Serg.	Priv.	Wom.	Child.
Quebec, in July and September, 1832
Portsmouth, August, 1833	1	1	2
Gibraltar, July, 1834	1	3	3
Halifax, N.S., in August and September, 1834	7

At Portsmouth ten men were admitted into hospital with the disease. The company was consequently removed to Southsea

Castle and the cholera disappeared. At Gibraltar thirty-one men were admitted, and the deaths were few in proportion to the loss of some regiments in garrison, the 50th regiment having lost nearly fifty men. Of the military at the fortress about 140 died of cholera, but the civilians counted 470 fatal cases. During the raging of the disease, corporal John Hopkins and lance-corporal William Ritchley were conspicuous for their zeal and attention to the sick. Their duties were attended with considerable personal risk; and to the valuable assistance they rendered to the men in the early stages of the attack, both by their cheerful exertions and judgment, is attributed the rapid recovery of many of those who were sent to the hospital. Corporal Hopkins was promoted to the rank of sergeant in consequence. At Halifax, Dr. McDonald of the ordnance medical department, gained much credit for his indefatigable attention to his numerous patients, twenty-six of whom recovered under his skilful treatment; and his great success in so many cases was lauded both by the medical chief of his own department, and the Master-General.

In December the foundation stone of the citadel of La Petite Montagne, Mauritius, was laid by Major-General Sir William Nicolay, the governor of the colony, with all the parade and ceremony usual on such occasions. The company was present, and private William Reynolds, the most skilful mason in the detachment, had the honour of assisting his Excellency in the deposition of the stone. In the evening of the same day to commemorate the event, the detachment with their wives and families partook of a sumptuous supper generously furnished by his Excellency.

From June to October, sergeant George Darbyshire and five men were employed under Captain Henderson, R.E., in the triangulation of the west coast of Scotland, and were encamped during the operations on the mountains.

At the Cape of Good Hope the incursions of the Kaffirs brought on a desultory war this year, and the detachment of the corps in the colony was scattered in small parties over the frontier. Though much employed with the advanced forces in superintending the construction of redoubts and other indis-

pensible defensive works, they were never called upon to take any particular part in attacking the enemy. The marching to which they were subjected, through a country of bush and mountain, was severe, and exposed under canvas or in bivouac to every variation of the climate, they shared all the trials and sufferings incident to the troops.

Sir Hussey Vivian, the Master-General, entertained so favourable an opinion of the corps, that he felt it right, on the 6th October, to order increased encouragement to be given to non-commissioned officers of proper attainments and merits, by appointing them occasionally to be foremen of works in the royal engineer department. The first appointed under this order was sergeant Henry French,² and at distant intervals the following non-commissioned officers were promoted to that rank—viz., sergeants Nicolas Markey,³ William Spry,⁴ John Wood,⁵

² Had served upwards of twenty-two years in the corps; and was a shrewd man and a skilful carpenter and overseer. He was appointed in October, 1836, to Guernsey, where he died in February, 1854. His eldest son, a very promising young man, is now foreman of works in the department at the Tower.

³ Joined the corps a lad, and by perseverance made himself competent for higher duty. To smartness in person he united much activity of body, and in September, 1843, was advanced to the civil branch, first to Corfu and then to Gibraltar; where, in the excess of his zeal on the works, he fell from his horse by a stroke of the sun, and sustained an injury in the head. He is now at Dublin, a lunatic, passing away his life on a retirement of 32*l.* a-year. He served seventeen years in the sappers.

⁴ Was an excellent mason and very efficient as a foreman. He had been on a mission to Constantinople, and received from Sultan Mahmoud II. a gold medal for his services. After a service of twenty-one years in the corps, he was, in June, 1844, appointed to Gibraltar, where he fell into habits of excessive intemperance and committed suicide in 1852.

⁵ As master mason at Vido he constructed the works with remarkable ability. He also superintended the erection of the half-moon battery in the citadel and the defensive buildings at Fort Neuf. Colonel Hassard said, on his leaving, that he hardly expected a man of equal talent to fill his place; and it may be observed that he could speak with fluency the different languages of the civil workmen at Corfu. By Colonel Hassard he was recommended to visit Rome and other places for artistic improvement, but the usages of the service did not permit the concession of this favour. In 1837 he finished the erection of the Longona cistern at Paxo, which relieved the inhabitants from the necessity of taking long journeys to procure supplies. The work was very creditable to him, and gained for him the enlogy and good will of the whole island. To commemorate its completion a procession of the functionaries and *élite* of Paxo took place, and Wood, the great object of attraction, was warmly greeted by the grateful populace. He became foreman of works in November, 1844, first at

William Jago,⁶ Hugh Munro,⁷ John Hopkins,⁸ second-corporal Daniel Rock,⁹ sergeant William Sargent,¹⁰ and quarter-master sergeant Noah Deary.¹¹

Cephalonia, and next at Corfu. His service in the corps was over twenty-three years.

⁶ He gained his promotion very rapidly, for he was in all respects a very clever artificer and foreman. In the works of the department at Woolwich he was found a great acquisition, and after serving for a few years at Bermuda, where his usefulness was greatly appreciated, he was discharged in May, 1845, and appointed to Canada. There he passed seven years, and is now serving at Gibraltar.

⁷ A good mason, and bore an unblameable character. After twenty years' service, chiefly at Halifax and Corfu, he was appointed to Malta in April, 1847, where he is still serving with efficiency and credit.

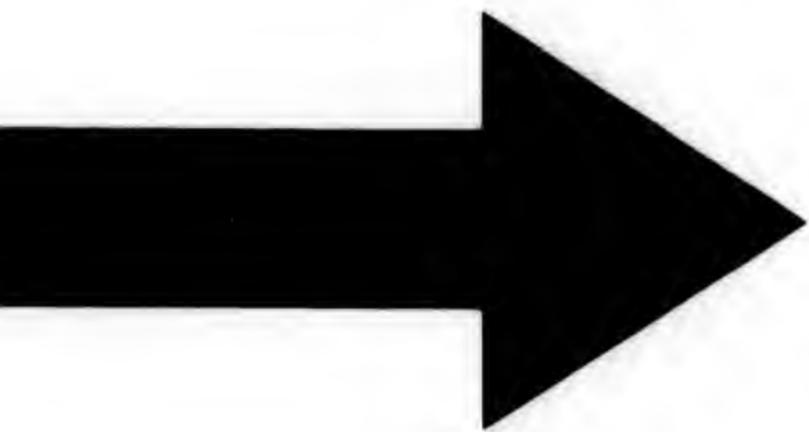
⁸ When he joined the corps a lad, in 1826, he could scarcely write, but by diligent application he soon exhibited talents which in after years caused him to be selected for important duties. Promotion he received rapidly, and for his intelligence and ingenuity at Sandhurst in 1839 he was honourably noticed in the 'United Service Journal,' ii. 1839, p. 420. For many years he served at Gibraltar and the Cape of Good Hope, became a fair draftsman and architect, and in July, 1848, after a service of twenty-two years, was appointed foreman of works, first at the Cape, and then at Woolwich. He is now clerk of works at Shoeburyness.

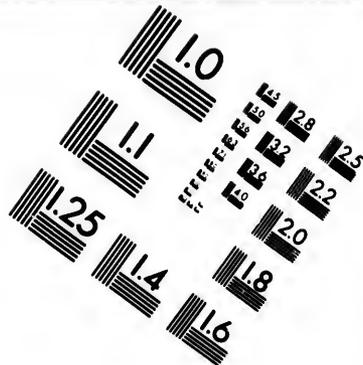
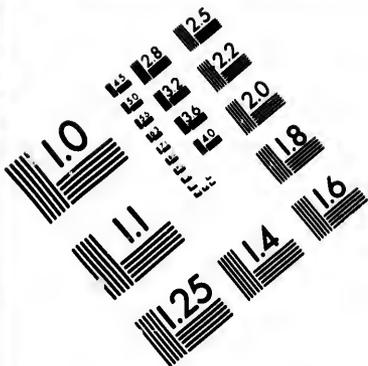
⁹ Was a superior mason, and trained before enlistment as an overseer. Most of his military service—nineteen years—was spent on the surveys of Great Britain and Ireland, in which he had made himself so proficient a surveyor and mathematician, that he was one of three non-commissioned officers sent to the royal observatory at Greenwich to receive instructions in the mode of making astronomical observations. This was with the view to his employment on the boundary survey in America, in which he afterwards served for a season with approbation. Colonel Estcourt wrote of him,—“He is intelligent, well educated, and efficient for almost any duty.” These acquirements, coupled with his good conduct, gained for him the vacant foremancy at Zante, in September, 1848; but, it must be added, he commenced the duty in dishonour by unwarrantably drawing a bill on the Assistant Adjutant-General of the royal engineers, and then having run a career of dissipation that nothing could check, was justly dismissed in disgrace in July, 1849.

¹⁰ Joined the corps from the military asylum at Chelsea. Until the Russian war broke out he had not been noticed for any particular aptitude or efficiency. When at Constantople, thrown by circumstances into boundless difficulties consequent on the frightful pressure for hospital accommodation, his services were invaluable. “I have no hesitation,” wrote Captain E. C. A. Gordon, 20th August, 1855, “in saying, that I believe the success of the works that were executed was owing, in a great measure, to his excessive and untiring zeal and activity.” This recommendation was the occasion of his appointment at Sentari, from whence, after the return of peace, he was removed to the engineer department at Devonport.

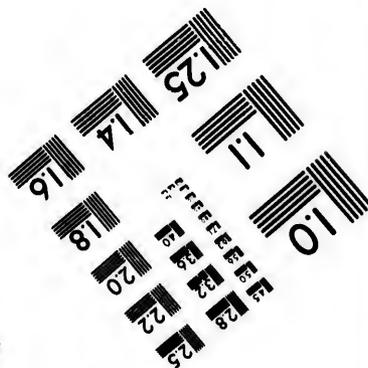
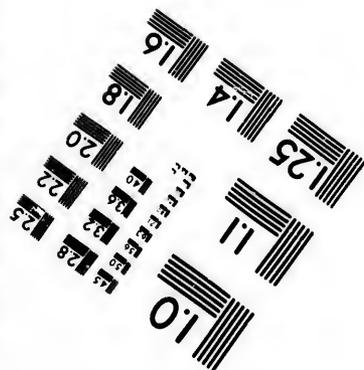
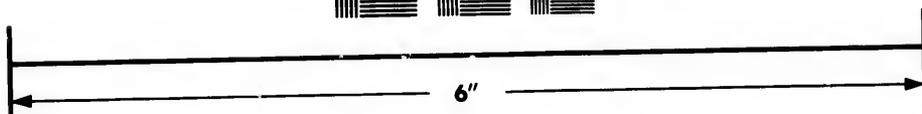
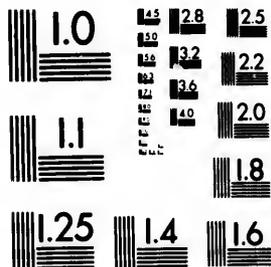
¹¹ Entered the corps a boy from Chelsea school. With a fair share of common sense, he made the best of his chances as a military foreman at the Cape







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Quartermaster James Galloway died on the 9th November at Wellesley House, Shooters' Hill, after an active service of forty-five years, which he performed with a faithfulness amounting to devotion. Few officers in the army in passing from the ranks to a commission, gained higher respect than he did, and in his death few were more regretted or more honoured.

Sergeant-major James Hilton succeeded to the vacancy—a distinction he merited by his long services, uniform zeal, and soldier-like qualities. He was presented on the occasion by the officers of royal engineers at Woolwich with a sword, and a grant was made to him of 20*l.* to assist him in his outfit.

Sergeant James Forbes was promoted to be sergeant-major by Sir Hussey Vivian as a reward for his services. For six years he had been employed, during every spring and autumn, at the royal military college at Sandhurst, in the instruction of the gentlemen cadets, and returned to his corps on every occasion with fresh claims to approbation. Every season at the college was marked by his effecting some improvement in the course and in rendering some new and essential service to the institution. Among many minor subjects necessary to complete the experimental course, he introduced the use of various mechanical expedients in connexion with purposes of military science, and the construction of military bridges of different kinds, from the rudest adaptations of rough timber and wicker work to the finished formation of a pontoon bridge.¹² Observing his indefatigable exertions in carrying out his professional duties at the institution, Sir George Scovell, the Lieutenant-Governor, was induced to say, that "sergeant Forbes had laid the college under great obligations to himself and the admirable corps to which he belonged;" and in acknowledgment of that obligation, Sir Edward Paget, the Governor, presented him with a valuable case of drawing instruments.

of Good Hope, where he had served for many years. The recollection of his usefulness at Natal, and in other districts of the frontier, led to his being appointed civil foreman of works in that colony. In 1842, Deary fought in the actions against the insurgent Boers at Natal.

¹² 'United Service Journal,' lii. 1834, p. 561, and ii. 1835, p. 277, 278.

Subsequently he had the high honour of being admitted to an audience with his Majesty, William IV.;¹³ in which interview the King graciously commended his conduct, ability, and zeal. Soon afterwards the Master-General, who frequently wrote in eulogistic terms of his services, promoted him from the rank of sergeant to be sergeant-major.¹⁴

In December, Lieutenant Robert Dashwood, R.E., was appointed acting-adjutant at head quarters, to assist the brigade-major in the office and parade duties. This was the first appointment of the kind in the corps at Woolwich. Smart, strict in discipline, and exact in the performance of duty, he promised to advance the sappers to the high development attained in well-disciplined regiments, but his career of usefulness was suddenly cut short by disease of the heart, of which he died on the 21st September, 1839.¹⁵

In the summer of 1834 an expedition under the command of Colonel Chesney was projected, to ascertain the practicability of the Euphrates for opening a route by steam navigation to India. A detachment of the royal artillery and five men of the corps were appointed to it. One, sergeant Thomas Sim, was a surveyor, and the rest were smiths, and their qualifications in steam machinery, surveying, and drawing, had particular reference to the wants of the enterprise. When selected their names were submitted to the King.¹⁶ For their military dress was substituted a plain blue suit, consisting of a slouched cap, frock coat with gilt buttons, and loose trousers, as more suitable

¹³ Forbes's Pamphlet, 'National Defences,' 1852.

¹⁴ The father of the sergeant-major, who also held that rank in the corps, died of fever at Walcheren in 1809, and, as soon as his son was old enough, he was enlisted into the sappers. His age on joining was only eight years! For a few years he was stationed at Dover, but the chief of his career was passed at Chatham, where, under Sir Charles Pasley, he received that instruction in field fortification and drawing which made his services at Sandhurst so important and successful. Here it should also be noticed that he kept his detachments in the best order; and by their steadiness and willing exertions, they earned for themselves a character which has greatly raised the corps in public estimation.

¹⁵ The names of the succeeding acting-adjutants at Woolwich will be found in the Appendix III.

¹⁶ Chesney's 'Expedition to the Euphrates,' Pref. x.

to the climate of the East. The beard and moustache after the oriental fashion were also worn.

In September the party was sent to the factory of Messrs. Laird and Co., at Birkenhead; and after receiving instructions in riveting and the management of steam engines, sailed on the 10th February, 1835, for Syria. Three of the party only landed; the other two having, by some mismanagement, returned to England from Malta. From the mouth of the Orontes to Bir, a distance of 145 miles, the three sappers, as well as the other soldiers and seamen, were employed in transporting the materials for the construction and armament of two steamers, across a country of varied and difficult features, intersected by a lake and two rapid rivers. Boilers of great weight were forced up hills, inch by inch, by means of screw-jacks; and through the unflagging exertions of officers and men, and their patient endurance of suffering and fatigue, was accomplished "one of the most gigantic operations of modern times."¹⁷

While these arduous labours were in operation, two of the three sappers died—sergeant Sim and lance-corporal Samuel Gidens. For the most part, the sergeant had been employed with Lieutenant Murphy, R.E., or alone, in surveying the country from Latakia to the Gulf of Scanderoon; and in which, from his previous knowledge and experience, he was found of great use; but while prosecuting this duty, he frequently slept on the sands or in open boats, and thus contracted a disease no skill could eradicate. When surveying on Beilan mountain he suffered much from the keen and penetrating wind to which he was exposed, and was removed to Antioch for the benefit of his health. A slight improvement urged him to the field again; but at Suedia, being thrown from a horse and much injured, he was again sent in a litter to Antioch, where he breathed his last on the 19th September, 1835.

The corporal died at Fort William on the 3rd August. Up to the date of his illness he worked most diligently; and to mark the sense entertained of his services, a gratuity of 100*l.*

¹⁷ Chesney's 'Observations on Fire-arms,' p. 197.

was granted by the Treasury to his bereaved family on the recommendation of Colonel Chesney, to whose honour it should be recorded that out of his own purse, he liberally supported the widow and her children, until the award was made by the Government.

Feeling the want of the two smiths who had been sent home from Malta, Colonel Chesney applied to have them re-attached to the expedition. His wish was at once acceded to, and with them sailed two other privates, on the 3rd January, 1836, for Syria. Arriving at Malta, they were passed on with all dispatch in the 'Columbia' sloop of war, and reached Antioch late in February, in time to take part in the final preparations for floating the steamers. This reinforcement of "promising men, brought the party," so the Colonel writes, "to efficiency once more," and on the 16th March the descent of the river was commenced. There were now five sappers with the expedition—one surveyor, and four blacksmiths and millwrights, including corporal William Black, all valuable as artificers and engineers. Three were allotted to the 'Euphrates' steamer, and two to the 'Tigris.' Civil engineers were also attached to each vessel, to whom the sapper smiths acted as subordinates, and were styled assistant engineers.

On the 21st May a calamity occurred which deprived the expedition of nearly one half of its force. The steamers were descending the river with success, when they were overtaken by a hurricane of indescribable violence which placed both vessels in imminent peril. The storm raged only eight minutes, but during those fearful moments the 'Tigris,' caught up in its furious vortex, was engulfed with twenty of its officers and men. Corporal Benjamin Fisher and private Archibald McDonald of the sappers were on board: the former was dashed on shore and saved, the latter perished; but his comrades had the satisfaction of recovering and interring his remains on the banks of the stream, near Anna.

The descent of the "Great River" was accomplished by reaching its junction with the 'Tigris' at Kurnah, on the 18th June, 1836, and seventy-two guns having been fired the next

day in honour of His Majesty William IV., the steamer crossed the Persian Gulf to Bushire, to meet expected supplies from Bombay. After three months' delay at the former port refitting the vessel and completing the engines with the assistance of the sappers, and a fresh crew having been obtained from the Indian navy, the steamer re-crossed the Persian Gulf, and the ascent of the river commenced.

The chief engineer having died the first day of the ascent, the engines were entrusted to the sole management of corporal Fisher, who continued to perform this duty most satisfactorily up to the termination of the service. Corporal Black was the senior non-commissioned officer of the party, but his health had previously become so much impaired that he was sent from Bussora to Bombay for its recovery. Of this non-commissioned officer Colonel Chesney wrote, that "both as a soldier and a man, in every way, he does credit to his corps."

With the highest testimonials the party rejoined the corps at Woolwich in May, 1837.¹⁸ As engineers they had been found of the greatest service to the expedition; and for the skilfulness and efficiency with which the engines were worked, the Government divided the engineers' pay among them for the period they were so employed in the following proportions:—corporal Black 13*l.*; lance-corporal B. Fisher 19*l.*; lance-corporal T. Edrington 21*l.*

Lance-corporal William Greenhill was attached to Lieutenant Murphy, R.E., and his duties were those which arose out of surveying and astronomy. In the whole of the survey of the two rivers and the countries adjacent to their banks, he took an important part, and after the death of that officer was employed on the line of levels between the two rivers, with reference to a canal of intercommunication for commercial purposes. Captain Estcourt, 43rd regiment, the second in command, in writing of this non-commissioned officer, says: "A

¹⁸ On the completion of the service, the expedition was favoured with a few days' location at Damascus, where the party removed their beards and moustaches, and for the first time since the commencement of the enterprise, had the advantage of attending church for religious worship.

more willing, honest, active man does not exist, and he is sober and trustworthy in the highest degree." "All," writes the same officer, "are valuable men, and capable of rendering important services wherever they may be employed."

The approbation of the commissioners for the affairs of India was accompanied with the following gratuities:—to corporal Black 39*l.*, and to each of the other three non-commissioned officers 19*l.* 10*s.*; and further, Sir Hussey Vivian, the Master-General ordered the promotion of corporal Black to the rank of sergeant, second-corporal Fisher to corporal;¹⁹ and lance-corporal William Greenhill to be second-corporal.²⁰

In May the operations for the triangulation of the west coast of Scotland were resumed, for the third time, under Captain Henderson, R.E., by six non-commissioned officers and men of the corps, who were continued on the service till the early winter. They then returned to Woolwich with a good character for activity and exertion.

At the request of the court of Directors of the East India Company, seven rank and file were employed at the seminary at Addiscombe, in throwing up field-works for the instruction of the gentlemen cadets, during the months of August, Sep-

¹⁹ Pensioned in May, 1843, and appointed assistant lighthouse keeper at Europa Point, Gibraltar, under the Trinity Board of London.

²⁰ Greenhill was an intelligent man, pleasantly eccentric, and fond of antiquities. While with the expedition he made a collection of silver coins of remote times, which, with laudable feelings of attachment to his native place, he presented to the Perth Museum. His hair was as white as silver, but his beard, full and flowing, was as black as ebony. To the Arabs he was quite a phenomenon, but the singularity which made him so, did not save him, on one occasion, from being rudely seized by a horde of banditti, and plundered, with almost fabulous dexterity, of the gilt buttons on his frock coat. They had nearly finished their work, when Greenhill tore himself from their grasp, but finding that a button still remained on the cuff, he audaciously pulled off the frock and threw it at them. Suspecting that their work was incomplete the Arabs pounced on the coat, and tearing off the remaining button scampered away to the hills again. When, some years later, the Niger expedition was forming, Greenhill volunteered to accompany it. He had a notion that the service would be one of suffering and vicissitude, and the better to inure himself to its contemplated hardships he submitted his body to rigorous experiments of exposure and self-denial, which, inducing erysipelas, caused his premature decease in October, 1840.

tember, and October. The corporal in charge received 2s. a-day working pay, and the privates 1s. a-day, each. For the two succeeding terms, a similar party was provided for the seminary, and on each occasion received much credit for its services. After the third term it was found desirable to discontinue the detachment, and the Addiscombe authorities drew the means of instruction from their own resources.

By an order from Lord Palmerston, Lieutenant Edward Vicars, R.E., and one sergeant and twelve rank and file, embarked at Woolwich on the 10th July, in the 'Pluto,' steamer, and landed at San Sebastian on the 19th, taking with them a limited supply of field equipment and engineer stores. The party was attached to the royal marines, with the British naval forces under the command of Lord John Hay, and was intended to take part in any operations deemed necessary to defend the Queen of Spain against the adherents of Don Carlos. All the men were volunteers, fully capable of constructing field-works and military bridges, and qualified, also to direct and take charge of working parties.

The major part of the detachment were men of notoriously bad character, appointed to the service to afford them a chance of reclaiming themselves; but their arrival in Spain was soon marked by those habits of turbulence and dissipation which rendered them a burden at home. Without zeal, spirit, or subordination, they were found almost useless on the works, and to such a pitch was their misconduct carried, that Lieutenant Vicars contemplated dispensing with their services as sappers and miners. By the removal, however, of a few of the grossest offenders, the punishment of others by the navy, and the infusion of a better class of men among them from England, the inevitable disgrace of the corps was prevented; and eventually, with few trifling exceptions, the detachment established a character for discipline, good conduct, and usefulness.

On landing, the party was removed to the eastern heights of Passages to complete works for the protection of the shipping in the harbour. Here the royal marines were employed for

a time, as also a force of about 200 of the auxiliary legion. Late in September, a few of the party assisted in throwing up a work for the defence of a bridge leading into San Sebastian, and secured the position held by the force on the left of Passages. It was now understood that the Carlists intended to attack General Evans: a redoubt was forthwith constructed on a commanding hill in front of the enemy, and a battery for four guns and some breastworks were thrown up on the extreme left of the position. The legion furnished a working party of 200 men for these operations. On the 1st October, the enemy attacked the lines in front of San Sebastian, directing their fire principally on the picket-house, near which the battery was progressing. Against this battery, also, another battalion was sent, and having taken it, the column pressed on to the walls of the station; but the party within remained firm, and the Carlists were ultimately driven from the contest with the loss of 1,200 in killed and wounded. In this action were present four sappers, one of whom was wounded.

On the 31st October, the detachment in Spain was increased to twenty-five non-commissioned officers and men, by the arrival of twelve rank and file from Woolwich, in the 'Rhadamanthus' steamer, who were at once disposed of between San Sebastian and Passages, and assisted in the completion of the fort and barracks at the latter.

Experiments with the pontoons of Colonel Pasley and Major Blanshard, took place at Chatham on the 1st July. Sir Hussey Vivian, the Master-General, was present. For a few years previously, a portion of the summer of every year had been past in practically testing the projects of rival competitors for the passage of rivers; but on this occasion the trial ended in favour of the cylindrical pontoon of Major Blanshard. In all these trials a detachment of the corps was employed, and in this, the last experiment, executed under the disadvantage of extreme heat, Colonel Pasley warmly praised the party for its zeal and activity in working the two bridges.

With the mission to Turkey under the command of Captain du Plat, R.E., were embarked on the 15th September, two

lance-sergeants of the corps on board the 'Astrea,' which entered the port of Constantinople on the 31st October. One was a surveyor conversant with the management of surveying instruments, and the other skilled in the details of the duties connected with the system of instruction carried out at Chatham. The mission took stores as presents to the Sultan. A sergeant of the royal artillery and a civil mechanic from the royal arsenal with Lieutenant Knowles, R.A., accompanied it. At the time of its arrival the plague was prevalent, and under orders from His Majesty's ambassador at the Porte, the mission passed a few months in the 'Volage' and 'Carysfort,' lying in the Bosphorus. When the plague abated, the presents were conveyed to the Sultan—Mahmoud II.; and his Highness as a token of satisfaction presented each officer and soldier with a gold medal, and the artizan with a gold snuff-box. The non-commissioned officers of sappers who had the honour of receiving the distinction, were William Spry and William Richardson. Each medal bore a gold clasp, upon which was inscribed the name of the recipient and that of the Sultan. During their service with the mission each received 1s. 6d. a-day working pay, and on arrival in England in April, 1838, a gratuity of 10*l*.

1837.

Change in the dress—Increase of non-commissioned officers—Services of the detachment at Ametza Gafia—Orriamendi—Desierto convent on the Nervion—Fuentarabia—Oyarzun—Aindoin—Miscellaneous employments of the detachment—Trigonometrical survey west coast of Scotland—Inspection at Woolwich by Lord Hill and Sir Hussey Vivian—Staff appointments—Labours of sergeant Lanyon—Staff-sergeants' accoutrements—Expedition to New Holland—Corporal Coles selected as the man Friday of his chief—Exploration from High Bluff Point to Hanover Bay; difficulties and trials of the trip; great thirst—Exertions and critical situation of Coles—His courageous bearing—Touching instance of devotion to his chief—Employments of the party—Exploration into the interior with Coles and private Mustard—Hardships in its prosecution—Threatened attack of the natives; return to the camp.

THIS year the colour of the coat was changed from red to scarlet—Plate XV., and the huge Kilnarnock woven cap was superseded by a neat superfine blue cloth cap, stiffened, with peak and chin-strap. The sergeants were distinguished by black oak-leaf bands and gilt ornaments, comprising a grenade, encircled by a laurel wreath, and surmounted by a crown and three chevrons. The other non-commissioned officers wore chevrons according to their ranks. The oil-skin chaco of the staff-sergeants was put aside for a forage-cap, with a gold oak-leaf band and gilt ornaments of a crown within a laurel-leaf.

By a royal warrant dated 24th April, an increase of one sergeant, one corporal, and one second corporal was made to each company by reducing five privates per company. Recourse to this expedient was necessary on account of the control of the companies being much diminished by the several detached duties upon which non-commissioned officers were employed, as well as a number being always required to take charge of the

workshops and working parties. The strength of each company was now fixed at 1 colour-sergeant, 3 sergeants, 4 corporals, 4 second-corporals, 2 buglers, 75 privates; equal 89; which, for 11 companies, gave an establishment of 977. The Corfu company, paid by the Ionian government, did not, from its weak numbers, participate in the alteration. Its strength, therefore 62, with the 3 officers and 5 non-commissioned officers of the staff, made the total establishment of the corps sanctioned by the warrant reach the total of 1,048. The number reduced was 22 privates.

In the early months of the year the detachment in Spain was employed on the eastern heights of Passages in superintending the completion of the fort and barracks, and also on the island of Santa Clara in making platforms and repairing batteries.

On the 10th March, seventeen of the party were present in the attack on Ametza Gaña, and were subsequently employed in strengthening the redoubt previously occupied by the Carlists on that position.

In the action at Oriamendi on the 15th and 16th March, they also served. Ten of the number assisted in levelling the enemy's parapets and destroying their barricades and works. The other seven, under Lieutenant Burmester, R.E., did duty with the royal artillery commanded by Lieutenant-Colonel Colquhoun. Their help, readily afforded at a time when it was of much value, enabled a third gun to be brought into action; and in cutting fuzes and loading shells, &c., they were found but little inferior to experienced artillerymen. Lord John Hay complimented Lieutenant Vears upon the good service of this detachment; and the officers of the royal and marine artillery were loud in their praises of the exertions of the sappers, and of the efficiency of their assistance at the guns. One private was wounded.

A brief interval of repose followed, in which the detachment was occupied in fortifying the eastern entrance of Passages, also in barricading the advanced picket-house near that point, and in completing the batteries on Santa Clara. Four men were likewise detached to the river Nervion, and, with the

crews of the 'Scylla' and 'Savage,' restored the works of the Desierto convent which protected the communication with Bilbao. On the return of the men, the commander of the 'Savage' brig spoke most favourably of their conduct.

In the operations of the army under Espartero on the 14th May, fifteen of the detachment were present and assisted in working the guns of the royal artillery. On the 17th they embarked to act in an attack on Fuentarabia, and were present at its capitulation on the 18th May. Here the detachment restored one of the ruined bastions of the fortress, and, besides making embrasures for two heavy guns, cleared away the debris from other parts of the defences and placed them in temporary repair.

At Oyarzun the Carlists were in the habit of creeping up to the town and annoying the troops. To prevent this, the hill above was crowned with a square redoubt for two guns. Ten of the detachment superintended its construction, and the work was executed in so excellent a manner, that experienced officers spoke of it with unqualified satisfaction. The working party consisted of peasants who were skilful in the construction of earth-works, and zealous in the use of the spade and pickaxe.

At the solicitation of General O'Donnell of the Spanish service, nineteen of the sappers, under the command of Lieutenant Vicars, were attached to his force. The party reached Aindoin on the 11th September, and were set to work with a company of Gastadores under them, on a height on the extreme left of the position. Very rapidly, a large hedge surrounding the height was turned into a parapet; and in places where it was too high to cut down, loopholes were formed. A dense wood that joined the hedge was partly felled, and from its ample resources abattis were thrown out in front of the line of hedge. For three days the work progressed; at intervals under heavy rain; and on the 13th September a formidable work of more than half a mile in length was ready to obstruct the advance of the enemy. At daylight on the 14th the Carlists opened fire on Aindoin, and the first shot went through the house where the sappers were quartered. At once they were withdrawn to

the church, and ultimately removed to a circular fort to attend to orders either from Lord John Hay or General O'Donnell. Scarcely had they commenced the movement before the enemy approached the church with irresistible impetuosity, and drove the forces of O'Donnell from the town with signal disaster. The escape of the detachment of sappers was almost miraculous; a few moments later would have thrown them wholly into the hands of the Carlists.

During the later months of the year the detachment repaired Fort Morales, and the lines on the western heights of Passages. There also they fitted up barracks for the royal marines, and strengthened the advanced picket-house. Four of the men superintended a working party of the royal marines in completing and arming the redoubts around San Sebastian, in which service much difficulty was experienced from the want of an adequate working party and materials. So impoverished were the stores, that to provide planks and sleepers for the platforms and magazines, recourse was had to old splintered timbers from ruined sheds and buildings. Among other services performed by the detachment was the construction of a redoubt at Cachola on the high road from San Sebastian to Hernani, to protect that communication.

On the 13th May, six rank and file were attached to Captain A. Henderson, R.E., and were employed for the fourth summer under his direction in the trigonometrical survey of the western coast of Scotland for the Admiralty. The nature of the operations, as on former occasions, necessitated their encampment on the mountains; and when the service closed in November, the party returned to Woolwich.

Lord Hill and Sir Hussey Vivian, the Master-General, inspected the seventh company and detachment of the corps at Chatham on the 15th June, and afterwards witnessed the siege operations carried on by the troops and sappers under Colonel Warre. At the steadiness of the latter on parade, and the able manner in which the siege details were executed, his lordship expressed the highest gratification; and Colonel Warre, in his public orders of 16th June, also eulogised the corps for the

cheerful and indefatigable manner in which they had worked in the field, adding, "that the construction of the works did credit to their skill as engineer workmen, and their appearance to their discipline and efficiency as soldiers."

Second-Captain Henry Sandham, R.E., by commission dated 1st August, was appointed adjutant to the corps at Chatham vice Captain Jebb promoted. The latter had filled the office with much advantage to the public service; and his many excellent qualities, as evinced in the discharge of his duties, commanded the esteem of the corps, and caused him to be much regretted at his leaving.

Sergeant Hugh Lanyon, after Sergeant-major Forbes's removal, was appointed to the charge of the detachment at Sandhurst College, and carried on the field details in every way to the satisfaction of the authorities. For many years, as a private and non-commissioned officer, he worked at the college, and his example had the best effect on the successive parties with which he served. As a practical sapper he was one of the ablest and most skilful in the corps, and in the rapidity with which he threw up earth-works was unsurpassed. Sir Charles Pasley has done him honour by noticing the extraordinary labours of the sergeant in his 'Practical Operations for a Siege.'¹ His wil-

¹ Pages 51 and 57, notes, 1st part, 2nd edit. It may be tolerated to mention the instances in which Lanyon figured, to deserve the record. In October, 1828, he finished a parallel in very easy soil of 262 cubic feet in 2 hours and 41 minutes, whilst an able-bodied sapper, unskilful at the pickaxe and the shovel, only completed the same content of excavation in 8 hours and 4 minutes! Thirty men were employed at the same time at similar tasks, the result of whose labours showed that for each man, strong and trained, it required to execute the work an average period of 4 hours and 54 minutes. The other instance refers to his completing the first task of a parallel, nearly 109 cubic feet, in easy soil in 16 minutes. In the Peninsula sieges, no more than 42 cubic feet of excavation appears to have been excavated by each individual of the military working parties as his first night's work; but at the rate which rendered Lanyon celebrated, an active workman in these sieges ought to have finished his first night's task in seven minutes! The comparison makes the difference so excessive, that credulity has scarcely sufficient tension to accredit it; but coming from an authority so proverbial for his accuracy, there is no alternative but to wonder at the achievements of the man who so signalized himself as a sapper; and to add, with the Colonel, the expression of mortification, "that the exertions of the British army should have fallen so miserably short of their brilliant exploits in the field."

lingness and ability in this respect, covered, in great measure, his educational deficiencies. In charge of the detachment he displayed his usual industry and exertion, kept his men in perfect discipline and order, and the excellent work resulting from their united efforts elicited an encomium in a popular periodical very creditable to the sergeant and his party.² Indeed, so effectually were all the instructional operations carried out, that the governor of the college, with the sanction of the Master-General, presented him in November with a case of drawing instruments, bearing an inscription flattering to his zeal and services.³

Late in the year the shoulder-belt of the staff-sergeants was superseded by a buff waist-belt, two inches broad, having carriages for the sword, with gilt plate, buckles, swivels, and hooks. The plate bore the royal arms—without supporters—within a wreath, with the motto “Ubique” at its base, and above, a crown. The sword was the same as issued in 1824, and as at present worn, but adapted by rings to be slung to the improved accoutrement.—See Plate XVI., 1854.

Under orders from Lord Glenelg, the Secretary of State for the Colonies, corporals John Coles and Richard Auger were attached to the New Holland expedition under Captain Grey, the object of which was to gain information as to the real state of the interior and its resources. On the 5th July, 1837, they sailed in the ‘Beagle’ from Plymouth, and at the Cape of Good Hope were removed into the ‘Lynher’ schooner. There,

² ‘United Service Journal,’ ii, 1837, p. 279.

³ Lanyon was afterwards promoted to be a colour-sergeant, and passed a few years in Canada during the revolt. On his return, his health, shattered by the exertions of his laborious life, caused him to leave the corps. Obtaining a situation as surveyor on the Trent and Mersey canal under Mr. Forbes, his former fellow labourer, he devoted himself to his new duties with his accustomed zeal: but in a few short months his powerful frame broke up, and he died at Lawton in Cheshire, in June, 1846. The integrity of his conduct and the utility of his services induced the directors of the company to honour his remains by the erection of a tomb to his memory. Here it would be proper to notice, he was one of those brave and humane miners who, in the ‘Cambria,’ bound for Vera Cruz, assisted to rescue the crew and passengers from the burning ‘Kent’ East Indiaman, in the Bay of Biscay, in February, 1825. The souls saved were 531, including 301 officers and men, 66 women, and 45 children of the 31st regiment.

private Robert Mustard joined the party, and all reached Hanover Bay, Western Australia, on the 2nd December.

Captain Grey had early formed a good opinion of corporal Coles and made him his chief subordinate.⁴ He was emphatically his man Friday, and his conduct in striking instances of suffering and peril was marked by unfaltering devotion and fortitude, combined with diligence and humanity. Auger was 'jack of all trades;' the mechanic and architect; equally a tailor and a tinker; the ready mender of boats, and the efficient millwright and armourer of the party.

On the day of arrival the Captain landed with five persons and three dogs at High Bluff Point, to explore from thence to Hanover Bay. Coles was one of the number. The sun was intensely hot. A long confinement on ship-board had made them unequal to much exertion. Forward, however, they journeyed, without the advantage of trees or foliage to screen them from the sun's burning rays. The country, too, was rocky; and its surface, jagged and torn into crevices, being overgrown with spinifex and scrub, they frequently either slipped or fell into the covered fissures. Soon the party was overcome by thirst and lassitude. Two pints of water was all that was brought from the ship, and this, shared with the panting dogs, left but little for the adventurers. As time wore on, their weariness, before excessive, became worse, and the dogs falling back exhausted, were never recovered. Water was at length observed at the bottom of a ravine, and down its precipitous slopes Coles and others scrambled, only to mock the thirst they craved to satiate, for the inlet was salt water! However, after travelling for about another mile, fortune favoured them with a pool of brackish water, from which they drank freely.⁵

Whilst the party rested by the pool, Captain Grey, accompanied by Coles, explored the ravine, and then returning, led the party into the country by a fertile valley surrounded by rocky hills. Not long after, the thirst and fatigue so dreaded before, recurred in an aggravated form, and some were almost completely worn out by it. To march through the night with-

⁴ 'Grey's Travels,' 1841, i. p. 35.

⁵ *Ibid.*, 1841, i. p. 67-71.

out fresh water was next to impossible; and as a last effort to obtain relief, the Captain pushed on for the coast, directing that when he fired, Mr. Lushington with the party should follow.⁶

The arranged signals being given and answered, the party moved on. Corporal Coles was in the van, and forcing his way over broken rocks and down steep cliffs, he was the first to reach the Captain. At this spot he followed the example of his chief, and, plunging into the sea, refreshed his strength and appeased his thirst. Mr. Lushington and the sufferers now arrived, and, leaving them to try the effect of bathing, the Captain and his corporal moved along the coast to find the 'Lynher,' and send a boat to the party. About two miles they had journeyed when their progress was arrested by an arm of the sea, about 500 yards across. Coles kept firing his gun in hopes it might be heard on board. From hill to hill and cliff to cliff, its report re-echoed, but no answering sound came back. The Captain now resolved to swim the arm; and as Coles was unskilful in the water, he was directed to wait until the others came up and remain with them until the Captain returned. The latter then plunged into the sea, and left Coles alone in that solitary spot with wild and rugged cliffs overhanging the shore, and the haunts of savages in his vicinity.⁷

After dark the flashes of the guns had been seen by the schooner, and a boat was instantly despatched for the party. Coles was the first found; but fearing, if he then availed himself of the protection of the boat, he would lose the clue by which to trace the Captain, he directed the mate to pass on for the others. They were soon picked up, and returning for Coles, he was found at his post—one of danger and honour—and taken into the boat with his companions. The other shore was soon reached and the Captain found.⁸

"Have you a little water?" he asked, as he entered the boat. "Plenty, sir!" answered Coles, handing him a little, which the Captain greedily swallowed. That choice drop of water was all that was in the boat when Coles was picked up,

⁶ 'Grey's Travels,' 1841, i. p. 71-73.

⁷ *Ibid.*, i. p. 73-76.

⁸ *Ibid.*, i. p. 79.

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and although he suffered severely from thirst, he would not taste it as long as he retained any hope that his chief might be found and be in want of it.⁹

For several days the sappers and others of the expedition were employed in searching for water, taking short exploratory trips, and in removing the live stock and stores from the 'Lyuhur' to the location fixed upon by Captain Grey. To facilitate the service, a rude pathway was formed by firing the bush, and removing, with much toil, the rocks and vegetation. So rough was the track that a wheelbarrow could not be used upon it, and every burden was, therefore, necessarily carried on the men's shoulders. By the 16th December, the country had been taken possession of, and the encampment completed.¹⁰

On the following evening, Captain Grey with corporal Coles and private Mustard, started from the camp to penetrate some distance into the interior. Confident in the steadiness and courage of his men he felt no anxiety. Each carried ten days' provisions, a day's water, and his arms and ammunition. Thus laden, in a tropical climate, their progress was slow and laborious. Their route lay through a region of romantic beauty. Now they were urging their course through deep ravines alive with the gush of water and the foaming of the cascades; now threading their tiresome way through the devious forest with its prickly grasses and entangled bush. Again they were climbing crumbling ranges, scrambling down precipices, tearing themselves through mangroves and densely-matted vegetation, traversing some wild broken land, or worming themselves among lofty and isolated columns of sandstone mantled with fragrant creepers, which, like the remains of ruined temples of classic ages, afforded indubitable evidence of the ravages of time upon rock and range. Wherever they journeyed, they found the same chaos—beautiful in its wildness and eccentricity—rich in its luxuriance and picturesqueness.¹¹

Nearly six days were spent in this march, and the trials endured were only a prelude to what were to follow. Rice and

⁹ 'Grey's Travels,' 1811, i. p. 78.

¹⁰ *Ibid.*, i. p. 82-91.

¹¹ *Ibid.*, i. p. 93-107.

tea in small quantities formed the staple of their diet. An occasional slice from a pheasant's breast, or a bite from the remains of a crane left by the rats, gave relish to their repast. The Captain was the game purveyor to the party and Mustard its Soyer. On the first night they slept in a bark hut of their own making at the foot of a towering precipice; the second was passed under some overhanging rocks. On the other three nights they bivouacked on the slopes of the glens under the lightning's vivid flash, exposed to the rains of violent thunderstorms. Early in the journey Mustard became ill, but he was soon sufficiently recovered to sustain the toils and privations of discovery and the discomfort of unsheltered sleep. Dripping wet, tired, weary and hungry, these brave men carried out the purposes of their mission, and, with unwavering faithfulness and zeal, penetrated wherever their chief desired. "Three of us," writes the Captain, "slept in the open air without any covering or warm clothes for five successive nights, during three of which we had constant showers of heavy rain, and yet did not in any way suffer from this exposure."¹²

Want of food at length compelled the adventurers to return. Having gained the summit of a range, the rain began to fall in torrents. To escape it they retired to a detached group of rocks. A party of fourteen savages now appeared, brandishing their spears, bounding from rock to rock, and making the wilderness ring with their war cry. This was answered by a party coming over the high rock in rear of the travellers. In this critical situation a hostile attitude was at once taken up. There was a natural opening like an embrasure between the blocks of the rock, through which they could level their pieces, and each gallant fellow took his station, with orders to fire one by one if the command were given. The Captain fired over their heads; but this one report was quite enough, for the savages fled on all sides, and the party thus left to itself, hurried home through a tempest of rain and reached the cantonment before nightfall on the 22nd December.¹³

¹² 'Grey's Travels,' 41, i. p. 248.

¹³ *Ibid.*, i. p. 93-107.

1838.

Services of party in New Holland—Start for the interior—Labours of the expedition; corporal Auger—Captain Grey and corporal Coles expect an attack—Attitude of private Auger at the camp against the menace of the natives—Captain Grey and Coles attacked; their critical situation; the chief wounded; devotion of Coles—Usefulness of Auger—Renew the march; Auger finds a singular ford—Discovers a cave with a sculptured face in it—Mustard traces the spoor of a quadruped still unseen in New Holland—A sleep in the trees—Trials of the party—Primitive washing—Auger the van of the adventurers—Humane attention of the Captain to Mustard; reach Hanover Bay; arrive at the Mauritius—Detachment in Spain—Attack on Orío—Usurvil; Oyarzun—Miscellaneous employments of the party—Reinforcement to it; Casa Aquirre—Orío—Secret mission to Muñagorri—Second visit to the same chief—Notice of corporal John Down—Bidassoa—Triangulation of north of Scotland—Also of the Frith of the Clyde—Insurrection in Canada; guard of honour to Lord Durham—Company inspected by the Governor-General on the plains of Abraham—Inspection at Niagara by Sir George Arthur—Services and movements of the company in Canada; attack at Beauharnois—Submarine demolition of wrecks near Gravesend—Expedient to prevent accidents by vessels fouling the diving-bell lighter—Conduct of the sappers in the operations; exertions of sergeant-major Jones—Fatal accident to a diver—Intrepidity of sergeant Ross and Young—Blasting the bow of the brig 'William,' by sergeant-major Jones—Withdrawal of the sappers from the canal at Hythe.

SOME weeks of the early year were spent by Captain Grey and his men in a variety of occupations preparatory to a long journey into the interior. Sheds were built for the stores, pack-saddles made by corporal Auger for the Timour horses, and short excursions through wood and wilderness undertaken. Pathways were also constructed for the horses in forest and glen, without which it would have been impracticable to pursue their course. These were formed by burning the bush, and removing, by manual strength and dexterity, huge boulders and fallen trees levelled by age and storm, that everywhere intercepted the track.

On the 3rd February the expedition was in motion. Twenty-six wild ponies were attached to the party. Each man had three or four of these giddy unbroken animals in charge, fastened together by ropes. From the ponies straying in different directions, and getting frequently entangled with rocks and trees, the difficult nature of the service was greatly increased. As beasts of burden they were of little use. In steep ravines or in rugged country, the stores were almost wholly carried by the adventurers; and this, coupled with the task of guiding the untamed horses and the hard travelling in a rocky country abounding with clefts, thick bush, and forest, made the route one of unmitigated toil and fatigue. In these duties corporal Auger particularly distinguished himself; for, "possessing the power of carrying on his back very heavy burdens, he took every occasion of exercising it in such a way as to stimulate the others and very much to accelerate the movements of the expedition."¹

With corporal Coles the captain started on the 6th February to explore the country in his front. Coming to a deep ravine with a body of water at its base, he wished to find a passage out of it. Both searched for many hours until after sunset, but without avail. The ravine was bounded by inaccessible cliffs with other ravines branching into it, which "invariably terminated in precipitous cascades." A great portion of the exploration was spent in wading the flooded valley up to their bellies in water. On their return homewards they came upon a large party of natives, and Coles followed the captain up the northern slope of the ravine ready for an attack; but the savages moved on without molesting the weary travellers.²

Five days afterwards corporal Auger and two men were left at the camp, while the rest of the expedition were detached. About two hundred of the natives assembled across a stream at the foot of a hill near to them. They were armed. At the time of their appearance Auger was quietly seated on the ground cleaning Lieutenant Lushington's double-barrelled gun, with its springs, screws, and cramps lying around him. Seeing his comrades nervously perturbed, he coolly refixed one of the

¹ 'Grey's Travels,' i. p. 121-139.

² *Ibid.*, i. p. 136-138.

barrels, and mounting the lock, loaded the gun with some loose powder. Meanwhile the two men turned out with their muskets, and the trio posting themselves on the brow of the hill, motioned the savages away. They answered by a shout, and retired a little; when Auger and the party now took counsel, and agreeing that it would be imprudent with their small number to hold intercourse with so large a force of natives, they resolved not to allow them to approach beyond a point which they considered safe; "and in the event of any armed portion passing the stream towards the tents in defiance of their signals, to fire on them one by one." These cautious resolves, however, it was unnecessary to enforce, as the savages, after Auger had given them a blank discharge, hurried off in the direction of Captain Grey.³

The Captain, accompanied by Coles and a Cape man, had been out since the morning examining the country to choose a route for the next day's march, and were working with all their energies at a road for the horses, when the savages from the camp poured into the forest. The Cape man, who was in the rear, first saw them; and instead of calling to Coles or the Captain for assistance, took to his heels, pursued by the natives. The three were now engaged for their lives, and taking up a position behind some rocks, the men were directed to fire separately. Coles was armed with the Captain's rifle, but it was covered with a cloth case for protection against the rain. This becoming entangled with the lock, his services at a critical moment were lost. The Captain now gave Coles his gun to complete the reloading, and taking the rifle, tore off the cover and stepped from behind the rocks. In an instant three spears pierced his body, but a deadly shot from the rifle slew the principal antagonist. The combat at once ceased; but, though it had only lasted a few seconds, the spears and weapons strewn in such abundance about that wild position gave proof of its severity. Neither Coles nor the Cape man was injured, but the Captain was badly wounded. Coles bound up the Captain's hip wound as well as he could, and supporting him with his

³ 'Grey's Travels,' i. p. 144.

arm, assisted him homewards. Some hours were spent in the journey. The track was lost, and the Captain, leaning more and more heavily on Coles, showed signs of increasing weakness. A beaten route at last was gained and a stream in its vicinity crossed; but the Captain, in the effort, strained his wounded hip and fell on the opposite shore unable to rise. Coles, with his usual devotion, volunteered to go alone to the party and send assistance. This he did, bounding over rock and cliff, through wood and scrub, jumping gaping rifts, and fording streams with the natives on his trail. In a short hour, through his unflinching ardour and daring, the surgeon and Mr. Lushington were ministering to the wants of the wounded chief.⁴ The only drawback to this day's steadiness and fidelity was the loss, by Coles, of the Captain's valuable note-book.⁵ The nipple of the rifle injured by Coles in his eagerness to remove the case, was taken out by Auger; but lacking proper tools, several days were spent in niggling perseverance, to drill it out with a bradawl.

The expedition was now delayed for a time; and corporal Auger, whose ingenuity and skill as a carpenter had frequently been of service, made the Captain a low stretcher to lie upon, which gave him a little more ease.⁶ To relieve him, moreover, from unnecessary discomfort and pain, Auger, with feeling solicitude, carried the chief in his arms at times when he seemed to need it, to convenient distances in the vicinity of the tent. Athletic and careful, he was not a bad substitute for a sedan.

On the 27th February the party was again in motion, but their progress was slow. Much time was spent in constructing pathways in ravines and clefty land otherwise inaccessible, and in finding fords over streams, and passages across swamps. To one ford Captain Grey particularly alludes. On the 27th March, he and his party sought for a ford across a river about a hundred yards wide in S. Lat. 15° 49', E. Long. 125° 6', but their efforts were fruitless. It therefore appeared inevitable that the winding of the river should be followed, or the party

⁴ 'Grey's Travels,' i. p. 154.

⁵ *Ibid.*, i. p. 153.

⁶ *Ibid.*, i. p. 158.

branched off in another direction to find an open route in advance. This surmise was not very agreeable. Auger pondered a little over this aspect of the journey, and soon resolved to make a survey of the stream untrammelled by the presence of any one. Accordingly, disposing of a hasty breakfast, he started alone to the river, and returned in about an hour reporting he had found one. The ponies were at once moved on, and as they wound through it following a circuitous course, it was nowhere less than knee deep, but on each side, at times, the water was dangerously high. "I could not," writes the Captain, "but admire the perseverance of Auger, in having discovered so intricate a ford as this was."⁷

Two or three nights before finding this ford he tied himself among the branches of a stunted acacia-tree, and shaken by the wind slept as soundly as in a cradle rocked by an attentive nurse. He did this to escape the wet and chills of the stony ground on which the travellers bivouacked and rested during the darkness.

Much labour was given in tracing the courses of rivers, the direction of mountain ranges, and acquiring information of the physical features of the country, and of its natural history.⁸ All these services were not accomplished without much exertion and diligence. To scale the mountain side, to creep down the

⁷ 'Grey's Travels,' i. p. 209.

⁸ Auger accompanied Captain Grey on one occasion to examine a sandstone ridge in the hope of finding egress from it. After proceeding some distance the corporal discovered a cave, in which was an intaglio face and head cut in the rock, of rather superior workmanship for an untutored savage; and Captain Grey has distinguished the work by giving a drawing of it in his Travels. Vol. i. p. 206.

Private Mustard, who had been at the Cape of Good Hope, brought his experience to bear upon the present service. He discovered the spoor of a large quadruped with a divided hoof. He had seen like impressions at the Cape. Captain Grey conceiving that Mustard had made some mistake, paid no attention to his report, until he afterwards saw traces of the animal himself. On one occasion the Captain followed its track for a mile and a half, when it was lost in rocky ground. The footmarks were larger than those of a buffalo, and it was apparently more bulky, for where it had passed through the brush-wood, shrubs in its way of considerable size, had been crushed aside or broken down. The animal has not yet been seen. Its existence is, however, asserted, from the peculiarity of the spoor. Vol. i. p. 242, 'Grey's Travels.'

perilous declivity, to wade the morass, to traverse a wild country torn into fissures, and encumbered by rocks and scrubs and a dense vegetation, were but their common daily task; but when to these exertions are added the trials arising from privation, constant exposure to the sun and the storm, the bare shelter by night of some overhanging cliff or frail tent, with the discomfort of being, for days together, unable to undress or wash themselves, a faint glimpse only is caught of the harassing and difficult nature of their duties, their weariness, their sufferings and hardships.

The mode of refreshing themselves by washing was as primitive as inconvenient, but the trying nature of the service led them to find contentment in the roughest resources. Full dressed, they often plunged into the lakes to scrape and wash away the accumulations of days from their persons and clothes; and on emerging from the waters, bearing their dripping suits on their backs, they ran about to prevent colds or rheumatic seizures, while the sun steamed off the moisture from their threadbare garments.

Corporal Auger in these wanderings was the chief dependent. Uncompromising, he was straightforward in his duties; enterprising, he feared nothing. On most occasions he was sent ahead of the party to pace the distance, to find the track through regions of country covered with rank grass more than fourteen feet high, and to discover fords to assist the progress of the wayfarers and thus prevent depressing and harassing detours or returns. The moral courage of that man must indeed have been great, who was the first to penetrate a shrouded and unbroken stretch of solitude, unaware of the dangers in which his every step might suddenly have involved him.

The expedition had now penetrated two rivers beyond the Glenelg and Prince Regent, and then turned towards Hanover Bay. On 1st April they started, encountering difficulties of a character similar to those already borne with such cheerfulness and fortitude. Seven days of their journey found private Mustard crippled from falling into a crevice in the rock. Here

the Captain, though suffering himself from the wound in his hip, yielded his horse for Mustard's convenience. On the 15th April, the party reached Hanover Bay, having lost nearly all their live stock and fifteen of their ponies. A few more days were occupied in collecting the stores and shipping them, when the expedition sailed for the Isle of France and arrived on the 17th May. The three sappers were landed in a very sickly and emaciated state, and during their stay at the Mauritius were under medical treatment in hospital.

On the 27th January, nineteen non-commissioned officers and privates of the detachment serving with the naval force under the command of Lord John Hay at San Sebastian, were present with General O'Donnell's army in an attack on the village of Orio, and burnt and sank several flat-bottomed boats under the fire of musketry from the opposite side of the river.

On the following day, at the request of the Spanish general, the same sappers were despatched to Usurvil to intrench and fortify a large garden at the outskirts of the village. The work was instantly commenced; but when the party was about to destroy the bridge which had been partially broken, General O'Donnell changed his intention and the sappers returned to San Sebastian. Shortly after, the detachment marched with the marine battalion to Oyarzun to cover the operations of General O'Donnell at Bera.

About this period the available men of the party fitted up the 'Columbia' steamer for the accommodation of troops, and a storehouse for the use of the squadron. At Passages, also, the carpenters converted the church into a commissariat dépôt for stores and provisions, and strengthened and improved the fortifications around San Sebastian and the heights. All the works were carried out with difficulty; for the Spanish authorities could scarcely command the use of a plank or even a nail for their purposes, and it was only by the force of habitual and urgent requisitions, that they could be induced to press for any materials for the service of the department.

By the 'Alonzo' transport a reinforcement of eleven rank and file arrived in May, increasing the detachment to thirty-one

of all ranks. Late in the month, these men, with others of the party, were, at the recommendation of General O'Donnell, detached to Casa Aquirre on the left of Venta, to render it sufficiently defensive to receive the garrison of Astigaraga in the event of its being compelled to retire. The working party consisted of a company of the Spanish marine battalion of seventy soldiers and twenty peasants, and the position was completed with the necessary works by March, 1839.

On the 24th June, twenty-five of the detachment moved with a part of the army to the river Orío, and, under fire, levelled the parapets and works of the Carlists.

In October, four men of the party in plain clothes under orders of secrecy, accompanied Colonel Colquhoun of the royal artillery, and Lieutenant Vicars of the engineers, to the headquarters of Muñagorri, to assist in putting him in motion and to secure his position. The mission reached Sara on the 17th, then passed to a hill to the east of La Rune mountain, about four miles from the village, where the chief was posted, and afterwards to St. Jean Pied de Port; but owing to the opposition of Aquirre, the commandant of Valcarlos, who would not allow the pacificators to take up quarters in his neighbourhood, the expedition, unable from this cause to assist the Fucrist chief, returned to San Sebastian on the 24th October.

The same sappers, in plain clothes as before,⁹ accompanied the above-named officers on a second mission to Muñagorri in November. The party reached St. Jean Pied de Port via

⁹ The senior of whom was second-corporal John Down, afterwards sergeant. In September, 1835, while pontooning in the Medway at Halling, he plunged into the river and saved from drowning, by means of an oar, private F. Adams of the corps. He also relieved from a very precarious situation lance-corporal Woodhead, of the Honourable East India Company's sappers, who had jumped in to assist private Adams. For his courage and humanity the Royal Humane Society granted Down a pecuniary reward, and his officers gave him a military hold-all, containing the usual articles, chiefly of silver, bearing on a silver plate this inscription—"Presented by his officers to private John Down for his gallant conduct in rescuing a comrade from drowning." This non-commissioned officer served two stations at Gibraltar and Bermuda, and being pensioned at 1s. 9d. in October, 1849, retired to Chatham, where he is now filling the humble but sufficient situation of pump-master to the Barracks at Brompton.

Bayonne on the 5th. Aquirre, acting under the orders of Espartero, was firm in his resolution to resist the pacificators in the occupation of Valcarlos; and as he would not yield a pass to the force of Muñagorri, the project of entering Spain at Valcarlos was necessarily abandoned, and the expedition once more retraced its steps to San Sebastian, where it arrived on the 16th.

Late in the same month, twelve men of the detachment were sent to the Bidassoa to fortify the position taken up by the Fuerist chief. A fatality attended all his movements and projects. St. Marcial had been fixed upon by him to establish his force there; but before the operation could be effected, the Queen's troops under General O'Donnell were already in possession of it, and the approach of Muñagorri was therefore interdicted. Another position, however, was soon selected near the Bidassoa, and a redoubt forthwith commenced. Sixty peasants from San Sebastian and a small force from the ranks of the Fuerists formed the working party. The latter were indolent to the last degree, and even the presence of Muñagorri and Jarregui failed to inspire them with the necessary energy. The sappers worked from morning till nightfall, and often remained on duty the entire day, exposed the whole time to the drenching storm. All the works were marked out, and every detail for the defence was conducted by the sappers under the direction of Lieutenant Vicars, and their zeal and usefulness were noticed in commendatory terms. After completing the defences, the party rejoined Lord John Hay's force early in January, 1839.

In May one sergeant and twelve privates were detached to the north of Scotland, and employed on the trigonometrical survey of that part of the country until December under the direction of Lieutenant Robinson, royal engineers. This mountain detachment endured much fatigue in carrying out the service, and for their diligence and exertion in conducting the operation, received a high character.

Six rank and file were employed on a similar duty at the Frith of the Clyde under Captain A. Henderson, R.E., and

rejoined the corps on the 24th October. The men were selected on account of their physical strength, and were in every respect found equal to the arduous requirements of the service.

The insurrection in the Canadas, headed by Papineau, induced the Government to send a company to that colony. Captain Colin Mackenzie with one sergeant and thirty-seven rank and file went out in the 'Hastings,' seventy-four, as a guard of honour to Lord Durham when his lordship was appointed Governor-General in Canada. The remainder, three sergeants and forty-five rank and file, sailed in the steamer 'Dee.' The guard of honour landed at Quebec on the 29th May, and the 'Dee' detachment on the 14th June. A proportionate quantity of intrenching tools and engineer stores were landed with the company.

At the celebration of Her Majesty's coronation on the plains of Abraham in June, 1838, the Earl of Durham minutely inspected the company, and in the presence of several general officers, noticed the steadiness with which the company marched past. This expression the Governor-General repeated at the chateau of St. Louis on the 28th June, and added, that the soldier-like appearance of the sappers and their steadiness under arms exceeded his expectations. The good conduct of the company also elicited his lordship's approbation.

While at Niagara, on the 11th September, the company was reviewed by Major-General Sir George Arthur, with the King's dragoon guards and 43rd regiment, and his Excellency spoke in praise of the appearance of the company, its marching and manœuvring.

Soon after, the head-quarters of the company were removed to the Niagara frontier to place it in a state of defence. The work of reparation commenced with Fort Mississauga. About this time twelve non-commissioned officers and men were removed, for engineer services, to Amherstburg, and another party of twenty-two of all ranks was detached to Montreal. The latter was detained at Cornwall for a few days by Major Phillipotts of the corps, and, under Lieutenant Roberts, formed the

advanced guard with a detachment of the 71st light infantry, in a successful attack on the rebels at Beauharnois on the 10th November, 1838. The good conduct of this party was acknowledged by Colonel Carmichael who commanded the attack.

A novel duty now devolved upon the corps in the subaqueous destruction of the brig 'William,' sunk off Tilbury Fort in May, 1837, and the schooner 'Glenmorgan,' wrecked in Gravesend Reach several years before. The wrecks were impediments to navigation; and the Lord Mayor, after consulting Colonel Pasley, determined to have the vessels destroyed by gunpowder. Operations commenced on the 19th May by a detachment of thirty non-commissioned officers and men of the 8th company, under the direction of Captain Yule, royal engineers, and in a few days the wrecks were blown to pieces by two great charges of gunpowder of 2340 lbs. each. The object desired was thus satisfactorily attained. The sappers executed all the minor fittings not requiring the skill of shipwrights. They also descended in the diving-bell and diving-helmet, managed the movements of the former, and besides preparing and executing the mining details of the operation, assisted the seamen and the riggers in the naval arrangements.¹⁰ The men in the diving-bell were exposed to great danger from the violent action, on two occasions, of the ebb and flood tides, and had they not been very resolute men, would have given up the attempt.

During the service, a vessel ran foul of the diving-bell lighter, and carried it above a quarter of a mile up the river, disconnecting the great cylinder containing the charge. The next day, sergeant-major Jones, acting with the leading rigger, "got the lighter very nearly back into her former place over the wreck, and recovered the cylinder and leaden pipe from the bottom of the river." To prevent the recurrence of a similar accident, the guard of the detachment on board, kept up a brisk fire of blank cartridges when any vessel approached them in the night, which had the desired effect.¹¹

¹⁰ 'United Service Journal,' iii. 1838, p. 45, 274.

¹¹ *Ibid.*, iii. p. 41, 42.

Of the "indefatigable exertions of the sappers," Colonel Pasley made particular mention in his official report, and added, "it was a pleasure to see them, and the seamen and riggers, working so cheerfully together." "Sergeant-major Jones," writes the Colonel, "who is equally skilful and active as a miner and a pontoneer, was quite in his element."¹²

The operations did not terminate without the occurrence of a melancholy accident. On the 21st of May, Corporal Henry Mitchell, who had been practised as a diver for a short time in the Medway, was sent down in a diving-helmet to fix a couple of eye-bolts to the side of the 'William,' preparatory to the first explosion. "After examining the wreck, he came up and gave a favourable account of his prospects," and then "took his tools and descended again; but owing to a rope fixed round him having become entangled in the wreck, the signals usually made by pulling this rope could not be distinguished;" nor could he be drawn to the surface of the water. On Colonel Pasley reaching the wreck, and as soon as the necessary arrangements could be completed, sergeants John Ross and James Young with two privates, voluntarily descended a second time in the diving-bell, and after a few minutes' careful exertion, succeeded in finding their comrade; but he was quite dead, having been at the bottom upwards of twelve hours. The intrepid conduct of these non-commissioned officers was much applauded.¹³

The great explosions above referred to, had not, it was ascertained, touched the bow of the brig 'William;' and in August operations were resumed to destroy it. The entire service, except the duty of diving, devolved on the sappers. A leaden cylinder, to hold a charge of 315 lbs. of gunpowder, was made by some artificers of the corps at Chatham; but it failed on application, and tin oil bottles, containing small charges prepared by the sappers, were found to answer the purpose. These were taken to the wreck every morning by sergeant-major Jones and another non-commissioned officer, and being properly fixed by the divers and fired by the sergeant-major, the remaining frag-

¹² 'United Service Journal,' iii. 1838, p. 45.

¹³ *Ibid.*, iii. p. 40, 41.

ments of the wreck were so broken and dispersed, as to render the anchorage perfectly safe for the shipping. Fifteen of such charges were fired against the 'William,' and two more, to make 'assurance doubly sure,' were also exploded among the scattered timbers of the 'Glenmorgan.' Sergeant-major Jones was the executive on this service under the direction of Colonel Pasley.¹⁴

Under the authority of the Act of 1st Vict. cap. 20, the Ordnance received in charge the royal military canal at Hythe. With a view to a more economical expenditure in its control and repair, the company of the royal staff corps in charge of it, was disbanded in July,¹⁵ and a detachment of two sergeants and forty-two rank and file of the royal sappers and miners succeeded to the duty. Of this detachment, one sergeant and twenty rank and file had been detached to the canal early in April, and the remainder, to the above total, was completed by an incorporation of several men from the staff corps company, and six non-commissioned officers and gunners acquainted with the care and management of horses from the royal artillery. The principal duties of the detachment consisted in taking charge of the locks and sluices, collecting tolls, repairing the drains, fences, &c., and in the execution of various laborious services in mud and water. A careful review of this arrangement, and of the receipts and expenses of the canal, however, induced Sir Hussey Vivian, the Master-General, to supersede the employment of sappers by pensioners from the ordnance corps at very reduced wages; and accordingly in December, 1840, the detachment was reduced to thirty-two of all ranks; in May, 1841, to seven; and in the following month, to one sergeant, who continued on duty at Hythe till October, 1842.

¹⁴ 'United Service Journal,' iii. 1838, p. 271-274

¹⁵ The disbandment of this company was the last in the annihilation of the corps. In that month it disappeared from the muster-rolls of the army.

1839.

Expedition to Western Australia under Captain Grey—Excursion with Auger to the north of Perth—Search for Mr. Ellis—Exploration of shores from Freemantle—Bernier and Dorre Islands; want of water; trials of the party—Water allowance reduced—A lagoon discovered—Privations and hardships of the party—Return to Bernier Island for stores—Its altered appearance—Destruction of the depôt of provisions—Consternation of Coles—Auger's example under the circumstances—Expedition makes for Swan River—Perilous landing at Gantheaume Bay—Overland journey to Perth; straits of the adventurers—Auger searching for a missing man—Coles observes the natives; arrangements to meet them—Water found by Auger—A spring discovered by Coles at Water Peak—Disaffection about long marches; forced journeys determined upon; the two sappers and a few others accompany the Captain—Desperate hardships and fatigues; the last revolting resource of thirst—Extraordinary exertions of the travellers; their sufferings from thirst; water found—Appalling bivouac—Coles's agony and fortitude—Struggles of the adventurers; they at last reach Perth—Auger joins two expeditions in search of the slow walkers—Disposal of Coles and Auger.

CAPTAIN GREY of the 83rd regiment, undertook a second expedition; this time to Western Australia. As soon as the sappers had recovered from the hardships and privations to which they had been subjected in New Holland, they volunteered again to accompany him. Private R. Mustard, too much shaken by the injury he had sustained on the former expedition, was unfit to proceed, and was left with the company of the corps at the Mauritius. On the 21st of August, 1838, the party embarked at Port Louis; and, on the 18th of September, arrived at Perth, Western Australia.

Delays prevented the Captain immediately pursuing his object, but to turn the interval to profit, he made a short excursion to the north of Perth with Mr. Frederick Smith and Corporal Auger. The exploration continued from the 30th November to

the 8th of December, and was marked by incidents of a pacific character. None of the difficulties which clogged their previous exertions were experienced on this trip, and, coupled with the variety and beauty of the scenery, but little enthusiasm was needed to make the travellers feel an interest in the service.¹

The year opened with Captain Grey and four adventurers, including his two sappers, travelling into the interior in search of Mr. George Ellis and his two companions, who, having left the Williams' River for the Leschenault on the coast, had been out for several days beyond the period it was expected they would reach their destination, and fears were entertained for their safety. Captain Grey and his men steadily pursued their object, till the missing travellers, alive and in tolerable health, turned up to their exertions at Augusta. After twenty-two days' bush-ranging, the Captain and his party re-entered Perth on the 31st of January. This episodal service was one of fatigue, particularly in crossing the Darling range and in pushing their route through forests and over wild and rugged ground. In some districts, the want of water was severely felt by them, and for eleven hours in one day, they journeyed onwards under a sultry sun, suffering from excessive thirst.²

On the 17th of February, the expedition of twelve persons sailed from Fremantle to examine the shores of Shark's Bay and the country behind it, taking with them three whale-boats for future use. On the 25th, they landed at Bernier Island, discovering, when too late, that the keg of tobacco which was to have constituted their chief consolation in hardship, was left on board. After landing the provisions, the greater part of them were buried for security, but the want of water drove the expedition to Dorre Island on the 28th of February, where their persevering search was equally unavailing, for the little that was obtained was extracted by suction from small holes in the rock. Already the party had had one of its boats knocked to pieces, and its stores lost, whilst the other two boats in a hurricane were much injured. For three days the sappers were engaged

¹ 'Grey's Travels,' i. p. 292-309.

² *Ibid.*, i. p. 310-328.

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in their repair, and on the 3rd of March, the travellers, oppressed with thirst, wearied by fatigue, and exposed to the full blaze of a powerful sun, sailed for the main.³

Reaching a sand-bank, the boats were tracked and pulled onwards, through deep mud and weeds, into a dense mangrove creek, to land; and, in accomplishing this service, severe trials were encountered, the difficulties of which were increased by the exhaustion which labour and the want of water induced. In fifteen days, the allowance had been reduced from two and a half pints to half a pint a day.⁴

Pursuing their journey, a lagoon of fresh water was soon found, and all bent the knee to take their fill of the luxury. A black line round the countenance showed how deeply each had regaled himself. Next day, the two sappers and some of the party visited the lagoon again, and in the evening returned loaded to the boats.⁵

Several days had been spent in exploration and adventure, during which the river Gascoyne had been discovered, and a few objects of geographical interest named. On one occasion, a storm having overtaken the wayfarers, their boats, which were swamped, were dragged amid much danger to shore; and their flour, saturated with salt water, was now quite spoilt. Nevertheless, unwholesome as it was, they were forced to use it, as they had nothing else to eat. Illness now began to appear among the party, and as there was neither food nor medicine to give them, their situation was deplorable. While in this helpless state, they were attacked by a body of about thirty natives near Kolaina plains; but fortunately, they succeeded in pushing off their boats without any serious accident occurring.⁶ Auger at the time was in the head of the boat, soldering up the breaches in an old kettle, valuable in its way, for the expedition had none other for its cooking purposes, when a spear, thrown by a savage, whizzed past the industrious tinker, and struck the seaman Ruston.

After a period of intense desolation and gloom, in which the

³ 'Grey's Travels,' i. p. 329-344.

⁵ *Ibid.*, i. p. 351-353.

⁴ *Ibid.*, i. p. 345-351.

⁶ *Ibid.*, i. p. 351-379.

expedition was exposed to the fury of angry storms, and the pinching calls of want, the boats put to sea; and surrounded by perils both from surf and squall, the adventurers returned to the Gascoyne. Launching or beaching their boats on the rocky coast was a service of hazard and difficulty. On the 20th of March the provisions were nearly expended, and to replenish their stores, the boats made for Bernier Island. A gale of wind caught them on the passage, and they only made good the landing by almost superhuman exertion. Here a store of provisions had been buried, when the expedition first made the island, but from its very altered appearance, caused by the ravages of recent hurricanes, Captain Grey doubted whether the depôt could be found. Fearing some disaster had befallen the stores, he considered it unadvisable that the "discovery should be made in the presence of too many persons, as future discipline would depend on the first impression that was given." He therefore selected Mr. Smith and corporal Coles, in whose courage, disinterestedness, and self-possession, he placed great confidence, to accompany him to the depôt. The corporal took a spade with him.⁷

Before they had gone far, they observed staves of flour casks scattered about amongst the rocks and high up on the sand hills. Coles, taking a rapid glance of the ground, "persisted, they were so far inland, that they could only have come from the flour casks which the expedition had emptied before starting." Moving on in their anxious survey, they "next came to a cask of salt provisions washed high and dry at least twenty feet above the usual high-water mark; the sea had evidently not been near the spot for a long period, as it was half covered with drift sand, which must have taken some time to accumulate. This Coles again easily accounted for; it was merely the cask which had been lost from the wreck of the 'Paul Pry.'" The Captain thought otherwise, but made no remark. At length they reached the depôt. "So changed was it, that both Mr. Smith and Coles persisted it was not the place: but on going to the shore, there were some very remarkable rocks, on the top of

⁷ 'Grey's Travels,' i. p. 379-391.

which lay a flour cask more than half empty, with the head knocked out, but not otherwise injured. This was also washed up at least twenty feet of perpendicular elevation beyond high water mark. The dreadful certainty now flashed on the minds of Mr. Smith and corporal Coles ;" but poor Coles, usually so imperturbable in character, and so ready to find reasons for the alarming appearances which had met his gaze at every step, did not bear the surprise as well as had been expected. He dashed the spade upon the ground with almost ferocious violence, and looking up to Captain Grey, said, "All lost, sir! We are all lost." A few rallying words from the Captain, however, made him "perfectly cool and collected, and he promised to make light of the misfortune to the rest, and to observe the strictest discipline." Coles with eager economy now collected every particle of the precious flour, discoloured as it was, that was left in the barrel and strewn on the rocks, and with another bag of spoiled flour found among the sea-weeds, the adventurers returned to the party. Their tale of distress was soon told, and all heard it with dismay. "Mr. Walker and corporal Auger set an excellent example to the others. Two seamen named Woods, indisposed to bear, in common with the adventurers, the sacrifices that impended, seized the first opportunity of endeavouring to appropriate to themselves the miserable remnant of damper belonging to the party; but their unmanly intention being observed, a sentry was placed in charge of the scanty store of provisions, which only amounted to about nine lbs. of salt meat, and about sixty lbs. of tolerably good flour.⁶

The expedition quitted Bernier Island on the 22nd of March, to make for Swan River. In taking this course, it was hoped, that if any accident occurred Perth could be reached by walking. Crossing the bay, the party sailed to the southward, examining the coast, and after a brief stay on Perron's Peninsula and Dirk Hartog's Island, the boats on the 31st, reached Gantheaume Bay. Eleven days were spent in achieving this run: the coasting was very perilous, and the gales that caught the leaky boats as they swept along, were terrific. Both were

⁶ 'Grey's Travels,' i. p. 391-396.

more than once in imminent danger, but the unsparing energy and determination of the men carried them safely to the shore. At Gauthaume Bay, however, the landing was not effected without casualty. The surf was high and raging, and the wind drove the boats along at a fearful rate. Onwards they plunged, now dancing on a swell, now pitching in a trough, now quite unmanageable, when one was tossed over by a furious wave and dashed in fragments amongst the rocks and breakers. In an instant, its crew and the two sappers were struggling through the foaming surf, but after tumbling amongst oars and water-kegs, and the spars and splinters of the wreck, all clambered to the summit of the cliff, torn, jaded, and exhausted.⁹

A crisis had now arrived which it was necessary to meet with firmness. Assembling the expedition, the captain explained matters as they appeared, and of which the travellers were only too cognizant. Auger, who all along had repaired the boats, was asked by the chief, if they could be put in any kind of condition for service. Knowing their unfitness for anything, and the impossibility of making them even temporarily seaworthy, he frankly answered in the negative. Fortified by the professional opinion of a truthful and skilful artificer, Captain Grey took his determination at once and arrangements were made accordingly. On the 2nd April, the party started from Gauthaume Bay, resolved to reach Perth by marching. The provisions had been shared out—20 lbs. of flour and 1 lb. of salt meat per man. The flour was of a brown colour with a fermented taste, like bad beer, and nothing but dire necessity could induce any one to eat it. The distance to be travelled was about 300 miles in a direct line, without taking hills, valleys, and deviations into account. Corporals Coles and Auger, besides their provisions, &c., carried a pocket chronometer and a large sextant, turn about. Coles also bore the Captain's rifle, and Auger a choice book valued by the chief, and a housewife containing some needles and thread and a few patches. In all the dreadful hardships that beset them, even when extreme feebleness might have excused them the toil of bearing the

⁹ * Gr y's Travels,' i. p. 396-412.

articles, they abandoned nothing until ordered to do so. "Indeed," says Captain Grey, "I do not believe that there is a stronger instance of fidelity and perseverance than was evinced by some of the party, in retaining under every difficulty, possession of that which they had promised to preserve for me."¹⁰ Impeded by natural obstacles, their progress was tediously slow. The Hutt River was reached on the 5th. A few days after they touched the Bowes River, and then journeying through the province of Victoria, rested by the rivers Buller and Chapman.¹¹

On the banks of the latter a man was found missing; and Dr. Walker and corporal Auger were sent in search of him. They ascended the cliffs and tracked him to the sea; but as a large party of natives were near them, they gave up the pursuit, and, unobserved, retreated. The missing man turned up next day.¹²

While this party was out, corporal Coles, who was posted as sentry on a high terrace difficult of access, saw natives on the opposite cliffs brandishing their spears in the manner they do before a fight. Captain Grey clambered up the height, but as he could not make them out, he thought Coles had made a mistake. "When I told him this," writes the Captain, "he merely said, Look there, then, sir," and pointed to the top of Mount Fairfax. There, indeed, they were, going through a series of enigmatical ceremonies. The disposition which the Captain made of his men, being observed by the natives, at first excited them to furious gestures, but by degrees, they calmed down and suddenly withdrew. "The British soldiers and sailors with me," proceeds the chief, "were surprisingly calm."¹³

The Greenough River was reached on the 8th April. Here some of the men became sullen and would not proceed. In the mean time corporal Auger went alone to search for water, and soon finding it, the party was moved to the stream. Revived in spirits by the supply, all readily resumed the march, and

¹⁰ 'Grey's Travels,' ii. p. 6.

¹² Ibid., ii. p. 31-37.

¹¹ Ibid., ii. p. 1-31.

¹³ Ibid., ii. p. 31-33.

before nightfall, had travelled seven miles further on their journey.¹⁴ But the wish for short marches and long halts which prevailed from the first, and in which Dr. Walker coincided, was now exhibited in discontent. The Captain, however, wisely persisted in following his own plan. On the 9th April the want of water was much felt; and late in the day corporals Auger and Coles and three others went in search of some. They had made about seven miles, "when the keen eye of Coles," says the Captain, "discovered a beautiful spring under a hill, which was then named the Water Peak." Why this designation? Indebted to the corporal for finding the spring, it would not surely have been irrelevant to associate the humble name of the faithful discoverer with this interesting feature of the hard journey. In returning to the party, they wandered over a rough country full of crevices, sustaining some serious falls, and, being benighted, did not reach their companions till the next morning.¹⁵

So great had the disaffection become about short marches, that the Captain resolved to adopt a course to settle the question. About seventy miles only had been marched, and six or seven pounds of flour were all that was left to each person. All were hourly losing strength and energy, and suffering from stiffened limbs. To delay under such circumstances was sure to bring with it wants and trials of the most distressing nature. The Captain, therefore, determined to proceed by forced journeys. "It was evident," he writes, "that those men who, during our late toils, had shown themselves the most capable of enduring hardships, privations, and the fatigue of long and rapid marches, were those best suited for the service destined for them." Among the five selected to accompany him were corporals Auger and Coles, whose force of character and disciplinary habits made them fit examples for imitation in so forlorn an extremity. Dr. Walker's party consisted of five men, and himself as the chief. Mr. Frederick Smith was with the slow walkers. The separation took place on the 10th April.¹⁶

¹⁴ 'Grey's Travels,' ii. p. 37.

¹⁵ *Ibid.*, ii. p. 40-44.

¹⁶ *Ibid.*, ii. p. 45-52.

The Arrowsmith River was gained by Captain Grey and his steady men on the 11th, and a further march of forty-six miles brought them on the 13th to Gairdner's Range. On the 14th, they reached the Hill River, and after a long journey, halted at a pool, where they each cooked two table-spoonsful of flour in about a pint of thick water into a mess they termed *soup*. This, with a few nuts from the zamia tree, formed their day's repast. On this scanty fare they trudged along at a smart pace, over an arid and sterile tract of country, groaning from pain and fatigue. The sun, too, was intensely hot, and all grew faint for want of water. Gaining the course of a parched-up stream, it was called the "Smith" River. Many holes like wells were in its bottom, inviting search and promising success; but all were cruelly dry, and the very stones over which the water once had gushed, were blanched or blackened with long exposure to a burning sun. Now their weary days only passed to be succeeded by sleepless and toilsome nights. Almost perishing with thirst, they wandered like wild men even in the dark hours of night, from swamp to swamp, digging holes in a vain search. For two days and two nights they had not tasted a single drop of water or food of any kind; and on the 17th, as they moved slowly on with weak and husky voices, they moistened their mouths by sucking a few drops of dew from the shrubs and reeds. So worn out were they all, that now they could only walk a few hundred yards at a time; but about two o'clock in the afternoon they were so completely exhausted, it was impossible to move them. The sun was then very oppressive, and the groans of the men were painful in the extreme. Some had fruitlessly essayed to obtain relief to their parched throats by chewing the laces and fragments of the tops of their ankle boots; but now the "last sad and revolting resource of thirst was upon them—they were driven to drink their own—!"¹⁷

Reduced to the last degree of weakness and want, Captain Grey, in this desperate crisis, resolved to proceed southward, and never to halt until he dropped or reached water; and if any of the party fell behind, not to wait for them, but to go on

¹⁷ 'Grey's Travels,' ii. p. 54-72.

until he slaked his own thirst, and then to return with assistance to them. Upon all he called to exert their utmost energies and make a last struggle for their lives. Every superfluous article was now thrown away, and the very valuable sextant, carried in turns by corporals Coles and Auger, was also abandoned. In sad procession the sufferers reeled on with wild and haggard looks; and though reason with some had begun to hold but a very slight influence, discipline was rigidly maintained, and not a complaint escaped them. At length, after suffering intense thirst for three days and two nights, performing severe marches under a scorching sun, the delighted travellers, finding a small hole of moist mud, each as he came up cast his wearied and aching limbs beside the hole, and, thanking God, greedily swallowed the liquid.¹⁸

Almost in a state of stupefaction the men lay down by the pool, watching with straining eye-balls until they again saw a little mud in it, which they eagerly licked up. Pigeons and cockatoos in numbers came to drink of the spring, but the gaunt wayfarers forestalling them had consumed the supply. Above, hovered birds in tempting flocks while the travellers by the "lone pool" were starving. Not an arm was strong enough to bring one down. The gun was partially raised, but the tremor of the effort rendered the attempt altogether hopeless. Each now turned to his own little store, and cooking a spoonful of flour, mixed with the black liquid, gratefully ate it. All sense of smell and taste had gone, and a repast of mud was as palatable as a custard. Next day, April the 18th, quitting the memorable pool, they traversed a very hilly and densely-wooded country, and finding excellent water, made, notwithstanding their extreme feebleness, an incredibly long march. At night they lay down exposed to heavy rain, and, as a piece of torn and shredded blanket between two was their only covering, their situation was one of extreme wretchedness and suffering.¹⁹ During these wanderings, Auger found intervals in which his spirits were sufficiently buoyant to encourage him to unpack his needles and thread, and to do his best—being

¹⁸ 'Grey's Travels,' ii. p. 77-81.

¹⁹ *Ibid.*, ii. p. 81-87.

only an improvised tailor—to mend the gaping rents and fretted fractures in the Captain's tattered costume.²⁰

On the 19th, the exhausted travellers were in motion again, but completely crippled from the cold of the night. "Corporal Coles," writes the Captain, "my faithful and tried companion in all my wanderings, could scarcely crawl along. The flesh was completely torn away from one of his heels; and the irritation caused by this had produced a large swelling in the groin. Nothing but his own strong fortitude, aided by the encouragement given him by myself and his comrades, could have made him move under his great agony."²¹ Twenty-one miles the party marched that day without food, and only gave up when the darkness closed in upon them. A night of appalling misery succeeded, for the teeming rain drenched them as they lay; and the following morning, wasted and weak, with rigid limbs and shivering bodies, they could only, by extraordinary efforts, push themselves along. Life was scarcely worth the effort it cost to move. Coles was in a dreadful state, staggering on like a drunken man reduced to the last extremity of human endurance. It required fortunately but a few more desperate struggles to succeed; all therefore buoyed up their spirits, for, in their deep despair, a flickering hope still remained; and on the 21st April the five exemplary adventurers under their captain, entered Perth miserable objects of emaciation and prostration.²² Here ended their toils, discouragements, and privations; and here they were tended with the best medical skill that the settlement could command.²³

Worn as he was, Auger started again the next day with a party under Lieutenant Mortimer to search for the lagging travellers left with Dr. Walker, and was out a fortnight. Driven

²⁰ Lady Thomas, the mother of the chief, heard of these thoughtful attentions exercised under such trying circumstances, and on the traveller being introduced to her, she acknowledged his kindness with no little emotion, and marked her grateful appreciation of it by a suitable gift.

²¹ 'Grey's Travels,' ii. p. 87.

²² *Ibid.*, ii. p. 88-97.

²³ Both received 1s. a-day each working pay, and for their good and enterprising conduct a gratuity of 10% from the Secretary of State for the Colonies.

by want of provisions the mission returned to Perth on the 6th May, bringing with it one of the missing men. In the following morning the corporal was again afoot with a second party under Mr. Roe, the surveyor-general of the province. Big-boned, broad and unbending, though ailing, attenuated and of melancholy aspect, he marched for eleven more days, re-entering the settlement on the 21st May with Mr. Spofforth, the companion traveller of Mr. Roe. The search was successful; four of the adventurers were taken into Perth, and the starved remains of the last were buried in a sand-hill. After sleeping upwards of 400 nights in the open air and suffering hardships of extreme severity, it seems strange that Auger, footsore and tired, should not have been allowed a horse, as some of the party were, upon which to travel in these concluding services; and it is even more surprising that Captain Grey, in furnishing the details of these secondary expeditions, should have suppressed all allusion to the presence of the corporal, who deserved, for his spirit and endurance, most honourable mention.

Months passed away before the two corporals regained their health, when, in February, 1840, they proceeded to South Australia. Corporal Coles joined the detachment of the corps at Port Adelaide; and corporal Auger landed at Woolwich in November, and was soon afterwards discharged by purchase.* He remained in the corps till June, 1843, when he was pensioned on 1s. a-day, in consequence of the loss of the fingers of his right hand and the forefinger of his left, occasioned by

* Broken down by the service Auger felt it necessary to seek repose in civil life. When sufficiently restored he was engaged to hold a responsible situation in the Pinliss wheel factory, by Octavius Smith, Esq., of Thames Bank, the father of poor Mr. Frederick Smith, who was one of the expedition. This young gentleman offered a noble example of courage, patience, and resignation, but his delicate and shattered constitution not giving him strength to keep up in the forced marches of his chief, he was left, in the painful separation on the 10th April, with the slow marchers under Dr. Walker, and perished in the bush from want and exhaustion, at the tender age of nineteen.

Captain, now Sir George Grey, on visiting England in 1854, most kindly sought for Auger. Naturally the meeting awakened reminiscences of the New Holland struggles; and the chief, at parting, presented his corporal with an elegant silver teapot and stand, bearing this simple but expressive inscription:—"Sir George Grey to his old follower, Richard Auger, August, 1854."

the accidental explosion of a carronade, which he was firing in honour of the birth of the Duke of Cornwall. Captain Grey was then Governor of South Australia, and he at once nominated his faithful companion and servant to a lucrative government appointment in the colony, presenting him also, at great cost, with a set of fingers fitted to his hand, which were so beautiful in their mechanism and accurate in their working, that he could pick up a button or a sixpence with pleasing facility.

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1839.

Services of the detachment in Spain—Last party of the artillery on the survey—Survey of South Australia—Inspection at Limerick by Sir William Macbean—Triangulation of north of Scotland—Also of the Clyde—Pontoons by sergeant Hopkins—Augmentation of the corps—Also of the survey companies—Supernumerary rank annulled—Tithe surveys; quality of work executed on them by discharged sappers; efficient surveys of sergeant Doull—Increase of survey pay—Staff appointments on the survey—Responsibility of quartermaster-sergeant M'Kay—Colonel Colby's classes—Based upon particular attainments—Disputed territory in the State of Maine—Movements and services of the party employed in its survey; intrepidity of corporal M'Queen—Experiments with the diving-bell—Also with the voltaic battery—Improvement in the priming-wires by Captain Sandham; sergeant-major Jones's waterproof composition and imitation fuses—Demolition and removal of the wreck of the 'Royal George'—Organization of detachment employed in the operation—Emulation of parties—Success of the divers; labours of the sappers—Diving bell abandoned—Accident to private Brabant—Fearlessness of Corporal Harris in unloading the gunpowder from the cylinders—Hazardous duty in soldering the loading-hole of the cylinder—First sapper helmet divers—Conduct and exertions of the detachment.

THE detachment in Spain was not called upon during the year to take part in any active operation. Its services were, therefore, confined to the works. At Passages the men performed several duties connected with the squadron; and in addition to fitting up Her Majesty's ship 'Nightingale' for stores, made various essential alterations and fitments in Lord John Hay's vessel, the 'North Star.' Sections of the detachment were for months at Aquirre completing the construction of a redoubt and magazine, and repairing the fortified house there, and building a barrack and magazine at Cachola Fort on the Hernani road. Others were also occupied for a period in fitting up the hospital at San Sebastian, repairing the barracks

of the royal artillery and royal marines, and attending to the security of the different forts in front of the fortress.

A detachment of the artillery had, ever since the commencement of the national survey, been employed on that duty, whose numbers, by degrees, were reduced to five non-commissioned officers and privates. This year saw the last of that regiment on the survey, for the men alluded to were transferred to the corps on the 1st April.

On the 20th September, one sergeant, two corporals, and twelve privates landed at Port Adelaide, South Australia, from the 'Recovery' emigrant ship. The royal authority for the organization of this party to carry out the surveys of the colony, under the direction of Captain E. C. Frome, royal engineers, was dated 2nd July, 1839. Lord Normanby, the Secretary of State for the Colonies, at the instance of the South Australian Commissioners, recommended the measure. By this addition, the corps was increased from 1,048 to 1,063 of all ranks. The party was composed of men chiefly from the survey, married, with families, and well adapted for the service of the settlement. Soon the men were dispersed over a wide extent of the province, surveying a wild unoccupied territory, and also in setting off and surveying blocks of land for the emigrants. The duty was not without its trials; and for months the surveyors obtained no better shelter than the bush, the shade of some bold cliff, or the cover of a frail canvas tent. In 1844, when it became indispensable to effect some changes in the surveying department and in the mode of its action, in consequence of the increased population of the colony and its great inland distribution, his Excellency Captain G. Grey expressed before the Legislative Council his sense of the accuracy and ability with which the detachment had conducted the surveys, and added, that no greater efficiency could be desired in effecting the trigonometrical survey than that displayed in their labours.¹ Some of the party were constantly at Port Adelaide engaged in the contingent duties of the station, such as working at their trades, drawing, &c., and in superintendence. At first

¹ 'South Australian Register,' August 24, 1844.

all expenses were borne by the Commissioners, but eventually they were defrayed from the colonial revenue. The working pay of the party continues to range between 1*s.* and 5*s.* a-day each, exclusive of regimental allowances and rations. The sergeant in charge receives the highest rate, and the privates seldom less than 2*s.* a-day each.

On the 23rd May, the sixteenth company under the command of Captain Stotherd, R.E., was inspected at Limerick by Major-General Sir William Macbean, and commended by the General for their soldier-like conduct and appearance.²

One corporal and twenty privates were detached in May under Lieutenant Robinson, R.E., to the north of Scotland, and continued on the trigonometrical survey of that portion of the country until late in December, when they rejoined their companies.

Captain A. Henderson, having with him one corporal and six privates, was employed in the secondary triangulation of the Clyde from May to the 10th October.

At the summer examination of the gentleman cadets at Sandhurst, there was "exhibited a pontoon raft of very ingenious construction, made by the sappers employed at the college under the direction of sergeant John Hopkins." The raft was supported on two wicker boats formed after the fashion of the old Welsh coracle, covered with waterproof canvas, "each being ten feet long by three feet wide, and two feet three inches deep. The buoyancy and firmness of the raft were such as to show, that by giving a small additional length to the coracles, it might be rendered capable of bearing field artillery, and it was so light as to be swiftly impelled by a pair of oars. The experiment was extremely satisfactory, and proved that a very valuable resource in the field might be found in such constructions for passing rivers."³ On several occasions during the term the detachment were out day and night extinguishing fires—the work of incendiaries—in the plantations near the college, and their effectual exertions prevented the destruction

² 'Limerick Chronicle,' 25th May, 1839.

³ 'United Service Journal,' ii. 1839, p. 420.

of much of the crown property. Sergeant Hopkins was highly praised for his activity and intelligence in the practical work of instruction, and corporal Robert Hearnden for his skill in the construction of revetments.

By the authority of a royal warrant dated 3rd July, 1838, a company of eighty-nine strong, numbered the tenth, was added to the corps on the 1st July, 1839, which increased the establishment from 1,063 to 1,152 of all ranks. The formation of this company was occasioned by the removal in the previous year of a company from home duty to the Canadas.

In 1838 the Government threw the tithe surveys in England into the hands of contractors, whereby the parishes were burdened with an expense of 9*l.* an acre, while the survey executed by the Ordnance cost but little more than half the sum. The higher price thus paid to the contractors, enabled them to attract to their employment civil assistants trained by the Ordnance, to do their work. Many resignations of superior surveyors and draughtsmen were therefore the result, and so great a loss from a single class, necessarily deferred the completion of a large portion of surveyed work. To provide against injury from any similar contingency, a warrant dated 2nd July, 1839, authorized an augmentation of two sergeants, two corporals, two second corporals, and ten privates to each survey company, which, for the three companies devoted to that service, gave an increase of forty-eight men, making the total sapper establishment on the survey amount to—

Col-Sergts.	Sergts.	Corporals.	2nd Corps.	Bug.	Privates.	Total.
3	15	18	18	6	255	315

By this augmentation, the corps was raised from a total of 1,152 to 1,200.

At this period, the survey companies were generally employed on confidential duties and dispersed over a vast extent of country; while most of the non-commissioned officers and many of the privates were in charge of parties, performing duties which required the exercise of great judgment and discretion. The additional permanent rank was granted to invest the non-commissioned officers with more weight and authority among

their parties, and to supersede recourse to the anomalous expedient of supernumerary promotion.

The same reason which diminished the civil strength of the national survey, induced a disposition among the best soldiers of the corps on that duty to purchase their discharge. Several quitted during the tithe survey mania,⁴ and the vacancies in the three companies by this and other means, showed that encouragement was wanted to influence them to continue in the service. To afford this, Colonel Colby obtained the power on the 16th August, 1839, to award working pay to the royal sappers and miners under his command, to the maximum of 3s. a-day, according to individual merit and exertion, in addition to their regimental pay and allowances.

This, however, was not regarded by Colonel Colby as sufficient to meet the emergency. It was hopeless for him to compete in pecuniary payments with the expensive parochial surveys of England, and he therefore asked for two military rewards in addition to the augmented working pay. These were the permanent rank and pay of one sergeant-major and one quartermaster-sergeant. But the Master-General did not view the matter in the same light as the Colonel, and only consented to the appointment of an acting sergeant-major with the pay of the rank. This Colonel Colby did not consider an adequate distinction, and he never availed himself of it.⁵

⁴ Several of those who quitted obtained ready employment on these surveys, and their maps in all cases were of the first class. Mr. Chadwick, in his report to the Poor-Law Commissioners, compared the "non-efficiency of persons appointed to make surveys under the Tithe Commutation and Parochial Assessment Acts, with those executed by privates and non-commissioned officers of the sappers and miners. Out of 1,700 first-class maps, not more than one-half displayed qualifications for the execution of public surveys without superintendence. Amongst the most satisfactory surveys were those executed by a retired sergeant of the corps"—Alexander Doull.—'British Almanac and Companion,' 1843, p. 38.

⁵ In December, 1834, James M'Kay was appointed acting quartermaster-sergeant with the pay of the rank. Entrusted with the care and issue of the engravings of the survey, more than 180,000 passed through his hands, amounting in value to 35,500*l.*, the accounts for which, rendered half-yearly to the Irish Government, were never found to contain a single error. So extensive a responsibility rarely falls to a non-commissioned officer. Upwards of forty years he served in the corps, and, for his merits, received a gratuity and

In July, 1839, before the increased working pay was granted, the following was the distribution of the companies on the survey according to classes.

	<i>s. d.</i>	No.		
Receiving less than . . .	1 0 a-day . . .	19		
" . . .	1 0 " . . .	25		
Colonel Colby's Classes.	{ 1st . . .	1 1 " . . .	15	
		1 2 " . . .	12	
		1 3 " . . .	17	
		1 4 " . . .	17	
		1 5 " . . .	24	
	{ 6th . . .	1 6 " . . .	26	
		A . . . {	1 7 " . . .	20
			1 8 " . . .	17
			1 9 " . . .	5
		{ B . . . {	1 10 " . . .	3
1 11 " . . .	1			
	2 0 " . . .	5		
		206 ^a		

The qualifications demanded of surveyors to render them deserving of advancement were as follows:—

Class 1st.—To be capable of surveying for content—flat country.

Class 2nd.—Surveying for content—hilly country, including the use of the theodolite, taking the horizontal and vertical angles, as well as reducing the lines to the horizontal planes of the liuks on the arch.

Class 3rd.—Competent to register angles and distances, and to make a content plot.

Class 4th.—Able to compute areas, and horizontal and vertical distances and triangles.

Class 5th.—Able to lay out town lands or parishes for content with skill, so as to prevent confusion or unnecessary labour in the subsequent measurements.

medal. He was discharged in July, 1844, with a pension of 2*s.* 4*d.* a-day, and afterwards obtained a quiet unpretending situation at Birmingham, where his business habits made him of essential service in the promotion of a scheme for a loan society on liberal principles.

^a The above detail does not exhibit a true exposition of the acquirements and usefulness of the survey companies, as many of those not advanced to the classes, had been reduced from the higher to the lower rates for irregularity; and others, on the higher rates, were not advanced as soon as their qualifications merited, it being a principle with the Colonel, not to exhaust the limited power he possessed of awarding working pay, because he wisely considered nothing was more discouraging to human exertions than the knowledge, that those whose duty it was to reward, had no further power to grant them encouragement.

Class 6th.—Fully acquainted with every branch of content surveying, and capable of directing parties of content surveyors.

Class A.—Competent to survey and plot roads, &c.

Class B.—Competent to draw plans.

In all the classes, every man was expected to do his work accurately; and if, in addition, he showed rap'idity with correctness and neatness, special encouragement was given to such sappers by the grant of a proportional allowance.

Second-corporal Robert Hearnden and two lance-corporals were attached on the 9th July to Colonel Mudge, R.E., and Mr. Featherstonhaugh, to assist in the topographical survey of the disputed territory in the state of Maine, with a view to the settlement of the boundary question. The sappers were dressed in plain clothes, suitable to the climate; and after a brief stay at New York, and subsequently at Boston, entered Fredericton on the 19th August. Sixty-two canoes were hired for the service of the commission, and about 100 men, chiefly Indians, to man them. Lance-corporal William McGregor was left at the observatory at the Grand Falls, St. John's; and on every day, at intervals of two hours, registered the indications of the five different barometers placed in his charge. Corporal Hearnden and lance-corporal John McQueen were employed with the Commissioners; and, in tracing the sources of the rivers and finding the heights of land, aided in registering the results of the instruments used to determine their altitudes. This employment necessarily kept them much afloat; they moved daily to reconnoitre; and in doing so, the stores and equipage, for which they were responsible, were invariably sent onwards under their charge. At night they slept in tents by the shores of the streams where their day's labour ended, and in winter were much exposed to great inclemency of weather and sometimes personal danger. Once corporal McQueen, under circumstances of peculiar peril, saved from drowning a servant of one of the commissioners, and held him with his powerful arm, by the collar, at the side of the canoe for about an hour, until he reached land. The canoe at the time was crossing the first lake on the Allagash, about three miles broad, and was freighted with baggage. Had he taken the sufferer into the canoe it

would have foundered, as it was then sunk in the water to the gunwale. Corporal McQueen also met with personal misfortune in the loss by fire of his necessaries. Late in November the party reached Fredericton, and arrived at Woolwich on the 24th January, 1840. Each received 1s. a-day working pay, and as a reward for having performed their duties in a satisfactory manner, a gratuity of 10*l*.

Previously to undertaking the destruction of the wreck of the 'Royal George,' at Spithead, Colonel Pasley made various experiments with the diving-bell. The common form was rectangular, and proved under certain circumstances very dangerous. The diving-bell in Chatham dockyard was fitted up by carpenters of the corps, and when completed, resembled in its horizontal section, that of a boat twelve and a half feet long, and four and a half broad.⁷ On the 14th May the altered bell was tried from the 'Anson,' 72, in the Medway, near Gillingham. Captain M. Williams, R.E., was the executive officer: he had with him a party of the corps and some riggers, &c., to work the bell. Sergeant-major Jones was the first man of the sappers to enter it, and on that day the experiments fully proved its efficacy for hazardous service. Colonel Pasley thereupon determined to use it at Spithead.⁸

In the experiments which from time to time were made with the voltaic battery, serjeant-major Jones was always appointed to assist. Colonel Pasley had a high opinion of his experience, and of the quickness with which he saw a difficulty and proposed a remedy. The operation of passing the priming wires through water into the bursting charges of powder, was brought to perfection by Captain Sandham, of the royal engineers. Hitherto tape had been wrapped all round the priming wires, and paid over the outside with waterproof composition, leaving the inside of the tapes, and the wires embraced by them, quite clean, "which formed two circular open joints, and therefore was rather a curious sort of connexion." But the improved arrangement consisted in adopting the "expedient of smearing over or saturating with serjeant-major Jones' waterproof composition,

⁷ 'United Service Journal,' i. 1840, p. 74.

⁸ *Ibid.*, 1840, p. 74.

the wires themselves, as well as every other part of the other materials used in this junction, whether tape, thread, hemp, twine, wooden plugs, and caps to prevent contact with the leaden pipe in which the priming apparatus was inclosed, or canvas tops applied over the wooden cap which served to cement it to the outside of the cylinder containing the great charge." In the judicious use of that valuable composition, very extraordinary proofs of its excellence afterwards came to light in the operations at Spithead.⁹

The 'Royal George,' a first-rate man-of-war of 100 guns, was overset at Spithead June 28th, 1782,¹⁰ and for nearly sixty years, that leviathan wreck had been lying in the roadstead, a danger to shipping. Several enterprising individuals had attempted or proposed to raise or remove it, but with unavailing results. At length Colonel Pasley undertook the task, and in a few summers, by means of gunpowder, effected its entire demolition and removal. Many guns had been previously recovered, but the number still at the bottom was estimated in value at more than 5,000*l*.

Under the auspices of the Admiralty, Colonel Pasley repaired to Portsmouth from Chatham with the necessary stores and a detachment of the corps, consisting of sergeant-major Jenkin Jones, one bugler, a clerk, and thirteen rank and file under the command of Captain M. Williams, of the corps, who was afterwards relieved by Lieutenant J. F. A. Symonds, royal engineers. The rank and file comprised a collar-maker and a cooper, with a proportion of carpenters, blacksmiths, and tinmen. After being removed from the 'Queen,' navy lighter on the

⁹ 'United Service Journal,' i. 1840, p. 76. "The sergeant-major's composition was simply pitch softened by bees'-wax and tallow. He had tried a great number of experiments for ascertaining the best sort of waterproof composition for bags of gunpowder in 1832, when Bickford's fuses were first used by the corps at Chatham. He also at the same period discovered the means for imitating *Bickford's fuses* in an efficient manner. His *imitation fuses*, however, were not precisely the same, as Bickford's fuses were evidently made by machinery."—'United Service Journal,' ii. 1839, p. 192-193.

¹⁰ By this catastrophe, Admiral Kenpenfeldt and a crew of many hundreds of seamen, with nearly 100 women and 200 Jews, then on board, perished.—'Haydn's Dates.'

20th August, to the 'Success,' frigate hulk, then anchored near the wreck, operations commenced on the 21st, and were continued with diligence till the 4th November. They were then suspended till the return of the summer. During the service, the sappers, and the seamen, marines, &c., were divided into two squads, and attached to two lumps moored about 100 fathoms apart, with the wreck between them. From these lumps the work was usually carried on. Each lump had its own diver. Lieutenant Symonds directed the operations of one, and sergeant-major Jones the other. "Thus a friendly emulation took place between the whole of the men employed," each party working for the success of its own diver, "and the divers themselves being no less anxious to surpass each other."¹¹

Two of the great explosions failed, but two succeeded, besides a vast number of smaller ones, which shook the wreck and opened its sides and cleared its decks. The labour consequent on the success of the divers was immense, and the recovery of articles and guns gave promise of realizing more than sufficient to cover the outlay in carrying on the work. The more particular duties of the sappers did not prevent them taking a full share of the labour at the capstan and the ropes. When not employed in the general duties of the operation, they were confined to the performance of special ones; such as preparing the various explosions, managing the voltaic battery and apparatus, and repairing the latter when needed. "They also repaired the diving-dresses, and did all the coopers', blacksmiths', and carpenters' work necessary, including the fitting up and occasional repairs to launches used for receiving the materials." In all these duties they were found particularly useful.¹²

When Mr. Dewar, the only bell-diver, was discharged, it became necessary to train volunteers to succeed him. Two men of the detachment readily offered to try the service. These were corporal David Harris and private William Reid. On the 27th August, with Colonel Pasley and Lieutenant Symonds, they entered the bell, and twice were lowered, the second time with the intention of going down on the wreck; but before they

¹¹ 'United Service Journal,' i. 1840, p. 164.

¹² *Ibid.*, i. 1840, p. 338.

had descended low enough, a pleasure yacht having run foul of the lump from which the bell was being lowered, it was in consequence hauled up, as every man was wanted to assist in saving the yacht.

The diving-bell was employed a second time on the 4th September, with lance-corporal Harris and private John Skelton, as the sub-marine operators. When the vessel had descended about eight fathoms, the message-board and caution-line got entangled, and the divers were consequently hauled to the surface. A mishap of this kind would have discouraged some beginners, but spirited and willing, they only cared to succeed, and down again they went, reaching the bottom in little more than fourteen fathoms. As, however, no less than two and a-half feet of water had entered the bell, it was rendered inefficient for any useful result. Owing to 50 men, hardy seamen and marines from the 'Pique' frigate, working the capstan and machinery, the descent was accomplished in ten and a-half minutes, and the re-ascent in eight and a-half; but when only 30 men were employed on the former occasion, the ascent went through the insufferably tedious period of 27 minutes. After these trials, the diving-bell, which from its unwieldy weight required no less than forty-nine men to be employed in various ways to raise it, was discarded and sent into Portsmouth dock-yard.¹³

On the 5th September a large wrought iron cylinder filled with powder to be fired against the wreck, was found to have a small leak in it. "This would have been of no importance, as only a few pounds of powder were thereby spoiled; but when the whole of the powder was ordered to be emptied out that the hole might be repaired, unfortunately, the operation was carelessly executed," inasmuch as water which should have been poured into the cylinder was not done. When, therefore, private Charles Brabant was afterwards employed in soldering a piece of tin over the hole, the powder still remaining in the cylinder blew up, and a fragment from it broke one of his thighs, and then indented itself in the deck. "This accident

¹³ 'United Service Journal,' i. 1840, p. 153.

was much regretted by every one, especially as the young soldier thus injured bore an excellent character, and was one of the most useful men employed, his services as a tinman being in constant requisition."¹⁴

The method adopted for unloading the powder from the cylinders when any was found to be damaged, and for preserving the good powder, was as curious as it was dangerous. "Having removed part of the outer casing of lead, corporal David Harris cut a hole through the side of the wood-work, by which, after emptying a part of its contents, he got *into* the cylinder, and continually kept filling a copper shovel with powder, which he handed out from time to time when full. At those periods only could any portion of him be seen. When rising up in his hole he displayed a face as black as a chimney-sweep's." To knock off the powder which had become caked either by wet or compression, he was provided with a wooden wedge and a copper hammer. Every precaution was taken to prevent accident, such as putting out the fires, laying hides on the deck and wetting them occasionally, as well as working in slippers. The duty was very unpleasant, and required in the operation more than ordinary courage.¹⁵

Soldering the loading-hole of the cylinder was also a dangerous service. "The neck and loading-hole were of brass, in the form of an hour-glass, soldered to the iron-work. As the hole was to have a disc of metal soldered over it after the cylinder was filled with powder, with a plug and some inches of clay between the powder and the disc, Mr. Taplin, a foreman in Portsmouth dockyard, was requested to send one of his artificers to do it who was accustomed to that sort of soldering; but the man sent to do it was horror-struck at the idea of the thing, and declared he would not attempt it for a thousand pounds!" The hole was eventually soldered by private Skelton, though unused to the work.¹⁶

¹⁴ 'United Service Journal,' i. 1840, p. 156. Brabant was discharged in April, 1841, on a pension of 6*d.* a-day. He was quite lame, but shortly after obtained the situation of turnkey to Maidstone gaol.

¹⁵ 'United Service Journal,' i. 1840, p. 320.

¹⁶ *Ibid.*, p. 323, 324.

The first helmet divers were corporal Harris and private William Reid,¹⁷ who volunteered to act if required. They went down for trial in fifteen fathoms water near the 'Success' frigate one day when the regular divers were not required at the wreck. On another occasion when Hiram London had injured his hand, "corporal Harris went down four times to the wreck in one slack, and succeeded in slinging four pieces of timber, all of which were brought up."¹⁸

Sergeant-major Jones, it is recorded, assisted Lieutenant Symonds with great efficiency, "and being very nearly as skilful in the management of boats and application of the mechanical powers as in the use of gunpowder," his services were very important. Private William Read¹⁹ prepared the voltaic battery for use, assisted by one or two others of the detachment, and his skill and steadiness, at all times apparent, were more decided in moments of difficulty. "Private John Skelton, a blacksmith, not only did everything essential in his own trade, but worked as a tinman in soldering up the loaded cylinders, and contrived to put the air-pipes in good order when the attempt seemed hopeless. Being also one of the most active men in boats or at the capstan, when not employed as an artificer, he and private William Read were appointed lance-corporals on the conclusion of the service."²⁰ The detachment returned to the corps at Woolwich in the 'Medea' steamer on the 6th November, 1839. The working pay of the sergeant-major was 2s. a-day, and the rank and file 1s. a-day each.

¹⁷ A man of varied acquirements, a good surveyor, and an expert draughtsman and clerk, and assisted in executing the wood engravings in Colonel Pasley's 'Practical Operations of a Siege,' for which his name is recorded at page 76 of the first edition of that work. Disposed to habits of irregularity, he never received promotion, and was pensioned at 1s. a-day in January, 1850.

¹⁸ 'United Service Journal,' i. 1840, p. 333.

¹⁹ Now sergeant-major at the royal engineer establishment, Chatham.

²⁰ 'United Service Journal,' 1840, p. 337. A minute and faithful record of the operations will be found in the 'United Service Journal,' i. 1840, pp. 72-83, 149-164, 319-338.

1840.

Return of the detachment from Spain—Its conduct during the war—Survey of the northern counties of England—Notice of sergeant Cottingham—Secondary triangulation of the north of Scotland—Increase to survey allowances—Augmentation to the survey companies—Renewal of survey of the disputed boundary in the state of Maine—Corporal Hearnden at Sandhurst—Wreck of the 'Royal George;' duties of the sappers in its removal—Exertions of sergeant-major Jones—The divers—An accident—Usefulness of the detachment engaged in the work—Boat adventure at Spithead—Andrew Anderson—Thomas P. Cook—Transfer of detachment from the Mauritius to the Cape—Survey of La Caille's arc of meridian there—Detachment to Syria—Its active services, including capture of Acre—Reinforcement to Syria.

THE services of the sappers in Spain were of a nature similar to those in which they were engaged during the greater part of the previous year; and the diligence and ability shown in their execution drew repeated expressions of admiration from Lord John Hay. "They could turn their hands," it is recorded, "to anything and everything." Under orders from the Admiralty, the detachment, nineteen strong, was withdrawn from Spain and arrived at Woolwich in the 'Alban' steamer, 22nd August, 1840. Its original strength increased by subsequent reinforcements, reached thirty-six of all ranks: the difference was occasioned by the removal of invalids, five deaths, and one killed by falling over a precipice.

Lord John Hay, in a letter to Lieutenant Vickers, R.E., parted with the detachment in the following eulogistic terms:—

"The Lords Commissioners of the Admiralty having ordered me to embark the detachment of royal sappers and miners under your command for a passage to England, have directed me at the same time to convey to yourself, the officers, non-commissioned officers, and privates of the detachment, their

lordships' marked approbation of the zeal, gallantry, and good conduct which have been displayed by them on all occasions during the long course of service in which they have been employed on this coast.

"In communicating this expression of their lordships' satisfaction, I avail myself of the opportunity of again recording my thanks to yourself, the officers, non-commissioned officers, and privates of the detachment, for the zeal and gallantry with which my orders have at all times been carried into effect, and particularly for the ability displayed in the erection of the various works of defence entrusted to you."

At the commencement of the principal triangulation of Great Britain, it was carried forward more with a view to the solution of the astronomical problem connected with the size and figure of the earth than as a basis for an accurate topographical survey. In pursuance of this object, a series of triangles had been carried northward from the Isle of Wight, and continued to the north coast of Yorkshire in 1806; but a portion of the east of Yorkshire was still left without any fixed points or stations. The series went along the eastern edge of the Cleveland vale; but at that time the mountainous country on the west of Cleveland, and in Derbyshire, Westmoreland, Cumberland, Durham, and Northumberland, was inaccessible for trigonometrical stations from the want of roads, or other local approaches. These having been subsequently constructed, a detachment of the corps was sent in May, 1840, under Lieutenant Pison, R.E., into the northern counties, to visit some stations in order to fix the points to expedite the topographical survey. The party encamped on the Great Whernside mountain near Kettlewell, and from this time a force of the corps has ever since been employed in the English surveys, gradually swelling the numbers of the latter, as the progress of the work in Ireland permitted their removal.¹

¹ Ambrose Cottingham was the first sergeant detached from Ireland for the survey of England, and he assisted in superintending a large force of field surveyors. It is recorded that "he performed this arduous and important duty in a manner highly advantageous to the service, and caused considerable

For the secondary triangulation of the north of Scotland, sixteen rank and file were provided in May, and by the fall of the year they had increased to thirty-one men. From this period Scotland has always had a few sections of sappers employed in its national surveys; but of late, the numbers have swelled to some magnitude.

Similar advantages as to working pay granted to the sappers in Ireland were extended to the detachments occupied in the surveys of Great Britain, to give due encouragement to their exertions. Four shillings a-day were also granted to non-commissioned officers superintending large forces of field surveyors, to cover the extra expenses incurred, and compensate for the labour and fatigue endured in the performance of this duty.

On the 19th June, 1840, by order of Sir Hussey Vivian, the Master-General, the survey companies were increased by one serjeant, one corporal, and one second corporal, but to make up for this addition, the privates were reduced three men per company. The establishment for each of the three companies was therefore fixed as follows:—

Col.-Sergts.	Sergts.	Corporals.	2nd Corps.	Buglers.	Privates.	Total.
1	6	7	7	2	82	105

This measure was recommended by Colonel Colby because, as he expressed it, “the general conduct of the non-commissioned officers was so excellent that a selection for promotion could seldom be given as a reward for a special service without showing a preference for some class of duty to the exclusion of others equally onerous and well performed;” and even with this increase, a non-commissioned officer higher than the rank of lance-corporal, could not be spared to assist in the charge of the detachment on the Great Whernside Mountain.

Second-corporal John McQueen was sent in the summer with Captain Broughton, R.E., and Mr. Featherstonhaugh to

saving of expense in that branch of the work.” Beyond, however, his zeal, industry, and the capability of keeping large bodies of men in full activity, he possessed no available acquirements. In April, 1844, he quitted the service on a pension of 1s. 8*l* a-day, and having amassed some property by his frugality, retired to Mayfield in Sussex.

the disputed territory in North America, to aid in its reconnaissance and survey. He was dressed in plain clothes and wore in his girdle a brace of pistols. Operations commenced on the 1st August at the Grand Falls, and ceased for the winter on the 5th October, at which date the commissioners reached Quebec. Throughout this period corporal McQueen was in the bush. His duty, apart from the general services of the survey, comprised the registration of the barometers and thermometers every hour, often at intervals of half an hour, taking the bearings of the several streams, superintending the movements of the camp equipage and stores, and issuing the provisions.

The service was not accomplished without hardship and occasional privation. The marching, too, was toilsome, and it was the lot of the corporal sometimes to struggle through swamps and ford streams where the exertion of swimming was necessary for his safety. The snow at times was deep; the cold in the morning great; but generally at mid-day the heat from the density of the woods was almost insupportable. The sandflies which infested the bush were a distressing nuisance; and the expedition, to protect themselves from swollen faces and blindness, resorted to the expedient of covering the face with a gauze veil, or of tying round their hats a piece of burning cedar, by the hostile fumes of which the stinging swarm was kept at bay. On the party reaching Quebec, corporal McQueen was quartered in the artillery barracks, and worked during the winter in the engineer department, preparing for the next summer expedition such utensils and conveniences as the experience of the past had proved to be desirable.

Both terms at Sandhurst the detachment employed with the gentlemen cadets, was in charge of corporal Robert Hearnden, and being an active and intelligent non-commissioned officer, he acquitted himself extremely well. "With his own hands he completed," says the official report, "the masonry of a small splinter-proof magazine, including a roof ingeniously constructed of tiles so arranged as to break joint, and imbedded in cement, which gives to the whole work the appearance and

strength of a stone roof." Both parties laboured with readiness and industry, and maintained their usual exemplary character. Corporal Joseph T. Meyers had been several times at Sandhurst, and was found so assiduous and deserving a non-commissioned officer, that the governor of the College rewarded him by giving him the appointment of staff-sergeant at that institution.²

Early in May, one bugler and twenty-two rank and file, with serjeant-major Jones, returned to the wreck of the 'Royal George' at Spithcad, and under the executive charge of Lieutenant Symonds, R.E., resumed the operations which were suspended in the winter of the previous year. Colonel Pasley had the direction of the service. The duties of the sappers were similar in all respects to those mentioned on the former occasion, and the composition of the party rendered it fully equal to the varied and novel circumstances of so peculiar an undertaking. On the 27th October, the winter then having completely set in, the operations were again suspended, and the detachment returned to Chatham.

When Lieutenant Symonds quitted early in October, serjeant-major Jones took charge of the service, which he managed with success, and was fortunate in recovering a considerable portion of the wreck. Throughout the season his zeal, judgment, and activity gained the high commendation of Colonel Pasley.

Corporal David Harris was employed for several months as a diver. Ambitious to earn fame in the art, he rivalled by his exertions the professional civil divers. With exciting rapidity he sent aloft planks, beams, staves, iron knees, grape-shot, fragments of gun-carriages, abundance of sheet-lead, remnants of the galley, and a thousand et ceteras. It was he who ferreted into the store-room, and cleared out its heterogeneous contents, recovering by his zeal crates of brass locks, bolts, nuts, copper hoops, and axletrees. Now he would penetrate into a magazine, and remove its powder-barrels and bulls' hides; then, tearing down the decks and walls, would anon push into a car-

² On quitting the college became a clerk to the military prison at Gosport.

penyer's shop, and surprise all hands with instalments of sash-frames, window-weights, plate-glass, and engine-hose. Into the craters formed by the large explosions he would fearlessly enter, and, probed on all sides by projecting spars and splintered beams, would drag from the abysses huge timbers and unwieldy masses of the wreck, that strained from their weight the powerful shackles and gear used to raise them on board. An entire 32-pounder gun-carriage he also obtained; and only for the snapping of the slings, would have had a gun recorded to his credit. Indeed, it was on the way to the surface, when it dropped from the broken ropes and was lost for the summer. A guinea of 1768, the only one which saw the light during the season, was among the spoils which Harris had recovered. For experiment this corporal tried to dive in one of Bethell's dresses, but after two or three attempts it had so exhausted his energies, that he was compelled to abandon its use. From the 29th May till the winter set in, he dived incessantly, except when prevented by heavy gales of wind, the strength of the tide, or the occasional sickness which was inseparable from so hard a duty. Frequently he earned as much as 4s. 6d. a-day working pay.

Lance-corporal John Skelton, and privates Charles Symon, Richard Pillman Jones, Thomas Penny Cook, Joseph Ireland, and Andrew Duncan, also dived at intervals when available dresses offered them chances of engaging in the perilous service. In the journal of the operations Lieutenant Symonds writes—"I find but little difference between them and the other divers, except that the sappers work with a better will." The first two of these young divers were the most promising. The former, moreover, from his skill and ingenuity as an artificer, made himself very useful, and his diligence as a workman was felt in various ways. Most of the delicate work connected with the diving-apparatus, air-pumps, voltaic-batteries, etc., in which approved judgment and intelligence were required, was turned out of the hands of this craftsman in a manner that satisfied to the utmost those whose lives depended upon the accuracy and completeness of his labours.

Only one accident of a serious nature occurred: this was to

private Andrew Duncan, who a day or two before had slung a large beam of the orlop-deck with knee attached, which was hoisted on board with great difficulty. He had on one of Deane's dresses, which required the head and helmet to be kept upright. Losing this position he toppled over, and falling into a hole, the water rushed into his helmet and nearly drowned him. On being brought up his face was cased with mud, and he remained insensible for several minutes, bleeding from the mouth and ears. Chafing, with other simple remedies, however, soon restored him.

Corporal William Read³ had again the management of the voltaic battery, which was almost in constant use, and gave every satisfaction. The powder expended in the operations was 15,000 lbs. Innumerable were the charges fired against the wreck, none containing less than 18 lbs. of gunpowder, nor more than 260 lbs. All the privates showed the greatest energy and activity in the duties they were called on to perform. Both in boats and the work necessary for getting up the fragments of the wreck, whether at the windlass or capstan, &c., in the repair of the launches, the preparation of the charges, and the loading and unloading of the cylinders, they were found prompt, spirited, and efficient, and their example was very beneficial in exciting the emulation of the sailors. So well indeed had the detachment been constituted, that, for its numbers, it was equal to the execution of any mechanical service which the operations demanded. In their general duties privates James Hegarty and Joseph Ireland were the most conspicuous.⁴ Exertion and ship fare made the whole party strong and hardy, and a few weeks roughing it on shipboard turned them out as weather-beaten and brawny as seamen.

During this season at Spithead there was a strong gale from the eastward, and the storm-flag was hoisted at Gosport. No boats would venture out, and the 'Success' frigate, with a part of the detachment on board, was in danger of parting from her

³ Now sergeant-major of the royal engineer establishment.

⁴ 'Corps Orders,' Chatham, 29th October, 1840. 'Manuscript Journal of the Operations.'

anchors and drifting to sea. Lieutenant Symonds was on shore at the time, and thinking his presence necessary to secure her safety, determined to attempt the passage. The civil divers, accustomed to perilous boat service, said no boat could live in such a sea, and the Port-Admiral refused his permission for Lieutenant Symonds to proceed unless on his own responsibility. Unable from the raging storm to row out of the harbour, he, with four sappers, hauled the gig along shore for more than two miles, and when a good offing was gained, the lug-sail was hoisted and the boat pushed off. With the tact and sagacity of a skilful pilot, Lieutenant Symonds guided the gig, now skirting the furious wave, now skinning across its angry top, and anon lost for a time between the furious billows of a long, deep trough. To lessen the danger of the fearful venture, the men lay down in the boat for ballast, and pulling off their boots, used them, with noble exertion, in baling out the water as she shipped the sea. At length, to the utter amazement and joy of the party on board, the gig reached the frigate. Then, however, the peril was increased, for frequently like a log she was dashed against the hull of the vessel, and as frequently nearly foundered; but by the spirited exertions of the brave lieutenant and his intrepid crew, the boat was eventually secured, and all gained unhurt the deck of the 'Success.' Lieutenant Symonds then took such further precautions as were indispensable for the safety of the ship, and she successfully outdode the storm. The names of the gig's crew were privates John Hegarty, Andrew Anderson,⁵ Thomas P. Cook,⁶ and John

⁵ His career in the corps was somewhat eventful. A noble soldier, with a spirit that nothing could depress, he was often selected for unusual enterprises. He received a medal for the Kaffir war of 1846-7. Another he received, and a second-class prize of five pounds, for his services at the Great Exhibition. Was also honoured with the order of the Medjidie for his heroic conduct at the battle of Guirgovo, and wore a medal for the Crimea. After serving a period in the trenches before Sebastopol, his life was sacrificed to his excesses. One morning, to the deep regret of his officers and his comrades, he was found dead in his tent.

⁶ Was recorded for distinguished conduct in the Kaffir war of 1846. Accompanying that portion of the corps which served at Gallipoli and Bulgaria, he was, on account of his experience and soldier-like deportment, appointed

Campbell:⁷ the two latter became colour-sergeants in the corps.

On the completion of the citadel at the Mauritius, the half-company stationed there was removed on the 7th October, under the command of Lieutenant G. R. Hutchinson, R.E., in the 'Isabella Blyth' to the Cape of Good Hope, where it landed on the 27th of the same month. The chief of the work at Port Louis was executed by the sappers, in which privates William Reynolds and William Crawford⁸ displayed the most skill and obtained the most credit. Four detachments had been sent to the Mauritius, whose united strength reached fifty of all ranks: of these the casualties amounted to ten deaths and one drowned.

Sergeant John Hemming and seven rank and file embarked at Woolwich on the 9th April, 1840, and landed at the Cape of Good Hope in July. The party was detached under Captain Henderson, R.E., to assist the colonial astronomer, Mr. Maclear, in the remeasurement of La Caille's arc of the meridian. All were armed with rifles and accoutrements to protect them in a wild country, and the sergeant was selected to take charge of the detachment from his well-known steadiness and intelligence. Working pay was granted to each for his services, according to individual exertion and general usefulness, up to 3s. per day.

A few weeks were spent in the preliminary business of adjusting the instruments in Cape Town, when the party, to which some men of the 25th regiment had been added, left in September for Zwartland and Groenekloof, west of the Berg River. On this extensive plain the base was measured with the com-

sergeant-major to the expedition. Through sickness his strong built frame had become so weak and attenuated, that when the cholera seized him he was carried off in a few hours. He died on board the 'Andes,' when sailing for the Crimea.

⁷ Will be found noted on the same page with his late comrade, sergeant Cook, for the determination and intelligence he displayed in the Kaffir war of 1846.

⁸ Both were discharged from the corps by request at the Cape of Good Hope.

pensation bars invented by Colonel Colby, but as La Caille's arc could not be identified, a new line very near to it was laid out and measured about seven miles in length, which occupied from October, 1840, to April, 1841.⁹ In this service the party carried out the subordinate details. They assisted in driving the pickets and the placement of the trestles to sustain the bars. These were scientifically fixed by the colonial astronomer and Captain Henderson, aided by the sappers. Two men were also appointed to guard the last point of observation whilst the bars were being carried forward and adjusted; and another occasionally attended to the registration of the observations. Thus the work continued until the whole distance was measured. The delicate nature of the duty rendered it very irksome, and required much assiduous care in its performance. The jar of a bar simply would have been sufficient to cause the loss of a day's work. Nearly the whole time the sappers worked from four in the morning till eight or nine at night. In July, 1841, the party returned to winter quarters.

By the terms of a treaty, dated 15th July, 1840, Mehemet Ali was required to accept certain conditions within a limited time, and, if he declined, the forfeiture of the pachalic of Acre and the loss of Egypt were to follow. Having allowed the time to elapse, offensive operations commenced to compel him to evacuate Syria. England being greatly involved in the treaty, the British Cabinet at once sent a fleet under Admiral Sir Robert Stopford to the coast, with which was a small force of the ordnance corps, to assist the troops of the Sultan in this service.¹⁰

On the 7th August one sergeant and eleven rank and file embarked at Gibraltar on board the 'Pique' frigate, under Colonel Sir Charles Smith, Bart., R.E., for active duty with the fleet. A liberal assortment of intrenching and tradesmen's tools accompanied the party. On the 1st September it arrived at Beirut, and a landing was effected on the 10th. Second-

⁹ 'Prof. Papers,' New Series, i. p. 32.

¹⁰ 'Prof. Papers,' Royal Engineers, vi. p. 47.

corporal John Moore¹¹ accompanied the first detachment that landed, and was present at the advanced position above the Dog River.

On the same day the sappers landed at D'Junie from the 'Pique' frigate, and after occupying the lines were employed in repairing and improving them until the 10th October. Corporal Henry Brown and private John Greig¹² were in the meantime sent on in the 'Hydra' steamer, and were present on the 25th and 26th September at the taking of Tyre and Sidon. Soon after their return to D'Junie, the whole party embarked in the 'Stromboli' steamer, and served at the capture of Beirout on the 10th and 11th October. On the 3rd November, sergeant Black and three privates were present on board the 'Princess Charlotte' at the taking of Acre, and were the first troops that entered that famous city. In all these operations the sappers were under the orders of Lieutenant Aldrich, R.E. "Their conduct," writes that officer, "in their extensive and arduous duties, and under suffering from great sickness, has been most exemplary;" and again, in a despatch from Lord Palmerston, the approbation of Her Majesty's Government is conveyed for the share the party took in the capture of Acre, and for the zeal and ability displayed by them in restoring the defences of the place after its capture.

A second detachment of ten rank and file arrived at Beirout on the 13th December in the 'Hecate' steamer, under Lieutenant J. F. A. Symonds, R.E., from Woolwich, and was sent in the 'Vesuvius' to Acre, to reinforce the sappers, and to assist at the breaches, taking with them a supply of intrenching tools. The sapper force in Syria now consisted of one sergeant and twenty-one rank and file.

¹¹ This non-commissioned officer afterwards broke his leg at Beirout in falling from the roof of the ordnance store in endeavouring to get access to a building adjoining it which was on fire. In January, 1843, he was pensioned at 1s. 9d. a-day, and emigrated to Canada.

¹² Was a clever mechanic and a handsome soldier, but his constitution eventually gave way under the influence of the Syrian fever, and he died in October, 1847.

1841.

Syria—Landing at Caiffa; Mount Carmel—Cave of Elijah; epidemic—Colour-sergeant Black—Inspection at Beirut by the Seraskier, return of the detachment to England—Expedition to the Niger—Model ⁶—Gori—Fever sets in; return of the expedition—Services of the sappers attached to it—Corporal Edmonds and the elephant—and the Princess—Staff-sergeant's address—Staff appointments—Wreck of the 'Royal George'—Sergeant March—Sapper-divers—Curiosities—Under-water pay; means used to aid the divers—Speaking under water—Gallantry of private Skelton—Alarming accidents—Constitutional unfitness for diving—Boundary survey in the state of Maine—Augmentation to corps for Bermuda—Sandhurst; corporal Carlin's services—Quartermaster-sergeant Fraser—Intrepidity of private Entwistle—Colonel Pasley—Efficiency of the corps—Its conduct, and impolicy of reducing its establishment—Sir John Jones's opinion of the sappers—And also the Rev. G. R. Gleig's.

A PORTION of the detachment in Syria was removed from Acre to Jaffa on the 11th January. About this time, lance-corporal Hugh Smith¹ accompanied Lieutenant Aldrich to Medjel. From the 23rd February to the 12th April, three of the party from Acre assisted Lieutenants Aldrich and Symonds in the survey of Jerusalem and Sidon, halting on the route at Jericho, Nablous, and Safed. Sergeant Black was left in charge of the restorations at Acre; but owing to the plague which had been so fatal to the royal marines, he was soon after removed with the remainder of the detachment to Jaffa, in the defensive occupation of which he and his men were engaged for about six weeks. The party then returned to Beirut, and was occupied

¹ Was discharged in October, 1850, and pensioned at *rs. 9/1* a-day. Out of a service of thirteen years in the corps, he was eleven abroad, at Gibraltar, in Syria, and China. From the last station he returned in a distressing state of emaciation and weakness. There, though a sergeant, the necessities of the service required that he should labour at the anvil, and the skillfulness of his work was superior to anything that could be procured at Hong Kong.

in various contingent services; such as repairing the billets provided for the troops by the Ottoman government. Here the three men rejoined from Jerusalem and Sidon. All the party was subjected to much inconvenience from the want of those essentials in barrack furniture which formed no part of the inventory of a Turkish soldier's accommodation; and, to supply the deficiency, the carpenters of the detachment made some tables, forms, and other indispensable utensils.

On the 23rd April twelve of the sappers sailed in the 'Phoenix' for Caiffa, and in disembarking, under rain, the boat was swamped in a heavy surf. The men made the shore as best they could, but lost most of the public stores and their baggage. Before sunset they were tented on the beach, and, in a few days, the encampment was removed under Mount Carmel,² there to await the cessation of the plague, and afterwards to repair again to Acre to strengthen the defences. It was at first intended to take up a station near the convent on the mount, but that quarter was found to be in quarantine, on account of the plague being at Caiffa, only a few hundred yards off. No resource was left but to seek shelter under canvas, which, in a country subject to endemics, was very inimical to health; and that, combined with the circumstance of the party being detached without a medical officer, might have added one more calamity to the fatal incidents of the campaign. A quarantine cordon was therefore formed around the encampment, and every means adopted to prevent fever, from contiguity or local miasma, appearing in the tents.

The sappers now took their meals in the sacred cave of Elijah—a cool but ill-ventilated retreat. The water at the camp was deleterious to health; but, after the 21st June, mountain spring-water, obtained three miles away, was brought for their use. In a country subject to plague and fever, a European holds his life by a precarious tenure: the detach-

² See a representation of the encampment in the 'Professional Papers, R.E.' vi., p. 22. This was the note affixed to the first edition, but the plate referred to is on so small a scale, it would need more than the assistance of a powerful glass to discover the site of the tents.

ment felt this, but bore up well, notwithstanding the absence of a medical officer. Dr. Zorab, a Turkish practitioner, made one or two professional visits to the party, and then Mr. Robertson, Deputy Inspector-General, voluntarily joined the camp from Beirut. Three weeks afterwards, he was relieved by Assistant-Surgeon Acton, R.N., who had scarcely commenced his duties when the fever attacked the party. The two men employed outside the cordon were the first seized with the malady, and every man of the party was soon under treatment. In most of the cases the seizure was highly dangerous, and in forty-eight hours the strongest man was completely prostrate. It was not until the shelter of a building for the sufferers could be obtained that the skill of Dr. Acton was of any avail. Four of the men died, and the remainder were conveyed in the 'Stromboli,' on the 10th July, to Beirut. Two more were invalided to England, and the other six only regained convalescence after a long period of illness.

Constantly moving along the coast, embarking and disembarking the stores, made the duties of the detachment laborious; and both colour-sergeant William Black³ and second-corporal Henry Brown⁴ were promoted, in consequence of the efficient manner in which they executed those services, and for their zeal before the enemy. At one time, the engineer park in charge of the former consisted of 100,000 sand-bags with a proportional quantity of field implements and tools, and was never less than 72,000 sand-bags. He also issued commissariat stores to the whole camp.

³ Was pensioned at 2s. a-day in January, 1851. In the corps he served nearly twenty-four years, of which period he was seventeen and a-half abroad, at Corfu, the Euphrates, Gibraltar, Syria, and Halifax, Nova Scotia. His great merits obtained for him the grant of an annuity of 10*l.* a-year, and a silver medal, and an appointment as messenger to the commanding royal engineer's office, in the London district. Through Lieutenant-Colonel Aldrich, his commanding-officer in Syria, he was also appointed a yeoman of the Queen's Guard. The emoluments derived by him from these different sources, amounting to about 160*l.* a-year, with excellent quarters, are the hard and just earnings of a life full of vicissitude and devotion to the service.

⁴ Now a quartermaster-sergeant in the corps; and besides serving a second tour at Gibraltar, was present at the reduction of Bomarsund and the siege of Sebastopol. Is in receipt of an annuity of 10*l.* a-year, and wears five medals and a clasp for his active services.

At Beirout the party was occasionally employed on the works, and furnished a guard for the station, in concert with the royal artillery. On the 1st December, the Seraskier, Selim Pacha, and Colonel Rose, commanding the expedition, inspected the detachment, and expressed themselves in a flattering manner relative to their services in the country. The latter, in orders, added his assurance that he entertained the highest sense of their zeal and efficient services on all occasions; and the Sultan awarded to each a medal in commemoration of the campaign.⁵ From the inspection parade of the Seraskier, the detachment, reduced from twenty-two to fourteen men, embarked on board the 'Thunderer,' and landed at Malta on the 27th December, where they passed two months in the Forts of Manoel and St. Elmo, and landed at Woolwich from the 'Gorgon' steamer on the 23rd March, 1842.

On the 20th February, one corporal and seven privates embarked with the expedition under the command of Captain Trotter, R.N., to the Niger. Its object was to explore the source of the river, to introduce civilisation into Africa, and to prevail on the chiefs to extinguish slavery. The sappers were divided into two sections: one was added to the crew of the 'Albert' steamer, and the other to the 'Wilberforce.' They had been specially taught at Chatham the mode of blasting rock under water, with a view to removing obstructions in the navigation of the streams of the Niger yet unsurveyed. Five were men of excellent character, but three were not irreproachable in point of sobriety. The royal warrant sanctioning the formation of this special detachment is dated 7th December, 1840, and the corps was thereby increased from 1200 to 1208 of all ranks. The party was armed with rifles and bayonet-swords.

Late in June the expedition reached Freetown, and, steaming along the coast, crossed the mouth of the Niger on the 13th August. After passing the Bight of Benin, the steamers

⁵ The medals were *copper*, but washed, at the expense of the wearers, with a preparation that gave them the appearance of *gold*. In 1848, the British Government awarded them silver medals for the same campaign.

anchored off Ibu on the 26th; and the king, Obi, with the heir-apparent, Chikuna, and a vast retinue, visited the 'Albert.'

On the 2nd September the expedition was off Iddah. To the king, or Attàh of Egarrah, a visit was paid by Captain Trotter. The sappers and seamen formed the guard of honour. Corporal Edmonds commanded, and he and all the men were grotesquely habited and decorated, to suit the barbaric taste of his majesty.

Near the confluence of the rivers Niger and Tchadda were landed the wooden houses to form the model farm on Mount Stirling, purchased from the King of Egarrah for 700,000 cowries. The Kroomen and seamen were the labourers in this service, and the sappers superintended the construction of the farm and the erection of the magnificent tent used in the Eglintoun tournament. The manipulation of the houses was prepared in England, leaving nothing to do but to put the materials together. To do this effectually, some trivial details in wood and iron were made on the spot by the sappers. Private John Craig surveyed the island and accomplished his work with quickness and credit. The duties of the farm were greatly interrupted by the intolerable heat, and numbers seized by the fever were sent away in the 'Wilberforce' and the 'Soudan.' The whole of the model arrangements were at length concluded, and on the 21st September the 'Albert' got under weigh again. The sappers were then healthy.

Passing Mugah, the 'Albert' anchored off Gori on the 22nd, and Captain Trotter paid a visit to the chief. Corporal Edmonds was with the party. The chief and his officers were seated on mats in the court-yard—a space measuring about twelve feet by eight, formed by five oval-shaped huts. He was an old man, and his counsellor answered the questions put to his majesty in a reserved and evasive manner. The streets of Gori were very narrow, crooked, and puzzling, and in many places so wide enough to allow two persons to pass each other. To make way, Captain Trotter would suddenly open his umbrella, and the natives, surprised at the novelty, would scamper off alarmed.

Continuing the ascent, the 'Albert' passed Bezzani, Kinami, and Egga, and by the 5th of October, the sick had so greatly increased, that the charge of the ship fell on one of the mates. The expedition now turned for the sea, and passing the confluence on the 9th, steamed down the river in its more navigable channels, and landed at Fernando Po on the 18th. There for about six weeks, the expiring expedition was stowed away in miserable quarters, and the sad remnant re-embarking, put into Ascension, and returned to England in the autumn of 1842. All the sappers had been seized with the river fever, so called from its peculiarity. Some had severe relapses, but only two died—William Rabling at the confluence, on the shores of which he was interred, and William Moffatt, somewhere between the Niger and Ascension.

The duties performed by the detachment were in all respects the same as the marines, until the river Niger was reached, when they acted as seamen; but were never required to go aloft. Their chief services were rendered at the model farm. Corporal Edmonds was ship's corporal, and had charge of the after hold of the vessel containing the provisions of the officers. Whenever Captain Trotter, or any of the officers left the vessel for purposes of exploration, he always accompanied them as coxswain, armed with a rifle and a full pouch of powder. Others of the party were also occasionally employed in this particular manner, and all, as their health permitted, assisted by Kroomen, performed the last rites of sepulture on those fatal shores to the many dead. The special duty they were sent out to perform was not required of them, as nautical skill overcame the difficulties of the navigation without subaqueous blasting. While serving with the expedition, each sapper received double pay according to his rank, and free rations. Corporal Edmonds and private John Craig were specially noticed by Captain Trotter. "Their steady, zealous conduct, even when sickness might have excused them from duty, tended much to the good discipline of the 'Albert,' and merited," as the captain reported, "his best acknowledgments." The latter assisted with readiness, at all times, in some of the scientific observations.

Above the confluence, corporal Edmonds⁶ was out in the forest with Doctors M'William and Stanger, when suddenly turning round, he saw, approaching from behind a tree, a young elephant, which was near to him. In an instant he fired his rifle and the bullet pierced the animal in the head. Fearing an attack by other elephants for this assault, the gentlemen and the corporal hastened to the boats, but as none made their appearance, the party returned into the forest, when Edmonds, with a daring that bordered on rashness, rushed up to the enraged beast and plunged his sword into its throat. The poor animal gave a few hoarse groans and expired. As trophies of this sanguinary incident, Edmonds brought away its tusks, and Dr. M'William one of its feet.

On the 24th of February, an undress frock coat was established for the staff sergeants of the corps. It was plain, without ornament of any kind, single-breasted, of dark Oxford mixture, with regimental buttons and Prussian collar. The same undress is still worn; but the colour has been changed from dark Oxford mixture to dark blue.—See Plate XVII., 1854.

By a commission dated 24th May, Captain Henry Sandham was appointed brigade-major in the room of Major Edward Matson, promoted to be assistant adjutant-general to the royal engineers. The latter officer had for many years been attached to the corps, and never did its character stand higher than under his command. No means did he leave untried to elevate its ranks, and raise it in public estimation. He was a dis-

⁶ An anecdote may be given of this non-commissioned officer. One of the princesses of Iddah conceiving a liking for Edmonds, who was a handsome, dark-complexioned man, with a brilliant black eye, solicited the king, her father, to beg his retention there. Captain Trotter consented to let the corporal remain until the return of the expedition. Edmonds was not averse to the arrangement provided he was permitted to have with him a comrade from the 'Albert.' This, however, was not conceded, and the corporal rejoined his ship; but before doing so, the love-stricken princess contrived not to part with her paramour without easing him of his silk handkerchief!—to keep, perhaps, in remembrance of the interesting feeling he had unwittingly awakened in the royal breast. Edmonds served two stations, at Bermuda and Gibraltar, became a sergeant, and, on his discharge in 1854, was appointed foreman of works under the Inspector-General of Prisons in the convict establishment at Portland.

ciplinarian in the right sense of the word, but in enforcing his orders, he always evinced such a just measure of mild consideration, that it was difficult to discover the rigidity with which he really acted. So much had he gained the gratitude of the corps, that the non-commissioned officers at head-quarters respectfully solicited he would sit to an eminent artist for his portrait. One hundred pounds was the sum intended to be expended, if necessary, in its execution; but as the rules of the service seemed to be opposed to such a testimonial, the Major felt it to be his duty to decline the honour.

Early in May, sergeant-major Jones and twenty-four rank and file proceeded to Spithead to resume the operations against the wreck of the 'Royal George.' This was the third season of their employment under the Admiralty; and Lieut. G. R. Hutchinson, R.E., was placed in executive command of the party. The same round of duties and toils which marked their previous service at the wreck, were repeated with but little variation of detail this season. They were constantly on board ship, or employed in boats or lighters attending to the general business of the wreck, and often exposed to gales and storms, amid difficulty and peril, emulated in their coolness and exertions the weather-beaten seamen engaged for the service. All the artificers' work of every kind was executed by them. They were also entrusted with the entire management of the voltaic battery and explosions, and for a portion of the time, the whole of the helmet-diving devolved upon them. "Throughout the operations," writes Colonel Pasley, "they were of the greatest service by their zeal and exertions." The season closed on the 29th October, and the detachment returned again to Chatham.

Of individuals, Colonel Pasley makes honourable mention of the following:

Sergeant-major Jones, for his able and zealous assistance to Lieut. Hutchinson in the management of the operations and preserving the discipline of the men.

Sergeant Samuel March was very useful in special duties of importance; and his drawings and sketches of several hundred

interesting relics and detached portions of the wreck were well executed.⁷

Corporal David Harris, lance-corporals Richard P. Jones and John Rae, and privates John Skelton, John Williams, and Roderick Cameron, made their services apparent in the duty of diving; and several others, particularly privates James Anderson, James Jago, and Alexander M'Alpine, promised well. Of these second-rate divers Anderson was so far advanced that besides slinging numerous timbers, he probed his way to the dreary bottom of the ship and sent up 18 feet of the keelson. The successful exertions of the whole party attracted admiration, and an immense pile of about 18,600 cubic feet, or 372 loads of timber, got up from the wreck in the summer, was deposited in Portsmouth dockyard, chiefly through their exertions. The divers were six or seven hours a day, and sometimes more, under water, at a depth of sixty or seventy feet; and so skillfully had they learned to economize time and save labour, that all sent up their bundles of staves, casks, or timber, as closely packed together, as a woodman would make up Lis fagots in

⁷ Sergeant March was two seasons at Spithead. Many of the sketches of the wreck were executed by him with the assistance of the camera lucida, kindly lent for the purpose by the late Captain Basil Hall, R.N., from whom he received much useful instruction. Almost the whole of his service has been passed in the professional office of the director of the royal engineer establishment at Chatham, in which, either as a draughtsman or a confidential leading clerk, he has always been found, from his attainments and constitutional energy of mind and body, efficient and valuable. From time to time he has drawn the plates forming the architectural course of the study of the junior officers of the corps and the East India Company's engineers, and also the plans and other drawings and projects comprised in the military branch of the course. He is an excellent colourist, and has a good conception of light and shade. As an artist in water-colours, he possesses undoubted talent and merit. Sergeant March is moreover an intellectual man and well informed. His controversial letters in reply to the calumnious attacks on the royal engineer establishment at Chatham have been remarked for their honesty and boldness; and his series of communications in the 'United Service Gazette,' in answer to the forcible animadversions of the celebrated 'Emeritus' in the 'Times,' concerning Ordnance finance, were not only well and truthfully written, but deserve for their vigour and appositeness as prominent a place in the columns of the 'Times,' as the communications of the more favoured 'Emeritus.' This non-commissioned officer is now quartermaster-sergeant of the corps at Chatham.

the open air. In one haul, corporal Jones sent up fifty-eight such pieces lashed together, and corporal Harris ninety-one! Only one professional civil diver was employed in concert with them for about half the season; and of the five guns recovered, two brass 24-pounders, the most valuable of the whole, and an iron 32-pounder, were got up by corporal Harris. This non-commissioned officer was a most confident and resolute diver, and in Siebe's dress, repeatedly plunged into the sea, head foremost, for experiment. However safe might have been the apparatus, it required a bold spirit to make the first essay. Lance-corporal Jones, from his superior intelligence, rendered himself eminently useful. He was the first to get to the bottom of the wreck; and to prove his title to the honour, sent up 13 feet of the keel.⁸ The larboard side, which leaned over when the vessel sunk, had fallen to pieces and was buried in the mud. This was the most troublesome part of the work; and corporal Jones, by tact and perseverance, after removing the timbers on that side, got up 300 superficial feet of outside planking covered with copper, under which he found the original ground on which the larboard bilge rested. His exertions were immense, and the huge pile he recovered, was increased by several tons of iron ballast slung by him. Corporal Harris was no less successful in reaching places hitherto untouched, for he wormed his way down to the floor timbers, found the lee side of the wreck, and came in contact with another foundered ship of some magnitude, from which he tore a couple of timbers and sent them aloft. This discovery was due to an unusual mode of descent in which Harris engaged. He went down from the yawl by the sweeps and was stopped in his course by the unknown wreck. On re-ascending he became entangled in the sweeps and the buoy-line, without, however, experiencing any inconvenience beyond the extra exertion of disengaging himself from their meshes.

The curiosities obtained this season were in chief part sent up by Corporal Harris, and though intrinsically trifling, were

⁸ Three feet of the heel of it, with clamps attached, had been recovered in the previous year by George Hall the civil diver.

regarded with infinitely more relish than the huge masses which made the wharf groan with their weight. Nearly the first article recovered was a human skull—sad relic of that catastrophe which engulfed in a moment so many souls: then came a cumbersome musket with some fragments of arms that might have done honourable service against the foe. Not the least interesting was a stick of sealing-wax with its Dutch advertisement, which translated announced its qualities in these recommendatory terms—“Fine, well burning, fast holding sealing-wax.” Skelton found a dog-collar inscribed with the name of “Thomas Little. Victory. 1781.” The little favourite, no doubt, went down with its young master, who was a midshipman on board the ill-fated ‘Royal George.’ Singular that sixty years after, this simple collar should be dug from the depths, to become a mournful *souvenir* of its perished owner.

Professional divers during the season could not be obtained, unless at a cost each, sufficient to pay four or five military divers. The latter, paid by the tide, usually earned three or four times as much as the regular working pay of the corps, and their successful exertions supplied work for about 100 men, who were daily employed in removing the timbers, guns, ballast, &c. slung by them. To aid the divers in their labours, large rakes and half-anchor creepers were drawn over the shoal in which the remains of the wreck were lying, by which means much of the mud was harrowed up and cleared away. The timbers of the wreck were thus somewhat exposed, and five, and sometimes six sapper-divers were down at a tide, forcing their way through its dangerous tracks, and sending above its ponderous fragments.

In the course of the season, corporal Jones and private Skelton ascertained a curious fact before unknown in the annals of diving. They met at the bottom, and to their surprise discovered, when standing close together, they could hear each other speak; but the knowledge thus obtained could not be turned to advantage, as the continued effort to speak loudly, exhausted their powers and rendered them unable to

hold a connected conversation.⁹ Skelton also met George Hall in the wreck, to whom he introduced himself in a way sufficiently courteous for divers, by tapping the *chef* on the helmet with his iron pricker.

Private Skelton, as on former occasions, made himself conspicuous by his skill and diligence as an artificer and his tact as a diver; and in addition, this season, his gallantry led him to plunge into the sea to save a boy who had fallen overboard, and his father who jumped after him, neither of whom could swim. As the tide was running very strong, Skelton, with great judgment, tied a line round his body, which he made fast to the stern of the 'Success' frigate, and then jumped into the sea; but before he reached the drowning boy and his parent, a boat quickly came to hand and saved them.

Alarming accidents, none of which fortunately proved fatal, occurred to lance-corporal Jones, and privates Skelton and Cameron. Corporal Jones had his mouth crushed and some of his front teeth broken by an iron dog, which he had attached to a bull rope bearing a heavy strain, slipping from its hold and striking him violently under the helmet. He was at the time endeavouring to move a piece of timber from the load, when a pig of iron ballast, weighing about three hundred weight, got dislodged and fell upon his helmet. Had not his head been thus protected, he would have been killed on the spot, for it made an indentation in the metal as large as the palm of one's hand, and nearly an inch deep. At another time, a large floor timber, which resisted many efforts to sling it, was at last in a fair way of reaching the deck, but on heaving on the bull rope, the chain flew off with violence, and struck Jones a blow on the hand, laying bare one of his fingers to the bone. Such was his spirit, however, he remained at the work, though the mutilated limb might readily have excused him from further duty. Anderson, busy at work over the wreck, lost all idea of time,

⁹ When corporal Jones first heard the voice, Skelton was singing,—

"Bright, bright are the beams of the morning sky,

And sweet are the dews the red blossoms sip."

This simple incident sufficiently shows the confidence and coolness of the diver in so novel and hazardous a duty.

and remained below imprudently long. Meanwhile the tide began to run swiftly, and, losing his ladder which was fixed on the larboard side of the lump, he was carried under it, and came up at the starboard side. The man attending the life-line found, on hauling it, that it pulled against the keel of the lump, and the diver, thus precariously situated, could not be drawn up. At first this had a very alarming appearance, but the evolution which brought him to the surface, took away the danger of the accident, and he alighted on deck without injury. Skelton was coming up from the bottom to permit the firing of a charge, but by some mismanagement in the signals, the explosion took place when he was a few feet from the surface of the water, and the shock injured his chest and rendered him insensible for a short time. Four days afterwards he resumed his place as a diver with his usual zeal and activity. Cameron received an injury by the bursting of the air-pipe connected with his helmet, and when hauled on deck, he was almost dead from suffocation. He recovered, however, after a month's treatment in Haslar Hospital, and in some respect to compensate him for his suffering, the Admiralty ordered him to receive his subsistence free of expense.

These accidents never for a moment damped the courage of the other men of the detachment, for they were always ready to take the places of the injured divers the instant they were warned for the duty. Not every man, however, who offered, was found capable of diving under such a pressure of water as existed at Spithead. The effect of the weight may be conceived from the fact, that the strongest cask sent down empty cracked like an egg-shell. Twelve sappers, in addition to those named above, essayed to be of service in the art, but several among the most resolute and promising divers after two or three days' trial, were compelled to desist from the duty. Headaches, giddiness, and spitting of blood, were the effects of their exertions. Even of the seasoned divers, not a man escaped repeated attacks of acute rheumatism and cold; and it was not a little surprising to find them returning to the work even before they had ceased to complain of their ailments. Harris, Rac and

Williams were really martyrs in suffering; but, nevertheless, they continued to labour at the bottom, even when the sea was high, the weather bitterly cold, and their hands so benumbed, that they could scarcely feel anything that they slung.¹⁰

Second-corporal McQueen returned to the woods in May to resume the reconnaissance and survey of the disputed territory in North America under Captain Broughton, R.E., and Mr. J. D. Featherstonhaugh, Her Majesty's commissioners. On the 3rd May the Metis lake was gained, where corporal McQueen was stationed in charge of the observatory until the middle of July. Every day for that period he registered, hourly, the barometrical observations of nine instruments with thermometers both attached and detached. On the 18th July he entered the bush again with thirteen Indians and Canadians, and penetrated the forest for forty miles, which brought him to the Metjarmette mountain. Throughout this journey he recorded with great care, at the appointed hours, the indications of the different instruments in his charge, and assisted in the various duties of the survey. The mission returned to Lake Metis by a different route, ascertaining, as it travelled, the sources of the streams in its track, and recording such topographical minutiae of a particular character as were desirable to elucidate the duties and objects of the enterprise. On the 24th October, corporal McQueen sailed from Quebec *via* Halifax, Nova Scotia, to England, and arrived at Woolwich on the 20th November, 1841. For three seasons he had served with the Commissioners; twice he was the only British soldier with the expedition, and in appreciation of his diligence and conduct, was awarded by Lord Palmerston, in addition to his working pay, a gratuity of 10*l*.¹¹

By warrant dated 21st June, 1841, a company of eighty-nine

¹⁰ Much of the information about the labours of this summer has been collected from the 'Hampshire Telegraph,' 'Army and Navy Register,' and the 'Manuscript Journal of the Operations.'

¹¹ Afterwards became a sergeant, and served at Gibraltar. In October, 1852, he was pensioned at 1*s*. 9*d*. a-day. Being a skilful mechanic, he obtained on the day of his discharge, employment as a blacksmith in the royal carriage department in the arsenal.

strong, numbered the 11th, and one quartermaster-sergeant, were added to the corps, which increased its establishment from 1,208 to 1,298 of all ranks. The company was raised for Bermuda at the suggestion of the Governor of the colony, in consequence of the impracticability of obtaining artificers among the civil population of the required competency to carry on the works. It did not, however, reach the station—where one company was already employed—until the 2nd April, 1842. The quartermaster-sergeant was appointed for duty at Chatham, and sergeant Thomas Fraser was promoted to the rank.¹²

Private Henry Entwistle distinguished himself on the 30th August, 1841, at pontoon practice, by plunging into the rapid stream of the Medway near Rochester Bridge, and at imminent personal risk, rescuing from drowning private Samuel Turner of the corps, who had fallen overboard and was unable to swim. His courage on this occasion gained the admiration of the Royal Humane Society, which awarded him a silver medallion accompanied by a vellum certificate, recording the particulars of his intrepidity, signed by the Duke of Northumberland.¹³

The detachments at Sandhurst during the year greatly exerted themselves in the field-work instruction, and returned to the corps receiving much praise for their zeal and good conduct. Corporal John Carlin was in charge of both parties, and was extremely useful. In the spring term he skilfully prepared the apparatus for a series of subaqueous explosions by the voltaic battery;¹⁴ and, at the autumn examination, the rafts

¹² Fraser was a successful modeller, and although a carpenter by trade, made himself useful as a wood engraver. Many of the wood-cuts in Colonel Pasley's 'Practical Operations of a Siege' were executed by him, and although they exhibit but little artistic merit, they yet afford scope to show how he adapted himself to circumstances. He also assisted in the task of engraving the most difficult of the plates to the 'Architectural Course.' None of his works in this line betray any ambition, but his models were put out of hand in a skilful and workmanlike manner. As a whole, he was a man of singular simplicity. In July, 1849, he was pensioned at 2s. 3d. a-day, and retiring to Killochnagan, settled down as a farmer.

¹³ Became a sergeant, and after serving at Corfu and China, was employed in the expedition under Lord Raglan to Turkey, Bulgaria, and the Crimea, where, from disease contracted in the trenches in front of Sebastopol, he died in camp before the conclusion of the siege.

¹⁴ 'United Service Journal,' ii., 1841, p. 267.

and bridges exhibited on the lakes and canals were constructed by him and his party. These consisted of rafts of rough timber and bridges upon various principles, such as floating, suspension, and trestle; also spars heavily loaded at one end to act as levers, and others interlaced upon a system of mutual pressure. In carrying out these services corporal Carlin was honourably noticed, "as a non-commissioned officer of rank merit and ingenuity."¹⁵ Corporal John Cameron was also mentioned in the Governor's reports for his activity and ability, and for having executed with great neatness a quantity of sod revetments for the scarps of the field-works.

Colonel Pasley was removed from the appointment of director of the royal engineer establishment at Chatham in November, 1841, on promotion to the rank of Major-General.¹⁶ Nearly thirty years he had held the office, and fulfilled its various functions with a genius, composure, and success, that no successor can ever hope to surpass. To him the corps is largely indebted for that military efficiency which has characterized its progress since 1812. Diligently superintending its practical exercise in all the operations of a siege, as well as in mining, pontooning, and bridge-making, and in the numerous other essential details of the field establishment, he made the corps fully equal to the prosecution of any service in which its assistance might be required. Some well-meaning officers of high rank did not see the necessity of training the corps in the principles of elementary fortification,¹⁷ but Colonel Pasley finally overcame their honest scruples by earnest argument. He not only gained this concession, but was permitted to teach the corps the elementary principles of geometry and plan-drawing; and ultimately, so extensive and complete had his system become, that some

¹⁵ 'United Service Journal,' iii., 1841, p. 563. Carlin became a colour-sergeant, and prior to his discharge had served at Gibraltar and Malta, Turkey and the Crimea. When at Portsmouth, he received from Lord Frederick Fitzclarence a gold pen and engineering pencil-case, in return "for his most useful services in carrying out instruction in musketry, in which he proved himself to be exceedingly clever in calculations of a rather puzzling nature, and to be a most zealous, active, and painstaking non-commissioned officer."

¹⁶ The names of the succeeding directors of the royal engineer establishment are given in the Appendix III.

¹⁷ 'Military Policy.'

hundreds of non-commissioned officers and men passed from his schools, as surveyors and draughtsmen, to the survey of Ireland. As a disciplinarian he was rigid; and in exacting from all under his command that obedience, attention, and punctuality which were the characteristics of his own laborious career, he was blind to that partiality or favouritism which could cover the indiscretion of one offender and punish that of another.

Here it may be right to show what was the public opinion of the corps at this period, as contrasted with its state at the commencement of the Peninsular war, and to whom its improved organization and perfect efficiency were chiefly attributed. "With respect to our engineer establishment, it would perhaps be difficult to name any occasion on which a modern European army took the field so utterly destitute of efficient means for conducting siege operations as were the British troops at the opening of the last war. At this moment, on the contrary, no army in the world possesses engineer officers and soldiers better instructed in all that relates to the science and practice of this branch of the service. We have heard one of the most able and most experienced of those officers declare, that when he was first called upon to take part in some siege operations at the very outset of the war, he had never seen a gabion, nor was there a soldier in the force who knew how to make one. To carry on a sap, or drive the gallery of a mine, was alike an impossible attempt. The army had neither a single sapper, miner, or pontoneer, and a few drunken and worthless military artificers formed the only engineer troops. . . . The lessons of experience thus dearly bought have not been acquired in vain. The practical engineer school at Chatham, organised and long directed by Colonel Pasley, has produced a corps of sappers and miners equal to any in Europe. Their exercises on the Medway have likewise given them the qualities of excellent pontoneers."¹⁸

Another extract from the same journal, relative to the conduct of the corps and the impolicy of the reductions which have taken place in its numbers since the return of the army of

¹⁸ 'United Service Journal,' i., 1842, pp. 26, 27.

occupation from France in 1818, should not be suppressed:—
“The reductions in the sappers and miners since the war are much to be regretted; and it would be more wise to organize them equivalently to two battalions of eight companies. They are a description of troops invaluable in every respect,—being as soldierlike, and well trained in the duties of infantry, as the best regiments of that arm, and therefore equally available for all military services in garrisons and quarters; while their qualities as artificers are by no means confined to admirable proficiency in their proper business as engineer-soldiers, in the management of the pontoon-train and the conduct of siege operations. Their exemplary conduct offers an illustration of a principle too much neglected in the discipline of modern armies—that to find constant and wholesome occupation for troops, as indeed for mankind in every situation, is the best security both for happiness and good order. . . . But in the case of this engineer corps, apart from the important object of keeping up an efficient body for those peculiar duties of their arm in the field, which require a regular course of practical education, we are convinced it would be found true economy to increase its force for the repair and maintenance of the numerous fortifications in every quarter of our colonial empire.”¹⁹

This perhaps is the fittest place to introduce a glowing testimony to the corps, penned by one well acquainted with its merits and defects, and too impartial to append his name to any but a faithful record. “Indeed,” writes Sir John Jones, “justice requires it to be said, that these men, whether employed on brilliant martial services, or engaged in the more humble duties of their calling, ever under the vertical sun of the tropics, or in the frozen regions of the north, invariably conduct themselves as good soldiers; and by their bravery, their industry, or their acquirements, amply repay the trouble and expense of their formation and instruction.”²⁰

Nor should the testimony of the chaplain-general, the Rev. G. R. Gleig, be omitted. Unconnected as he is with the royal

¹⁹ ‘United Service Journal,’ i., 1841, p. 443.

²⁰ Jones’s ‘Sieges,’ ii. p. 391, 2nd edit.

sappers and miners, his opinion has been formed without the prejudice of interested feelings. In taking a bird's-eye retrospect of the formation and growth of some of our military institutions, he thus speaks of the corps: "Besides the infantry, cavalry and artillery, of which the regular army was composed, and the corps of engineers, coeval with the latter, there sprang up during the war of the French Revolution other descriptions of force, which proved eminently useful each in its own department, and of the composition of which a few words will suffice to give an account. First, the artificers as they were called, that is to say, the body of men trained to the exercise of mechanical arts, such as carpentry, bricklaying, bridgemaking, and so forth, which in all ages seem to have attended on a British army in the field, became the royal sappers and miners, whose services, on many trying occasions, proved eminently useful, and who still do their duty cheerfully and satisfactorily in every quarter of the globe. During the late war, they were commanded under the officers of engineers, by a body of officers who took no higher rank than that of lieutenant, and consisted entirely of good men, to whom their merits had earned commissions. Their education, carried on at Woolwich and Chatham, trained them to act in the field as guides and directors to all working parties, whether the business in hand might be the construction of a bridge, the throwing up of field works, or the conduct of a siege. Whatever the engineer officers required the troops to do was explained to a party of sappers, who, taking each his separate charge, showed the soldiers of the line both the sort of work that was required of them, and the best and readiest method of performing it. The regiment of sappers was the growth of the latter years of the contest, after the British army had fairly thrown itself into the great arena of continental warfare, and proved so useful, that while men wondered how an army ever could have been accounted complete without this appendage, the idea of dispensing with it in any time to come, seems never to have arisen in the minds of the most economical."²¹

²¹ Gleig's 'Mil. Hist.,' ch. xxvii., pp. 286, 287.

1842.

Party to Natal—The march—Action at Congella—Boers attack the camp—Then besiege it—Sortie on the Boers' trenches—Incidents—Privations—Conduct of the detachment; courageous bearing of sergeant Young—Services of the party after hostilities had ceased—Detachment to the Falkland Islands—Landing—Character of the country—Services of the party—Its movements; and amusements—Professor Airy's opinion of the corps—Fire at Woolwich; its consequences—Wreck of the 'Royal George'—Classification of the divers—Corporal Harris's exertions in removing the wreck of the 'Perdita' mooring lighter—Assists an unsuccessful comrade—Difficulties in recovering the pig-iron ballast—Adventure with Mr. Cussell's lighter—Isolation of Jones at the bottom—Annoyed by the presence of a human body; Harris, less sensitive, captures it—The keel—Accidents—Conflict between two rival divers—Conduct of the sappers employed in the operations—Demolition of beacons at Blythe Sand, Sheerness—Testimonial to sergeant-major Jones for his services in connection with it.

In January, 1842, a small force under the command of Captain Smith, 27th regiment, was sent to the Umgazi, about ten miles south of the Umzimvooboo, to watch the movements of the Boers, who had attacked a native chief in alliance with the colonial government. With this force was detached a party of eight royal sappers and miners under Lieutenant C. R. Gibb of the engineers. There the expedition was encamped for a season, when a portion of it, on the 31st March, quitted the Umgazi for Natal, taking with them seventy wheeled carriages and numerous oxen. The sappers took the lead of the column to remove obstructions on the route. The force comprised about 250 men, chiefly of the 27th regiment, and a few artillerymen.

In the journey to Natal, a distance of more than 600 miles, the greatest difficulties were encountered. Much of the ground traversed was very marshy. Rivulets and larger streams were so much increased by the rains that the broken drifts across

them had frequently to be renewed or repaired after one or two waggons had crossed. Several very steep hills had to be surmounted, one of which was the Uinterda, over which the hunter and trader had never attempted to take his waggon without first dismantling it, and then carrying it up or down. Up this rugged hill, formed of huge boulders of granite imbedded in a swamp, a rough road was constructed; and by putting three spans of oxen—thirty-six bullocks—to each waggon, all, after three days' heavy labour and fatigue, were got to the summit. Constantly in their progress, they had to improve the roads, to cut through wood and bush, to toil along the sand on the shore, and occasionally, harnessing themselves with ropes, drag the unwieldy train along wild passes and almost impenetrable tracts of fastness. At length, after a most harassing march of six weeks, of straining energy and arduous exertion, having crossed one hundred and seventy-two rivers and streams, much of the journey under violent rain, and often sleeping at night on the swampy ground, the troops reached Natal on the 3rd May, and encamped at the head of the bay; from whence they afterwards removed to the Itafa Amalinde, where they intrenched themselves, and placed beyond the parapet, for additional protection, the waggons which accompanied the force.

The Boers were opposed to the presence of the troops, and desired them to quit the country. This was unheeded by the English commandant, and hostilities at once commenced. On the night of the 23rd May, Captain Smith, in command of a portion of his force, left the camp and attacked the Boers at Congella, taking with him seven sappers and miners, armed and carrying tools. When the enemy opened fire, the troops were in file up to their knees in water. Private Burridge fired the first shot in the engagement. More than an hour the contest continued without any one being able to take a direct aim; and, when the troops commenced the retreat, they were up to their armpits in water. Here a sergeant of the 27th was shot, who would have been carried away in the receding tide, had not sergeant Young with two of the sappers, brought him across the

bay to the camp, where his remains were interred. Private William Burridge was wounded in the knee.

On regaining the camp all were served out with fresh ammunition, and, when about to lie down, the Boers attacked the position and only retired at daylight in the morning. During the action half of the pole of the sappers' tent was carried away by a shot, and the waggon in their front was pierced by eleven balls. Private Richard Tibbs on this occasion received three balls in his clothes and was wounded.

Soon afterwards (31st May) the Boers, comprising a force of about 1200 men and nine guns, commenced to besiege the camp. This they continued with vigour till the 26th June, when a reinforcement having reached the cantonment from the frontier, hostilities ceased. Throughout the operations the eight sappers were employed superintending the execution of such works as the circumstances of the siege rendered indispensable. These included a redoubt, to preserve the communication with the port and village, and a magazine. They also assisted in constructing a large kraal of stakes and abattis, for the safety of the cattle. The waggons were likewise drawn closer in, to make the defence more compact; and from a trench, dug on the inside, the earth was thrown under the body of the waggons, which were thus imbedded in the parapet. By this means the troops were enabled to fire over the parapet and underneath the bed of the waggons; and by leaving traverses in the line of trench, the camp was protected from enfilade. Daily the sappers were occupied in repairing the earth-works, and almost unassisted, built a battery for an 18-pounder gun in the south angle of the intrenchment. Sergeant Young, under Lieutenant Gibb, was the executive non-commissioned officer in conducting the field-works, and twice every day he went round the trenches, reported what was necessary to strengthen the defences, and carried out the directions of his officer.

On the night of the 8th June, sergeant Young and three sappers carrying their arms and intrenching tools, accompanied the sortie to the Boers' trenches under Lieutenant Irwin, 27th regiment. The enemy retreated and the trenches were de-

stroyed. On the 18th following three sappers were present in a second sortie under Lieutenant Molesworth of the 27th, and led the column to the points of attack. The conflict was short but fierce, and the troops returned to the camp with the loss of one officer and three men killed, and four wounded. Among the latter was private Richard Tibbs of the sappers.

During the siege, private John Howatson had made some wooden cradles for surgical purposes, and on finishing one, begged the doctor to look at it. Both stooped to do so, when a 6-pound shot passed within a few inches of their heads and whizzed by the rest of the party in the trench. When Lieutenant Gibb's servant was killed, corporal Deary and private Burridge buried him outside the waggons, and the melancholy service was not accomplished without much daring and danger.

As the siege progressed provisions became scarce and the troops were put on the smallest possible allowance. Horses were killed and their flesh made into biltong. This, with a little beef, formed the daily repast of the camp; and in lieu of meal and biscuit, ground oats were issued. Upon this fare it was impossible to hold out more than fourteen days, but a strong reinforcement arrived on the 26th June, and effecting a landing, the Boers retreated with loss and haste from the beach and the trenches, and the siege terminated. With the relief were three men of the sappers, who increased the strength of the Natal party to eleven of all ranks.¹

Lieutenant Gibb in his report to head-quarters praised sergeant Young, corporal Deary, and the detachment for their usefulness, alacrity, and cheerfulness; and Captain Smith in command, eulogized them for their uniform activity and readiness of resource in the presence of the enemy. When quitting Natal, the latter officer favoured sergeant Young with a testimonial in the following terms: "As I am about to relinquish the command, I am desirous to bear testimony to the high and irreproachable character of sergeant Young of the

¹ Much of the above information is taken from Captain Gibb's 'Memoranda in Corps Papers,' i., pp. 230-238.

royal sappers and miners. Having accompanied the expedition from the Ungazi to Natal early in 1842, and shared in all its subsequent dangers and privations, I cannot speak too highly of his courage and self-possession, and his unwearied zeal in the performance of his various and arduous duties. He was always at his post and never found wanting; and I therefore beg to recommend him to notice as one of the best and most trustworthy non-commissioned officers I have met with during my long course of service."

After the siege the detachment built a sod wall round the camp and loopholed it, within which they constructed a temporary barracks of wood, working from daylight to dark even on Sundays. A wattle barracks for 300 men was next erected by them, and afterwards a block-house at Port Natal. They also extended their services to the requirements of Fort Napier, Van Vooren, Bushman's River, and the neighbouring posts in the district, during which time their head-quarters was established at Pietermaritzburg, where a party of ten or twelve men have ever since been employed.²

Sergeant Robert Hearnden and eleven rank and file, detached in the brig 'Hebe' in October, 1841, to the Falkland Islands, under Lieutenant R. C. Moody, R.E., the Lieutenant-Governor of the colony, arrived there on the 15th January, 1842. Three women and seven children accompanied the party. The men were volunteers and of trades suitable to the experiment of improving an old but neglected settlement. They were armed with percussion carbines, carrying a sword with a serrated back, which was affixed to the piece when necessary as a bayonet.³

² Young, as a sergeant, was overseer of the works at Natal, at 2s. 6d. a-day, in addition to his regimental allowances; and, for his gallant conduct in action and useful services, was awarded a silver medal and an annuity of 10*l.* a-year. In July, 1850, he retired to Charleston, of Aberlour, in Banffshire, on a pension of 2s. a-day. He was a stern and an abrupt soldier, but an example of faithfulness, accuracy, and exertion.

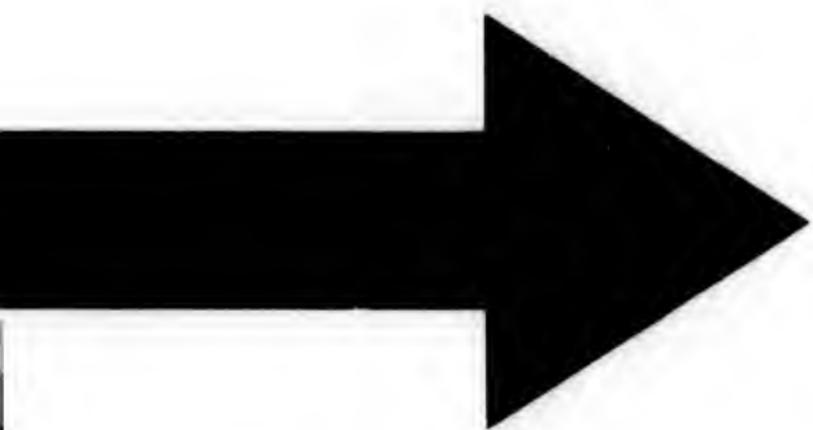
³ This weapon was proposed for adoption in the corps both as a sword for personal defence and an instrument for removing obstructions on active service; but Sir George Murray, then Master-General, refused to sanction its introduction, considering it to be an improper weapon to be used in civilized warfare.

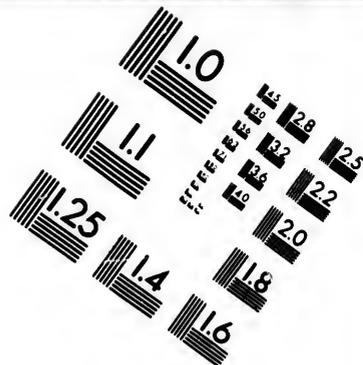
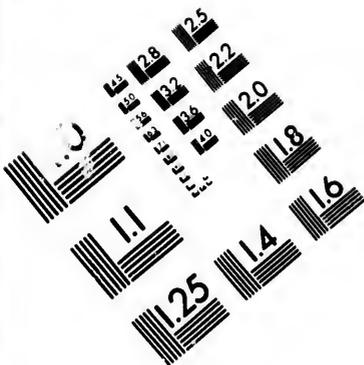
After bearing up Berkeley Sound the party landed at Port Louis on the 23rd January, and were present as a guard of honour to his Excellency on taking over the government of the Falkland Islands. The inhabitants were assembled to receive him and the Lieutenant-Governor made them a gracious speech.

Soon the men became acquainted with the nature of the country they had been sent to improve. Its land was unfruitful and its character inhospitable. Vegetation was so scant and the soil so poor, that nowhere could a tree be seen. Large barren tracts of country, softened into mud by perpetual rains, everywhere met the eye; and the luxuries of living embraced but few varieties beyond fish, flesh, and fowl. Houses there were none, nor was there any society or amusement. What with rain, snow, fogs, gales, and tempests, the Falkland Islands have well been called the *region of storms*. The population, not more than 200 in all, consisted of a dissipated set of ruffians, the depraved renegades of different countries.

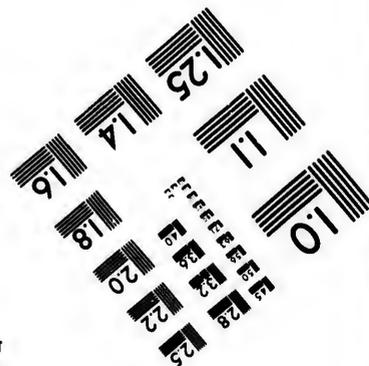
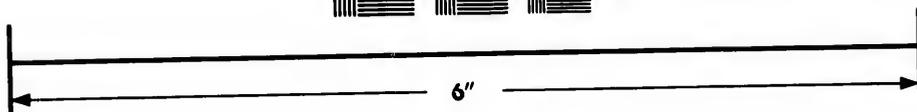
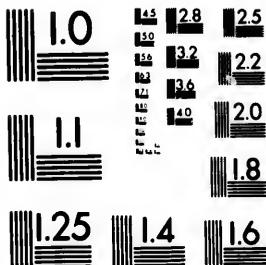
After landing the stores and provisions from the 'Hebe,' the detachment was put to work. Two portable houses were in course of time erected; one for his Excellency, and the other for the sappers. For durability they were built on stone foundations, and the roofs, to keep out the rain, were covered with tarred canvas and thatched with tussack. A number of outhouses and sheds to suit every convenience and want were rapidly run up, and the old dreary settlement gave unmistakable signs of vigorous industry and improvement. One of the houses, with six apartments, was erected as an addition to the old government-house, which was a long, narrow, crazy structure of one story, with thick stone walls, a canvas roof, and five ill-contrived rooms. The other for the sappers, was constructed a little distance in the rear of the Governor's dwelling. Two ruinous cottages at Pig Brook were also fitted up, and two cottages at German's Point rebuilt. To make the habitations of the location more homely and English, enclosures were fenced in for gardens and pasturage. A well likewise was







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built of dry stone with an oval dome and approached by stone steps. For purposes of correction, an oven built by the French settlers under Bougainville, about 1760, the oldest building in the group, was used for the confinement of refractory characters. The detachment, in addition to its other duties, served as the police of the settlement, and sergeant Hearnden was appointed chief constable.

Much of the time of the men was spent in boat service to Long Island and other places to get tussack, oxen, horses, peat, &c. The last was obtained in large quantities and stacked for winter fuel. Occasionally a few were out on reconnoitring excursions examining portions of the country, and surveying the islands and patches of land of colonial interest. In this service corporal William Richardson, who was a surveyor and mathematician, was the most conspicuous. When opportunity permitted, some were employed quarrying stone, repairing landing-places, making roads, and improving the paths and approaches to the settlement. To add to the diversity of their duties, a few were sometimes occupied in marking out allotments and indicating the passes or routes across bogs and lagoons by means of poles. The first pole was placed on the loftiest hill between Port Louis and Saint Salvador, which his Excellency, in honour of his sergeant, named *Hearnden Hill*. In short the men were compelled to turn their hands to anything, for an abandoned and desolate settlement rendered numerous services essential for the convenience and comfort of the settlers. Sergeant Hearnden was clerk of the works, and also filled with energy and ability a number of other offices of colonial necessity.⁴ Frequently he was detached to considerable distances, and his reports upon the aspects and capabilities of particular sites and places were invariably received with approbation and his suggestions carried out.

Sections of the detachment were often sent on duty to Long

⁴ Such as auctioneer, excise-officer, &c. In carrying on the former duty, among his many sales, he disposed of the 'Melville' schooner, a vessel belonging to four partners, obtaining for it, from one of the partners, only 720 dollars! This may be taken as a fair specimen of the wealth of the colonists.

Island, Green Island, Salvador Bay, Johnson's Harbour, Port William, &c. Two or three times the men sent to Long Island could not return to the location, as the boats on each occasion were, by a driving gale, dashed back on the beach, and the men exposed through the weary night to the pelting storm. Once under such circumstances the party was without food for twenty-three hours. Two men detached to Jackson's Harbour, when returning home, were caught in a snow-storm and with great difficulty reached the untenable hut at Fish-house Creek. There, benumbed and fatigued, they sought shelter for the night, being unable to proceed further or to assist themselves.

To relieve the monotony of their public duties, the men were permitted to follow any sport which their inclination suggested. Boating, hunting,⁵ shooting, fishing, and angling, were among the varieties of their diversions. Game was plentiful, and the men usually returned from their excursions laden with rabbits, geese, and birds of different form and plumage. In fishing, the party at one time in a single haul, caught at Fish-house Creek thirteen hundred weight of mullet. The Governor, too, was ever ready to devise means to promote their amusement and comfort, and on one occasion so pleased was he with their general good conduct and exertions, that he honoured them with an excellent dinner from his own purse and shared himself in the festivities.

With the view of verifying the reported peculiarity of the tides at Southampton, Professor Airy, in February, proceeded thither to examine the rise and fall of the water. Some non-commissioned officers and privates were placed by Colonel Colby at his disposal for this purpose, who prepared and fixed the vertical scale of feet and inches, and kept a watch upon the general accuracy of the observed tides. "I was," says the Professor, "extremely glad to avail myself of this offer, for I

⁵ All had horses, as travelling on horseback was frequently necessary. The Governor presented one, with harness complete, to sergeant Hearnden. The men made themselves very expert in the management of horses, and throwing aside the rude thongs of raw hide by which they were controlled, quickly adapted the draught-horses to the use of artillery harness and collars.

believe that a more intelligent and faithful body of men does not exist than the sappers employed on the trigonometrical survey; and I know well the advantage of employing upon a tedious business like this, a set of regular service men stationed on the spot.”⁶

On the 19th March about 150 non-commissioned officers and men of the corps at Woolwich under Lieutenant F. A. Yorke, R.E., were present in the night at a fire, which burnt the ‘Bull’ tavern to the ground.⁷ The sappers were the first to render assistance and to secure from destruction much of the property.⁸ By the falling of the principal wall of the building eighteen persons were severely crushed and wounded, six of whom were privates of the corps. Private Malcolm Campbell, one of the injured, rescued the landlord, Mr. Boyd, from being burnt to death. The latter in a state of great bewilderment rushed back into the burning tavern, and Campbell dashing after him dragged him through the flames and falling timbers, from a back room of the building, into the street again.⁹

During the summer a corporal and twenty-three rank and file of the royal sappers and miners, and nine men of the East India Company’s sappers were employed at Spithead under Major-General Pasley, in the removal of the wreck of the ‘Royal George.’ The operations were carried on from the 7th May to the end of October under the executive orders of Lieutenant G. R. Hutchinson, R.E. In all respects the duties, labours, and responsibilities of the sappers were the same as on previous occasions, except that the diving was carried out by the party, and a few of the East India Company’s sappers and miners, without in any one instance needing the help of

⁶ ‘Philosophical Transactions,’ i., 1843, p. 45.

⁷ Reference would not have been made to this service only for the accident which attended it. Often it is the lot of the corps at the various stations to distinguish themselves at fires, and by their promptitude and cheerful exertions, to save both lives and property.

⁸ An insurance company, in no respect under obligations to the parties who assisted at the fire, felt interested in the exertions of the sappers and awarded them 5*l.* As the sum was too small for distribution, it was well expended in the purchase of a clock for the barracks at Woolwich.

⁹ After serving a station in China, died at Woolwich, in July, 1847.

professional civil divers. On the 2nd November the detachment rejoined the corps at Chatham.

Four divers were at first employed. On the 13th May the number was increased to five, and on the 3rd June to six, which force continued at the duty throughout the season. Several other men during the summer had been so employed when casualty or other cause prevented the regular divers descending, and the whole who had distinguished themselves in this work by their activity and success, were classified as follows:—

First-class divers:—corporal David Harris: lance-corporals Richard P. Jones, and John Rae: privates Roderick Cameron, James Jago, John Williams, and William Crowdy.

Second-class divers:—privates Alexander Cleghorn and John Girvan.

Third-class divers:—lance-corporal W. Thompson: privates William Browning, William Penman, and Edward Barnicoat.¹⁰

Corporal Harris almost entirely by his own diligence removed, in little more than two months, the wreck of the 'Perdita' mooring lighter, which was sunk in 1783 in the course of Mr. Traey's unsuccessful efforts to weigh the 'Royal George.' It was about sixty feet in length, and embedded in mud fifty fathoms south of that vessel. The exposed timbers stood only two feet six inches above the level of the bottom, so that the exertions of Harris in removing the wreck were herculean. Completely overpowered by fatigue, he claimed a respite for a day or two to recruit his energies, and then resumed work with his accustomed assiduity and cheerfulness.

There was a sort of abnegation—an absence of jealousy—in the character of Harris which, as the rivalry among the divers made them somewhat selfish, gave prominency to his kindness. He met Cameron at the bottom, who led him to the spot where he was working. For a considerable time Cameron had fruitlessly laboured in slinging an awkward timber of some

¹⁰ The nine men of the East India Company's sappers, whose names are appended, dived more or less as occasion offered. Lance-corporal Thomas Sherstone, privates James Hewitt, James Beale, George Taylor, William Brabazon, John Hunt, William England, John Melvor, and John A. Goodfellow. Hewitt was the best, Sherstone the next, and Beale and Taylor were very promising.

magnitude, when Harris readily stood in his place; and in a few minutes, using Cameron's breast-line to make the necessary signals, sent the mass on deck. It was thus recorded to Cameron's credit, but the circumstance, on becoming known, was regarded with so much satisfaction, that honourable mention was made of it in the official journal.

Lance-corporal Jones, a sagacious and indefatigable diver, was the most conspicuous for his success at the 'Royal George.' In one day besides slinging innumerable fragments, he sent up nearly three tons of pig-iron ballast. The duty of recovering it, which was excessively trying, was confined to him. So painful and enlarged had his hands become in discharging it, he was at last fairly beaten, and for a few days, took an easier area at the bottom. Meanwhile private Hewitt of the East India Company's sappers, one of the most spirited divers of his party, succeeded him, and led by mark-lines to the spot, commenced his arduous task. Hard indeed did he labour to follow his predecessor even at a remote distance; but on coming up, he declared it was impossible for any one to work there. It appeared for some time, that Jones in his dogged perseverance, had run his adventurous chances in gaps and gullies over his head in mud, and could only feel the ballast by forcing his hands down among the shingle as far as his strength permitted him to reach.

On another day Jones lodged on deck from his slings a crate containing eighty 12-pounder shot. With singular success he laid the remainder of the kelson open for recovery, and then, sinking deeper, drew from the mud in two hauls nearly 35 feet of the keel. He also weighed a small vessel of six tons burden belonging to a Mr. Cussell, which drove, under a strong current, upon one of the lighters. Becoming entangled, the craft soon filled and foundered, grappling in her descent with the ladder of one of the divers. Grounding at a short distance from the interval between the lighters, Jones was selected to try his skill in rescuing her. At once descending he fixed the chains under her stern, and while attempting to hold them in position by passing them round the mast, the tide turned, the vessel swung

about, and the mast fell over the side, burying Jones under her sails and rigging. Perilous as was his situation, his fearlessness and presence of mind never for a moment forsook him. Working from under the canvas and carefully extricating himself from the crowd of ropes that ensnared him, he at last found himself free. A thunderstorm now set in, and obedient to a call from above, he repaired to the deck; but as soon as the squall had subsided he again disappeared and cleverly jamming the slings, the boat was hoisted up; but she had become a complete wreck and was taken on shore.

Nothing was too venturesome for him to undertake, and the trial of enterprising expedients only whetted his wish to be the chief in their execution. It was desired to ascertain how long a diver could exist in his dress without communication with the external air. Jones offering himself for the experiment, remained ten minutes on the deck of the lighter, cased up as if hermetically sealed, without experiencing any inconvenience. A more dangerous trial followed. A clever man had expressed his conviction, that if the air-pipe were to burst on deck and the diver not instantly drawn up, he would be suffocated. Notwithstanding this scientific speculation, Jones descended, and the pump, by signal, ceased. Five minutes he continued unsupplied from above, but a feeling of pressure having then commenced on his chest, he signalled for air. The knowledge thus acquired, proved that a diver had ample time to be hauled up before the air in his dress should become too vitiated to sustain life.

On going down to examine the progress made in the removal of the 'Perdita,' Jones encountered a human body which had been drowned about six weeks. It felt round and hard; was nude to the waist but clothed in trowsers to the ankles. Jones was a long time before he could discover what it was that annoyed him. On tracing with his fingers the course of the spinal column, it felt as if the vertebræ were as distinct as the bars of an iron grating. The thought suddenly possessed him that he was handling the remains of a fellow creature. Horror-stricken at the idea, he rushed up the ladder, and it was a few

hours before he could sufficiently master his feelings to re-descend. When he did so he went to the spot where the body visited him, and removed the timber he had previously secured. He was, however, no more troubled with this submarine apparition nor with a return of his melancholy emotions. Two days after, Corporal Harris had an interview with a strange substance at the foot of his ladder; but not over-nice in his sensations, he struck his pricker into it. When pulled up to the surface, it turned out to be the mutilated remains that molested the sensitive Jones.

These two non-commissioned officers were now equal to the best divers in Europe, and their daring exploits at the bottom of the sea under a great depth of water, with a strong tide, and traversing a space covered with thick mud, embarrassed by iron and shingle ballast, huge timbers, guns, and a thousand other obstacles, were constantly recorded in the newspapers of the day, and filled the public with wonder.

A sort of fixed intention possessed the minds of the divers this season to bring up the leviathan keel at all hazards. Several therefore shared in the honour of recovering a portion of it. Cameron was the first to burrow under it, and he slung a short piece, which was scarfed, connected with six pairs of copper bolts, measuring one foot six inches long, and also the clamps for securing the false keel. Private James Hewitt of the East India Company's sappers also recovered a short length. Jago, more successful, sent up six feet; Harris sixteen feet; and Jones came in for the lion's portion, having slung no less than thirty-four feet six inches. Crowdy also added to the registry of his achievements, the recovery of a guinea; and Cleghorn had the good fortune to send up an 18-pounder iron gun, the only one disembowelled from the deep this summer.

A few accidents occurred during the season, only one of which was serious. Corporal Jones, as usual, fell in for his share of them. Slinging, on one occasion, five pigs of ballast, he jumped upon the chains to tighten the load and secure it from slipping. In so doing the weight whirled round and imparted a rotating motion to the bull rope to which the chains

were attached. The rope coming in contact with his air-pipe and life-line twined several times round them, and interrupted, in a measure, the channels of communication. To avert the danger which threatened, Jones threw himself on his back, declining the slow process of climbing his ladder; and permitting the air in proper quantity to take vent through the escape valve, passed motionless through the water, except the simple action of his hand occasionally to rectify his balance. His upward flight was something like the downward pitch of a bird, which, laying its wings on the air, descends with scarcely a flutter to the ground. Quickly hauled on board, it was not without much difficulty he was extricated from the entanglement in which his zeal had unwittingly involved him. At another time, being very wet, he was compelled to re-ascend to ascertain the cause of the inconvenience. On examining his helmet, the escape valve was found to be open owing to the presence of a small stone in the aperture, which opposed the true action of the valve and admitted water into his dress in a small but unchecked stream.

Private John Williams early in the season tore his hands very severely in attempting to sling a mass of the wreck with jagged surfaces and broken bolts. After a few days' rest, he re-appeared in his submarine habit and dived as before; but, from excessive pain in the ears, was again *hors-de-combat* until the 11th July; when, on re-descending, he was grievously injured by the bursting of his air-pipe a few inches above the water. This casualty was indicated by a loud hissing noise on deck. A few seconds elapsed before the rupture could be traced and the opening temporarily stopped. With great alertness he was drawn up; and on being relieved of his helmet presented a frightful appearance. His face and neck were much swollen and very livid, blood was flowing profusely from his mouth and ears, his eyes were closed and protruding, and on being laid on deck, he retched a quantity of clotted gore. Though partially suffocated he possessed sufficient sensibility to speak of the mishap. A sudden shock, it seems, struck him motionless, and then followed a tremendous pressure as if he were being crushed to death. A month in Haslar hospital

restored him to health, and on returning to the wreck, he at once re-commenced the laborious occupation of diving. He was quite as venturesome and zealous as before, but was again soon obliged to leave off, having resumed the duty at too early a period of his convalescence.

A dangerous but curious incident occurred this summer between corporal Jones and private Girvan—two rival divers, who in a moment of irritation engaged in a conflict at the bottom of the sea, having both got hold of the same floor timber of the wreck which neither would yield to the other.¹¹ Jones at length fearful of a collision with Girvan, he being a powerful man, made his bull-rope fast and attempted to escape by it; but before he could do so, Girvan seized him by the legs and tried to draw him down. A scuffle ensued, and Jones succeeding in extricating his legs from the grasp of his antagonist, took a firmer hold of the bull-rope and kicked at Girvan several times with all the strength his suspended position permitted. One of the kicks broke an eye or lens of Girvan's helmet, and as water instantly rushed into his dress, he was likely to have been drowned, had he not at once been hauled on board. Two or three days in Haslar hospital, however, completely cured him of the injuries he thus sustained, and these two submarine combatants ever afterwards carried on their duties with the greatest cordiality.

As artificers, lance-corporal Thompson and private Penman were skilful and diligent. Lance-corporal Rae and private Thomas Smith were in charge of the gunpowder and voltaic battery, and made all the mining preparations for explosion. Nearly four tons and a quarter of powder were fired in numerous small charges from 18 to 170lbs., which will afford some idea of the importance of the duty.¹²

General Pasley in his official report, besides highly commending the men above named, wrote in praise of the general

¹¹ 'United Service Journal,' iii. 1843, p. 139.

¹² Much of the information given about the wreck of the 'Royal George,' has been gleaned from the 'Hampshire Telegraph,' 'Army and Navy Register,' and the 'Manuscript Journal of the Operations.'

good conduct of the entire detachment and of its useful and active services. Corporal Blaik, who assisted in the superintendence of the whole of the workmen in one of the two mooring lighters, the General alluded to as a non-commissioned officer of much merit and strict integrity. His courteous behaviour, too, elicited the respect of every man employed, and attracted the favourable notice of many officers and gentlemen who visited the operations.¹³

Early in September, at the request of the Trinity corporation, Colonel Sir Frederick Smith, director of the royal engineer establishment, undertook to demolish two barges formerly used as the foundations of beacons at Blyth Sand, Sheerness. For this purpose he sent Lieutenant Bourchier, R.E., sergeant-major Jenkin Jones and seven men of the corps to the spot in the 'Beaconry,' one of the Trinity steamers. A number of small charges deposited in tin cases were fixed at low water, and fired to shake the wrecks. By the explosion of a large charge on the 3rd September, one barge was completely destroyed and dispersed; and on the 5th, by the firing of a still greater charge, the other barge shared the fate of its consort. Masses of the wreck on the first explosion were projected to a height of about 200 feet, and about 400 feet from the scene of operations, while at the same time a column of water, eighty feet high, was forced into the air. On the second occasion, Sir Thomas Willshire, the commandant of Chatham garrison, and Captain Welbank, chairman of the Trinity corporation, were present, but the effect was less striking, although a much greater quantity of powder was used, in consequence of there being at the moment twenty feet of superincumbent water pressing on the barge. Captain Welbank personally complimented the "indefatigable" sergeant-major for his success, and

¹³ Afterwards a sergeant. Was generally employed in duties of importance far exceeding his rank, at the Cape of Good Hope, Isle of France, and Hong-Kong. In 1847 he was present in the expedition to Canton, blew up the Zigzag Fort, and otherwise conspicuously distinguished himself. He died at Hong-Kong, after five years' service there, in 1848. Blaik had been brought up at the royal military asylum, Chelsea.

the corporation of Trinity House afterwards, with the permission of the Master-General, presented him with a silver-gilt snuff-box to commemorate the assistance he rendered in the dispersion of the wrecks.¹⁴

¹⁴ Four years previously, August, 1838, sergeant-major Jones was presented with a silver tankard, "by the sergeants of Chatham garrison, in testimony of their gratitude for the undeviating attention he evinced in superintending the formation of a military swimming-bath at that station."

1842.

Draft to Canada—Company recalled from thence—Its services and movements—Its character—Labours of colour-sergeant Lanyon—Increase to Gibraltar—Reduction in the corps—Irish survey completed; force employed in its prosecution—Reasons for conducting it under military rule—Economy of superintendence by sappers—Their employments—Sergeants West, Donll, Spalding, Keville—Corporals George Newman, Andrew Duncan—Staff appointments to the survey companies—Dangers—Hardships—Average strength of sapper force employed—Casualties—Kindness of the Irish—Gradual transfer of sappers for the English survey—Distribution; Southampton.

THE company in Canada which accompanied the troops to that province on the occasion of the unsettled state of affairs on the American frontier, was increased to a full company by the arrival of thirteen men on the 8th July, 1842.

Scarcely had the party landed before the company itself was recalled, and rejoined the corps at Woolwich on the 31st October, 1842. During its four years' service on the frontier, the total of the company, with its reinforcement, counted ninety-nine of all ranks, and its casualties only amounted to eight men invalided, three discharged, and five deserted. Not a death was reported. From time to time it was stationed at Quebec, Fort Mississaqua near the Falls of Niagara, St. Helen's Island, St. John's, and Fort Lennox, Isle aux Noix. These were its several head-quarters, and as the company was removed from one to the other, parties were detached for service to each of the other stations, and also to Amherstburgh. In repairing and improving the defences at Mississaqua and Isle aux Noix they were found of great advantage. At the other stations they were no less usefully occupied in barrack repairs and other contingent services.

From Amherstburgh the detachment rejoined the company

in 1840. Whilst the latter was at St. Helen's and afterwards at St. John's, the men were exercised during the summer months in pontooning with bridges of Colonel Blanshard's construction, which had been stored at Chambly until 1840. The pontoons were found to travel well on bad roads, but the breadth of the rivers in Canada did not permit of their being often used as bridges.

After the removal of the company, Colonel Oldfield, the commanding royal engineer, thus wrote of it: "The discipline of the company was not relaxed by its four summers in Canada. It had suffered the inconvenience of several times changing its captain, but it was nevertheless maintained in good order and regular conduct. Lieutenant W. C. Roberts, R.E., however, was constantly with it, to whom and colour-sergeant Lanyon¹ and the non-commissioned officers, much credit is due. The desertions only amounted to six, although the company was on the frontier in daily communication with the United States. Of these six, one returned the following morning; a second would have done so but he feared the jeers of his comrades; and the other four found when too late the falsity of the inducements which had attracted them to the States, and would gladly have come back could they have done so. And the Colonel then concludes, "The advantages enjoyed by well-behaved men, and the *esprit de corps* which has always existed in the sappers have been found to render desertion rare, even when exposed to greater temptation than usually falls to the lot of other soldiers."

¹ Ante, pp. 307-310. At the new barracks built for the dragoons at Niagara, sergeant Lanyon successfully constructed a circular well, about thirty feet deep, after two or three contractors had attempted it and failed. He laboured himself in laying the stones up to his hips in water, and afforded ample work for a strong party above in preparing the stones for placement, and pumping up the water. The service was effected under many difficulties and hazards, and while the weather was intensely cold. As an instance of his great strength it may be remarked, that six men complained to him of the heavy task they were subjected to in removing timbers about 15 feet long and 12 inches square for constructing a stockade at Fort Mississauga. Lanyon made no observation, but shouldered one of the unwieldy logs, and, to the amazement of the grumblers, carried it to the spot unassisted.

In the meantime a second company had been removed to Gibraltar in the 'Alban' steamer under Lieutenant Theodosius Webb, R.E., and landed on the 6th July, 1842. This augmentation to the corps at that fortress was occasioned by the difficulty felt in procuring a sufficient number of mechanics for the works; and to meet the emergency, the company in Canada was recalled, as in both provinces works of considerable magnitude had been carried on by civil workmen, who could at all times be more easily engaged in a country receiving continual influxes by immigration, than in a confined fortress like Gibraltar with a limited population.

On the return of the Niger expedition in November, to which eight rank and file had been attached, the establishment of the corps was reduced from 1,298 to 1,290 of all ranks.

The survey of Ireland upon the 6-inch scale was virtually completed in December of this year, terminating with Bantry and the neighbourhood of Skibbereen. The directing force in that great national work was divided into three districts in charge of three captains of royal engineers in the country; and there was also a head-quarter office for the combination and examination of the work, correspondence, engraving, printing, &c., in charge of a fourth captain. To each of these districts the survey companies were attached in relative proportion to the varied requirements and contingencies of the service, and adapted to the many modifications which particular local circumstances frequently rendered imperative. A staff of non-commissioned officers and men was also stationed at the head quarter office, and discharged duties of trust and importance.

In framing his instructions for the execution of the Irish survey, Colonel Colby had to reject his old opinions formed from circumscribed examples of small surveys, and to encounter all the prejudices which had been fixed in the minds of practical men. The experience of these parties did not extend beyond the surveys of estates of limited space, performed without hurry and with few assistants. Colonel Colby, on the other hand, was to survey rapidly a large country, with much more accuracy. The two modes were therefore so entirely different,

that it took less time to train for its performance those who had no prejudice, and who had been brought up by military discipline to obey, than to endeavour to combine a heterogeneous mass of local surveyors fettered by preconceived notions and conceits, deficient in habits of accuracy and subordination, and who could not be obtained in sufficient numbers to form any material proportion of the force. Hence the survey of Ireland became essentially military in its organization and control, the officers of engineers being the directors of large parties, and the non-commissioned officers the subordinate directors of small parties.

In the later years of the Irish survey, however, the superintendence by the sappers became of much consequence and its advantages very appreciable in the reduction of expense. For the year 1827, the outlay for the survey was above 37,000*l.*, at which period the sum paid to the officers was more than one-third of the whole amount; but in 1841, when the expenditure was more than doubled, the amount for superintendence had been reduced to a twelfth part of the total expenditure.²

The general employment of the sappers and miners in this great national work embraced the whole range of the scheme for its accomplishment, and many non-commissioned officers and men trained in this school became superior observers, surveyors, draughtsmen, levellers, contourers, and examiners. Among so many who distinguished themselves it would be almost invidious to name any; but there were a few so conspicuous for energy of character, efficiency of service, and attainments, that to omit them would be a dereliction no scruples could justify. Their names are subjoined:—

Colour-sergeant John West celebrated as an engraver. In 1833, the Master-General, Sir James Kempt, pointed out his

² 'Second Report Army and Ordnance Expenditure,' 1849, p. 500. To such an extent was the diminution in the number of the officers subsequently carried, that in 1849 the amount of expense incurred by the superintendence of officers was reduced to one twenty-second part of the total expenditure; therefore by the more general employment of sappers in the direction of the work, the amount of superintendence was reduced from one-third and one-fourth, to one twenty-second part.

name on the engraving of the index map of Londonderry to His Majesty William IV. in terms of commendation; and the Master-General, while West was yet a second-corporal, promoted him to be supernumerary-sergeant, with the pay of the rank. Most of the index maps of the counties of Ireland were executed by him, and a writer in the United Service Journal³ complimented him by saying that the maps already completed by him were as superior to the famous *Carte des Chasses* as the latter was to the recondite productions of Kitchen, the geographer. His also was the master hand that executed the city sheet of Dublin, and his name is associated with many other maps of great national importance. The geological map of Ireland, 1839, engraved for the Railway Commissioners, was executed by him; and in all his works, which are many, he has displayed consummate skill, neatness, rigid accuracy, and beauty both of outline and topography. In October, 1846, he was pensioned at 1s. 10d. a-day, and received the gratuity and medal for his meritorious services. He is now employed at the ordnance survey office, Dublin, and continues to gain admiration for the excellency of his maps.

Sergeant Alexander Doull was enlisted in 1813. After serving a station in the West Indies, he was removed to Chatham. There on the plan of 'Cobbett's Grammar,' he commenced publishing letters to his son on "Geometry," but after the second number appeared, he relinquished the undertaking. In 1825 he joined the survey companies, and was the chief non-commissioned officer at the base of Magilligan. He was a superior mathematical surveyor and draughtsman, and his advice in difficult survey questions was frequently followed and never without success. Between 1828 and 1833 he had charge of a 12-inch theodolite, observing for the secondary and minor triangulation of one of the districts, and was the first non-commissioned officer of sappers, it is believed, who used the instrument bearing that designation. In July, 1834, while employed in the revision of the work in the neighbourhood of Rathmelton;

³ ii., 1835, p. 154.

he introduced a system of surveying similar to traverse-sailing in navigation, which effected a considerable saving of time in the progress of the work, and elicited the approbation of Colonel Colby. While on the duty he invented a plotting-scale,⁴ and subsequently a reflecting instrument,⁵ both simple and ingenious in construction. After a service of twenty-three years, he was discharged in January, 1838. When the tithe commutation survey was thrown into the hands of contractors, Doull got portions of the work to perform, and his maps were referred to in terms of high commendation by Edwin Chadwick, Esq.⁶ Among several towns that he surveyed, one was Woolwich, the map of which, dedicated to Lord Bloomfield, was published by him in 1843. In the proposed North Kent Railway, Mr. Doull was assistant-engineer to Mr. Vignoles, and he planned a bridge of three arches, having a roadway at one side and a double line of rails at the other, with an ornamental screened passage between, to span the Medway where the new bridge recently constructed, connects Strood and Rochester; which plan, had the proposed railway not been superseded by a rival line, would have secured an enduring fame for the designer. This was the opinion of Mr. Vignoles and Sir Charles Pasley. Afterwards when the competing companies were preparing their respective projects, Mr. Doull represented the engineering difficulties of the opposing scheme in a pamphlet under the signature of "Calculus." In this his military knowledge and experience were well exhibited, inasmuch as he showed how the fortifications at Chatham would be injured by the adoption of that line; and the railway consequently, on account of this and other influences, has never been prolonged so as to interfere with the defences. A few years afterwards he published a small work entitled, "Railway Hints and Railway Legislation," which obtained for him, from the South-Eastern Railway Company—the one he so perseveringly opposed—the situation of assistant-engineer to the line. More recently he issued a pamphlet on the subject

⁴ Frome's 'Surveying,' 1840, p. 40. Simms' 'Math. Inst.,' 1st edit.

⁵ Frome's 'Surveying,' 1840, p. 44.

⁶ 'British Companion and Almanack,' 1843, p. 38.

of a railway in America,⁷ which for its boldness and lucidity gained for him the praise of a rising literary genius in the royal engineers.⁸ His last pamphlet on the subject of opening a north-west passage between the Atlantic and Pacific oceans, a distance of 2,500 miles, is more daring, and evinces more pretension and merit than any of his previous literary efforts. Mr. Doull is also known as the inventor of several improvements of the permanent way of railways,⁹ and is a member both of the Society of Civil Engineers and the Society of Arts.

Serjeant Robert Spalding was for many years employed on the survey of Ireland, from which, on account of his acquirements, he was removed to Chatham to be instructor of surveying to the young sappers. To assist him in the duty he published a small manual for the use of the students. It was not an elaborate effort, but one which detailed with freedom and simplicity the principles of the science. In 1834 he was appointed clerk of works at the Gambia, where his vigorous intellect and robust health singled him out for varied colonial employment, and his merits and exertions frequently made him the subject of official encomium. Five years he spent in that baneful and exhausting climate, and in 1840, just as he was about to sail for England, the fever seized him, and in a few days he died. In his early career as a bugler he was present in much active service, and was engaged at Vittoria, San Sebastian, Bidassoa, Nivelle, Nive, Orthes, and Toulouse.

Sergeant Edward Keville was a very fair and diligent artist. He engraved the index map of the county of Louth, and assisted in the general engraving work at the ordnance survey office in Dublin. In January, 1846, he was pensioned at 1s. 10½*d.* a day, and obtained re-employment in the same office in which he had spent the greatest part of his military career.

Second-corporal George Newman was eminent as a draughts-

⁷ First published in a series of letters to the 'Morning Chronicle,' and then collected, with additional matter, in a pamphlet.

⁸ Synges's 'Great Britain—one Empire.'

⁹ These he patented in November, 1851. A description of the improvements, with sixteen illustrations, is given in the 'Civil Engineer and Architects' Journal,' xv., pp. 164, 165.

man, and the unerring fineness and truthfulness of his lines and points were the more remarkable, as he was an unusually large man of great bodily weight. He died at Killarney in 1841.

Lance-corporal Andrew Duncan was a skilful and ingenious artificer. His simple contrivance for making the chains, known by the name of "Gunter's chains," is one proof of his success as an inventor. Those delicate measures, in which the greatest accuracy is required, have by Duncan's process been made for the last twelve years by a labourer unused to any mechanical occupation, with an exactitude that admits of no question. The apparatus is in daily use in the survey department at Southampton, and the chains required for the service can be made by its application with great facility and rapidity. He was discharged at Dublin in September, 1843, and is now working as a superior artizan in the proof department of the royal arsenal.

Equally distinguished were sergeants William Young, William Campbell, and Andrew Bay, and privates Charles Holland and Patrick Hogan, but as their names and qualifications will be found connected with particular duties in the following pages, further allusion to them in this place is unnecessary.

Colonel Colby in his closing official report, spoke of the valuable aid which he had received from the royal sappers and miners in carrying on the survey, and as a mark of consideration for their merits, and with the view of retaining in confidential situations the non-commissioned officers who by their integrity and talents had rendered themselves so useful and essential, he recommended the permanent appointment of quartermaster-sergeant to be awarded to the survey companies; but his honour so ably urged was, from economical reasons, not conceded.

Seventeen years had the sappers and miners been employed on the general survey and had travelled all over Ireland. They were alike in cities and in wastes, on mountain heights and in wild ravines, had traversed arid land and marshy soil, wading through streams and tracts of quagmire in the prosecution of their duties. To every vicissitude of weather they were exposed, and in storms at high altitudes subjected to personal disaster

and peril. Frequently they were placed in positions of imminent danger in surveying bogs and moors, precipitous mountain faces, and craggy rocks and coasts. Boating excursions too were not without their difficulties and hazards in gaining islands almost unapproachable, and bluff isolated rocks and islets, often through quicksand and the low channels of broad sandy bays and inlets of the sea, where the tide from its strength and rapidity precluded escape unless by the exercise of extreme caution and vigilance, or by the aid of boats.

Two melancholy instances of drowning occurred in these services: both were privates,—William Bennie and Joseph Maxwell; the former by the upsetting of a boat while he was employed in surveying the islands of Loch Strangford, and the latter at Valentia Island. This island consisted of projecting rocks very difficult of access, and when private Maxwell was engaged in the very last act of finishing the survey a surf swept him off the rock. A lad named Conway, his labourer, was borne away by the same wave. The devoted private had been immersed in a previous wave by which his note-book was lost, and while stooping with anxiety, to see if he could recover it, another furious wave dashed up the point and carried him into the sea.¹⁰

Hardship and toil were the common incidents of their everyday routine, for on mountain duty theirs was a career of trial and vicissitude. Comforts they had none, and what with the want of accommodation and amusement in a wild country, on a dizzy height, theirs was not an enviable situation. Covered only by a canvas tent or marquee they were barely closed in from the biting cold and the raging storm; and repeatedly tents, stores, and all, have been swept away by the wind or consumed by fire, while the hardy tenants, left on the bleak hill top, or the open heath, have remained for days together half naked and unsheltered. Such was their discipline and such

¹⁰ In consideration of this event, the Board of Ordnance granted his widow a donation of 20*l.*; and she was, moreover, assisted by a very handsome subscription from the officers and men of the district in which her husband had served.

their spirit, they continued to labour protected only by their great coats—if haply they escaped destruction—till, renewed with tents or huts, they pitched again their solitary dwellings far away on the height or the moor.

Even on the less exposed employments of the survey; the men were subjected to many discomforts and fatigues. The marching was harassing; miles to and from work were daily tramped, frequently in a drenching rain; and in this kind of weather soaked to the skin, they barely permitted their work to be interrupted. Night after night for two or three weeks together, have these men returned to their quarters dripping wet; and when, in frosty weather, their clothes have frozen on their backs, the removal of boots and trousers have only been accomplished by immersing the legs in warm water.

The average strength of the three companies set apart for the survey, for each year from 1825 to 1842, is subjoined:—

	Least Strength.	Greatest Strength.	Average for each 12 Months.
1825	61	109	86
1826	106	134	115
1827	129	220	177
1828	232	259	248
1829	234	257	242
1830	233	258	247
1831	248	268	255
1832	230	256	242
1833	211	231	220
1834	204	215	209
1835	199	204	201
1836	195	198	196
1837	191	213	199
1838	208	217	213
1839	199	220	208
1840	183	213	197
1841	87	179	142
1842	31	74	50

During the above period the casualties by death in Ireland only amounted to twenty-nine of all ranks, proving the general healthiness of their occupation. Of these, three were untimely: two by drowning as shown in a preceding paragraph, and one killed—private John Crockett—by falling from a car while proceeding on duty from Leixlip to Chapelizod.

Here it should be noted that the sappers, in the prosecution of their duty, necessarily mixed with all descriptions of society, and were invariably treated with respect, civility, and hospitality. The spirit of agrarianism, the bigotry of religion, or the natural irritable temperament of the people, were seldom evinced against the companies in abuse or conflict.

As the work was drawing to a close the sappers by rapid removals augmented the force employed in the survey of Great Britain, so that at the termination of 1841 there were no less than 143 men chiefly in the northern counties of England, and thirty-four carrying on the triangulation of Scotland, leaving for the residual work of the Irish survey only eighty-seven men of all ranks.

In June, 1842, the payment of the companies in England commenced on a system of consolidating the detachments into a series of vouchers prepared for their respective companies. At that time the force in Ireland, left for the revisionary survey of Dublin and the northern counties and for the engraving office at Mountjoy, reached a total of six sergeants and forty-one rank and file; while the absorbing work of the survey of Great Britain had on its rolls a strength of 217 of all ranks. Southampton, in consequence of the destruction of the map office at the Tower of London by fire, was established as the head-quarters of the survey companies; and in the institution formerly known as the royal military asylum for the orphan daughters of soldiers, are now carried on those scientific and extensive duties which regulate with such beautiful accuracy and order, the whole system of the national survey.

1843.

Falkland Islands; services of the detachment there—Exploration trips—Seat of government changed—Turner's stream—Bull fight—Round Down Cliff, near Dover—Boundary line in North America—Sergeant-major Forbes—Operations for removing the wreck of the 'Royal George'—Exertions of the party—Private Girvan—Sagacity of corporal Jones—Success of the divers—Exertions to recover the missing guns—Harris's nest—His district pardonably invaded—Wreck of the 'Edgar,' and corporal Jones—Power of water to convey sound—Girvan at the 'Edgar'—An accident—Cessation of the work—Conduct of the detachment employed in it—Sir George Murray's commendation—Longitude of Valentia—Rebellion in Ireland—Colour-sergeant Lanyon explores the passages under Dublin Castle—Fever at Bermuda—Burning of the 'Missouri' steamer at Gibraltar—Hong-Kong—Inspection at Woolwich by the Grand Duke Michael of Russia—Percussion carbine and accoutrements.

THE settlement at Port Louis, in the Falkland Islands, was daily growing into importance, and works applicable to every conceivable emergency were executed. This year the old government-house was thoroughly repaired, and a new substantial barrack for the detachment erected. Unlike the other buildings of the colony, the foundation-stone was laid by the Governor with the usual ceremony, and in a chamber was placed a bottle of English coins of the reign of Queen Victoria. There were also built houses for baking, cooking, and to hold boats. A butcher's shop was likewise run up, and cottages erected for the guachos and their major-domo, as well as a small calf house on Long Island and a large wooden peat-house at Town Moss. To add to the variety of their employment the sappers repaired the pass-house, put the pinnacle in fine sailing condition, and constructed a jetty of rough stones for boats. Other services of less note but equally necessary were performed, such as quarrying stone, building a sod-wall

to enclose a space for garden purposes, stacking peat for the winter, and removing stores and provisions from the newly-arrived ships, &c.

Parties were detached on exploring services to North Camp and Mare Harbour. In both places wild cattle abounded and troops of horses made no attempt to scamper away. On one excursion sergeant Hearnden and corporal Watts accompanied Mr. Robinson to Port St. Salvador in the face of a snow-storm, opposed by a cutting wind. Several wild horses and a herd of savage bulls were met in the trip; and geese, too, crossed their track in vast numbers, merely waddling out of the way to prevent the horsemen crushing them. Night at length spread over them. To return in such weather was impossible; and looking about they discovered a heap of stones, which turned out to be a sealer's hut. The ribs of a whale were its rafters and turf and stones served the purpose of tiles. Leashing their horses and fastening them in a grassy district some four miles from the hut, Hearnden at once repaired the roof of the desolate hermitage, and Mr. Robinson with his companions crept into it through a small aperture on their hands and knees. Here they passed a bitter night; and so intense was the cold that four of the five dogs taken with them perished. Next day they returned to the settlement with less appearance of suffering than cheerfulness, and with a heavy supply of brent and upland geese and some wild rabbits.

Notwithstanding the inclement weather, the health of the detachment continued to be robust. Fourteen months they had been at the Falkland Islands without a doctor; but in March one was added to the settlement from the 'Philomel.'

After having erected comfortable residences for nearly the whole of the official establishment, the seat of government, by orders from the Colonial Office, was removed to Port William. The proclamation for this purpose was read to the inhabitants of Port Louis by sergeant Hearnden on the 18th August, 1843. Jackson's Harbour was selected by the Lieutenant-Governor for the future settlement. Soon after, the detachment marched overland to the spot, and continued there during the

remainder of the year—except when temporary service required their presence at Port Louis—preparing the location for the Governor and the official officers. A sod-hut was soon run up for one of the married families, and the rest were tented on boggy ground about twenty yards from the river. In stormy weather the ground, as if moving on a quicksand, would heave with the fury of the wind; and what with the whistling of the gale through the cordage, the flapping of the tents, and the roaring of the waves, the men at night were scarcely free from the hallucination of fancying themselves at sea.

Their early operations at Jackson's Harbour were very harassing, much of the material required for building having to be brought from a distance; but before the close of the year a two-roomed wooden cottage was erected with some convenient outhouses for domestic purposes. A portable house for the surveyor was also constructed, and one built in Mare Harbour. A rough jetty of planks, piles, and casks was likewise made, and the high grass for miles about the settlement was burnt down. This service was not accomplished without difficulty, for the continual rains having saturated both grass and ground, prevented the spreading of the flames, and required unceasing efforts for more than a month to insure eventual success.

While out on this duty sergeant Hearnden discovered a good ford for horses about 150 yards from Turner's Stream, and marked the spot by a pile of stones, the summit of which was on a level with high-water mark. Turner's Stream was named in compliment to a private of that name, who carried the Governor in his journeys over the shallow waters and lagoons that intersected his track.

Much discomfort and some privation were experienced by the men in the first months of their encampment at Jackson's Harbour. To get meat they usually travelled to Port Harriet, or some eight or nine miles from the location. The bulls they shot were always cut up on the spot and their several parts deposited under stones till required for use at the camp. In these expeditions the bulls were frequently seen in herds and wild horses in troops, sometimes as many as fifteen in a group.

Once the camp was attacked by a number of wild horses and four savage bulls. The party, about four in number, were at breakfast at the time they approached, and, at once seizing their loaded rifles, ran out of the tent to meet them. Two of the bulls only, stood their ground; and though struck by two bullets, rushed on furiously, and forced the party to beat a hasty retreat. A position was rapidly taken up among some barrels and timber, under cover of which the men were reloading; but the onslaught of the bulls was so impetuous that the operation was interrupted and the party driven into the tents. One of the animals now trotted off; but the other, still pursuing, bolted after the men into the marquee. A ball from private Biggs's rifle fortunately stopped his career, and, turning round, the infuriated animal tore up the tent, committed great havoc through the camp, and made a plunge at private Yates, who dexterously stepped aside, and, firing, shot the bull in the head, and the combat ceased.

Lance-corporal John Rae and private Thomas Smith were employed in January under Lieutenant G. R. Hutchinson, R.E., in the demolition and removal by blasting of a portion of the Round Down Cliff, near Dover, for the purpose of continuing the South Eastern Railway in an open line, supported by a sea-wall, up to the mouth of Shakspeare Tunnel. The summit of the cliff was about 380 feet above high-water mark, and 70 feet above that of Shakspeare Cliff. The two sappers had the executive superintendence of the mines, the placement of the charges, and various duties connected with the management of the voltaic apparatus and wires. No less than 180 barrels of gunpowder were expended in the operation; and the explosion by electric galvanism brought down, in one stupendous fall, a mass of chalk—about 400,000 cubic yards—which covered a space of $15\frac{1}{2}$ acres, varying in depth from 15 to 25 feet, and saved the South Eastern Railway Company the sum of 7,000*l*.

Six corporals under Captain Robinson, R.E., with Lieutenant Pipon, were attached, under orders from Lord Aberdeen, to the commission of which Lieutenant-Colonel Estcourt was the chief, for tracing the boundary line between the British dominions in North America and the United States, as settled by

the Ashburton treaty. Dressed in plain clothes, they embarked at Liverpool on the 19th April, and arriving at Halifax on the 2nd May, proceeded by Boston and New York to the Kennebec road and entered the woods late in the month. In May, 1844, the party was increased to twenty men by the arrival of fourteen non-commissioned officers and privates from the English survey companies. The co-operation of this party was urged as of paramount importance. It enabled the work, so says the official communication, to be carried on over a large portion of country at once with energy and rapidity, and in such a manner as to insure a more vigorous and correct execution of it than if the Commissioners were left to depend on the assistance to be met with on the spot; and which, although greatly inferior in quality, would have entailed more expense on the public than the employment of the military surveyors. Each sapper was selected as being competent to work by himself, and to survey and run lines of levels, besides keeping in constant employment a staff of labourers.

Sergeant-major James Forbes retired from the corps on the 11th of April on a pension of 2*s.* 2*d.* a-day. He was succeeded by colour-sergeant George Allan,¹ an excellent drill non-commissioned officer, who was appointed to the staff at Chatham, vicê sergeant-major Jenkin Jones, removed to the staff at Woolwich.

The merits of sergeant-major Forbes have been frequently alluded to in these pages, but there still remain some other points in his history to be noticed. To the royal military college at Sandhurst, he presented several models made by himself on military subjects. About two years before his retirement he invented the equilateral pontoon, a vessel of a very ingenious character. Its sides consist of "portions of cylinders, supposed to be applied to three sides of an equilateral triangular prism, each side of the triangle being two feet eight inches long; so that the cylindrical portions meet in three edges parallel to

¹ Became in time the quartermaster of the royal engineer establishment at Chatham, and when the siege of Sebastopol was at its highest, was removed from the corps by promotion into the Turkish contingent engineers with the rank of Captain.

the axis of the pontoou. The sagitta, or versed sine of the curvature being about one-fifth of the side of the triangle, it follows that each side of the pontoon forms, in a transverse section, an arc of nearly 90°. Each end of the pontoon consists of three curved surfaces, corresponding to the sides of the vessel, and meeting in a point, as if formed on the sides of a triangular pyramid."² "The form," says Sir Howard Douglas, "appears to be well adapted for the purposes of a good pontoon; as whichever side is uppermost it presents a boatlike section to the water, and a broad deck for the superstructure. It possesses, also, the advantage of a horizontal section gradually enlarging to the highest point of displacement, by which means stability and steadiness in the water are obtained in a high degree. The area of a transverse section of this pontoon is greater than that of the present cylindrical pontoon; and the greater capacity produces more than a compensation, in buoyancy, to the small excess of weight above that of a cylindrical pontoon."³ A raft of this form of pontoon was prepared under the eye of the sergeant-major and sent to Clatham for trial, but although it gained much favour for its decided excellences, it was finally set aside on account of "some inconvenience in the management causing a preference to be given to those of a simple cylindrical form"⁴—the construction, in fact, established for the service. He was however awarded by the Board of Ordnance, in consideration of his trouble and as a tribute to his skill, the sum of one hundred guineas.

On leaving the royal sappers and miners, he was appointed surveyor to a district of the Trent and Mersey canal, at a salary of 215*l.* a year, with a fine residence and five acres of land attached. He was also allowed forage for two horses, and all his taxes and travelling expenses were paid. Some two years afterwards his salary was increased to 280*l.* a year, and in 1846, so highly appreciated were his services, that the Directors of the company proposed him to fill the office of engineer to the canal. His integrity however was such, that he

² Sir Howard Douglas, 'On Military Bridges,' 3rd edit., p. 32.

³ *Ibid.*, 33.

⁴ *Ibid.*, 33.

would not be tempted by the great increase of salary the promotion promised, and declined it, from a modest feeling that he might not be able to do justice to so important and onerous a charge. Quickly upon this, he received the thanks of the Directors, accompanied by a special donation of 100*l*. Determining upon other arrangements for the execution of their works, the company disbanded its establishment of workmen and superintendents, retaining only the engineer and Mr. Forbes; and such was his character for alacrity, resolution, and discrimination, that the Directors appointed him to superintend all the works undertaken for the company, both on the canal and the North Staffordshire Railway, which was now incorporated with the Trent and Mersey Canal proprietary. This alteration in the company's affairs, caused his removal from Middlewich to a commodious residence in Etruria, in Staffordshire, where his energy and influence in the parish soon gained him the post of churchwarden, and the honor of being invited to a public breakfast, at which, while the Bishop of Lichfield held the chair, he had the distinction of filling the vice-chair. Latterly he has appeared before the public as a writer. His pamphlet on the National Defences, proposing a locomotive artillery, addressed to Lord John Russell, was perused by that nobleman and received the attention of Sir John Burgoyne. Frequently he has written in the public journals on pontoons. He has also published a pamphlet on the subject, and another relative to a pontoon-boat, which he has invented.⁵ The latter

⁵ It is simply a half-cylinder, 20 feet long by 1 foot 9 inches wide, and 3 feet deep, strengthened internally by hollow tubes, and deriving its buoyancy from an ingenious distribution of water-tight compartments, which not only preserve the flotation but provide seats for the troops. To render the contrivance more efficient for rafts or bridging purposes, a similar half-cylinder is attached to its consort by strong hinges and bolts. When shut its form is cylindrical; when open, two boats in rigid connection, taking the same swing in the water—the same motion on the wave. In this Siamese connection it is intended always to be used; and fitted as it is with all the necessary details, and the means of applying a rudder or an oar for steering at any end, it appears to be adequate for all the uses and contingencies, not only of a pontoon, but of an ordinary passage-boat. It moreover aspires to the merciful functions of a life-boat, being capable, without risk of capsizing or sinking, of venturing out in heavy seas to save human life imperilled by squalls or shipwreck.

is of great interest and may yet receive the attention its ingenious suggestions deserve. On the 6th of May, 1853, he was elected an Associate of the Institution of Civil Engineers: for which honour he was proposed by the great Robert Stephenson and Mr. S. P. Bidder, the two leading civil engineers of this country. Within the last year, he has been advanced to the post of engineer to the company, and he enjoys the perfect satisfaction and confidence of his employers. His salary and emoluments exceed 400*l.* a year.

The operations against the wreck of the 'Royal George' were resumed, for the fifth time, early in May, with a detachment of fifteen royal sappers and miners, eight East India Company's sappers, and about eighty seamen, riggers, &c., under the direction of Major-General Pasley, with Lieutenant G. R. Hutchinson as the executive officer. At the end of 1842, almost all the floor timbers had been got up and 101 feet of the keel, leaving only about 50 feet more at the bottom; and out of 126 tons of pig-iron ballast, 103 tons had been safely wharfed. There was therefore confident reason to expect the entire removal of the wreck before the close of the season; and such indeed was the success of the enterprise, that Major-General Pasley, on quitting the work in November, declared that the anchorage ground, where the wreck had lain, was as safe and fit for the use of ships as any other part of Spithead. At first four divers went down regularly, and afterwards five or six were at work at every slack tide, generally three times a day.

After a few weeks of unsuccessful effort, the firing of three charges each of 675 lbs. of powder in puncheons, removed a bank of shingle which chiefly interfered with the divers' success. These charges were fixed by corporals Harris and Jones, and private Girvan. In one week afterwards, the divers effected as much as in the five weeks previously, for not only were the keel and bottom planking somewhat bared, but a great deal of the remaining iron ballast was rendered accessible. Six other charges, of 720 lbs. of powder each, and numerous smaller charges, were subsequently fired, with results that gave ample

employment for all the divers and the detachment on board.

One or two failures occurred which arose from want of experience in firing conjunct charges at Spithead; but in other respects, the operation, which was exceedingly difficult, was conducted with skill and success, owing to the able arrangements of Lieutenant Hutchinson, assisted by the leading riggers, and by lance-corporal Rae and private Alexander Cleghorn, who had the preparation of the charges and the voltaic batteries. The divers, too, did everything necessary at the bottom, and were well seconded in every department by the sappers and others employed. "In short," adds the narrative,⁶ "this operation, including the separation of the two mooring lighters before the explosion and bringing them together afterwards," could not, in consequence of the severe weather, have possibly succeeded, "if all the men had not, from long experience, known their respective duties well and entered into them with laudable zeal."

"On the 9th of July private John Girvan slung the largest and most remarkable piece of the wreck that had been met with this season, consisting of the fore foot and part of the stem, connected by two very large horse-shoe copper clamps bolted together; the boxing by which it had been connected with the fore part of the keel was perfect, from which joint six feet of the gripe had extended horizontally, and terminated in the curve of the stem, which was sheathed with lead.—The length of this fragment was sixteen feet, measured obliquely, and its extreme width five feet."⁷ At another time he recovered an enormous fish-hook, no less than eight feet nine inches in length from the eye to the bow!

By corporal Jones, on the 17th following, was slung a large iron bolt, ten feet long; which, on being brought on deck, was observed by him to exhibit marks of having been in contact with brass. He therefore rightly conjectured there must be a brass gun at the spot, and descending again recovered a brass 24-pounder, nine and a half feet long, of the year 1748.⁸

⁶ 'United Service Journal,' iii., 1843, p. 139.

⁷ Ibid., p. 139.

⁸ Ibid., p. 138.

"On the 31st of July, private Girvan discovered a gun buried under the mud, but it was not till the 3rd of August that he succeeded in slinging it, assisted by corporal Jones, with whom he generally worked in concert this season;"⁹ and shortly after, the latter diver recovered the last remnant of the keel, measuring nearly twenty-two feet in length, corporal Harris having previously sent up portions of it in the early part of the summer amounting in length to thirty-six feet,¹⁰ and private Girvan, six feet.

The only money got up this season was a guinea of 1775, found on a plank sent up by Jones.

Increased exertions were now made to recover the guns, which were embedded some depth in the mud, and the divers cleared the way by sending up everything they could meet with, until nothing but insignificant fragments could be found. To assist them, two frigate anchors and the half anchor creepers with some auxiliary instruments, drawn backwards and forwards as well as transversely over the site of the wreck, were made to do effectual work. The East India Company's sappers had been removed before these labours began;¹¹ the whole of the subsequent diving, therefore, was exclusively carried on by the royal sappers and miners,¹² and to their vigilance of observation and unceasing zeal, was attributed the recovery of thirteen guns late in the season. Of these, corporal Harris got up three iron and six brass guns, corporal Jones three brass, and private Girvan one iron.

Here it should be explained "how much more successful than his comrades corporal Harris was towards the close of the season, in recovering guns, though the other divers, corporal Jones and privates Girvan and T'revail, had been equally successful in all the previous operations. Corporal Harris fell in with a nest of guns, and it was a rule agreed upon, that each first-class diver should have his own district at the bottom, with which the others were not to interfere."¹³

⁹ 'United Service Journal,' iii., 1843, p. 139.

¹⁰ *Ibid.*, pp. 137, 140.

¹¹ Quitted 28th August, 1843.

¹² 'United Service Journal,' i., 1844, p. 143.

¹³ *Ibid.*, p. 146.

Jones, though satisfied with the arrangement as a general rule, was a little disposed to feel aggrieved when, by contrast, the odds were against him. He was curious to know by what means Harris turned up the guns with such teasing rapidity, and going down with the secret intention of making the discovery, tumbled over a gun with its muzzle sticking out of the mud. This piece of ordnance legitimately belonged to Harris, for it was in his beat; but, as Jones enthusiastically expressed it, seeming to invite the favour of instant removal, he could not resist the temptation to have its recovery registered to his credit. He therefore securely slung it, and rubbing his hands with delight at the richness of the trick, gave the signal to haul up. Harris, suspecting that his territory had been invaded, dashed down the ladder and just reached the spot in time to feel the breech of the gun slipping through his fingers. Jones, meanwhile, pushed on deck, and was pleased to see that the plundered relic was a 12-pounder brass gun of the year 1739. Jones a second time applied to the district over which Harris walked with so much success, and filched from the nest a brass 12-pounder gun—the last one recovered this season.

After the removal of the 'Royal George' had been effected, but while the search for the guns was going on, Major-General Pasley detached to the wreck of the 'Edgar,'¹⁴ the 'Drake' lighter, with thirteen petty officers and seamen of Her Majesty's ship 'Excellent,' to learn the art of diving. Corporal Jones was attached to the party to instruct them. Violent gales prevailed at this period, "which repeatedly drove the 'Drake' from her moorings, not without damage, and at other times caused her to drift in such a manner that guns, discovered by a diver late in a slack, could not be found when the weather permitted his subsequent descent." Hence only five iron guns of this wreck were got up during the season, with a piece of the keel and a floor timber. These were all recovered by corporal Jones, who had also been engaged one tide in finding an anchor

¹⁴ This ill-fated ship, built by Bailey of Bristol in 1668, was wrecked by an explosion in 1711, and every soul on board perished.—'United Service Journal,' i., 1844, p. 146.

that had been lost.¹⁵ So anxious was he to add to the magnitude of his acquisition, that on one occasion he remained below as long as four hours, but his exertions were unattended with the hoped-for return.

An interesting fact with respect to the power of water to convey sound was ascertained on the 6th October. A small waterproof bursting charge containing 18 lbs. of gunpowder was fired at the bottom. Corporal Jones who happened at the time to be working at the 'Edgar'—nearly half-a-mile distant—hearing a loud report like the explosion of a cannon, imagined that a large charge had been fired over the 'Royal George.' To those on deck immediately over the place, the report was scarcely perceptible.

Private Girvan relieved corporal Jones at the 'Edgar' on the 16th October, and got up the breech part of an iron 32-pounder, which had been cut in two a little in front of the trunnions.¹⁶

The only mishap this summer occurred to private Girvan. Just as he appeared above the water the explosion of a charge took place, from which he sustained a slight shock and a wrench in the back producing a sensation of pain. Though eager to go down again his wish was overruled, and he remained on board for the day. Sergeant Lindsay fired the charge, and the accident was attributed to a nervous slip of his hand when ready to apply the wires to the battery.

On the 4th November the divers descended for the last time, as the water had become so cold that their hands—the only part exposed—were completely benumbed, so that they could no longer work to advantage; and then, the operations ceasing from necessity, the detachment of the corps rejoined their companies at Woolwich.

Major-General Pasley in according his praises to the various individuals and parties employed at Spithead, spoke highly of sergeant George Lindsay in subordinate charge, and the whole detachment; but more particularly of the intelligent and enterprising men to whom the important task of preparing all the

¹⁵ 'United Service Journal,' i., 1844, pp. 145, 146.

¹⁶ *Ibid.*, p. 146.

charges fired by the voltaic battery was confided. The charges were numerous and of various quantities, amounting in all to 19,193 lbs. of powder, or nearly 214 barrels. The soldiers alluded to were lance-corporal John Rae and private Alexander Cleghorn who were promoted for their services. The still more arduous duty of diving gave the General every satisfaction. Frequently the duty was embarrassing and dangerous, and carried on under circumstances calculated to test most severely their courage and resources; and so indefatigable were their exertions, and so successful their services, that the military divers gained the character of being "second to none in the world."¹⁷ Most of the party this season attempted to dive, but, from the oppression felt under water by some, only two or three beyond the regular divers could persevere in the duty.

Upon the report made by Major-General Pasley of the conduct of the detachment engaged in the operations, Sir George Murray, the Master-General, was pleased thus to remark: "It has given me no less pleasure to be made acquainted with the very commendable conduct of the non-commissioned officers and privates of the sappers and miners who have been employed under Major-General Pasley, and have rendered so much useful service in the important undertaking conducted under his management."

From June to September about eight men under Lieutenant Gosset, R.E., assisted in the undertaking for determining the longitude of Valentia by the transmission of chronometers. Thirty chronometers were conveyed in every transmission; and to privates Robert Penton and John M'Fadden was entrusted the service of bearing the chronometers, and winding them up at stated times and places. On receiving the chronometers from Liverpool the reciprocations took place repeatedly between Kingston and Valentia Island; one private being responsible for their safe transit a portion of the route, and the other for the remaining distance to and from the station at Feagh Main. Professor Sheepshanks and Lieutenant Gosset carried out the scientific purposes of the service, while the sappers not engaged

¹⁷ 'United Service Journal,' iii., 1843, p. 141.

with the chronometers attended to the duties of the camp and observatory at Feagh Main, under the subordinate superintendence of corporal B. Keen Spencer. The professor instructed this non-commissioned officer in the mode of taking observations with the transit instrument; and further, in testimony of his satisfaction, gave generous gratuities to privates Penton and M'Fadden. Professor Airy, in speaking of the former, alludes to the perfect reliance he placed on his care, "and in winding the chronometers," adds, "he has no doubt the service was most correctly performed."¹⁸ The duty was one in which extreme caution and care were required, to prevent accident or derangement to the instruments.

Agitation for a repeal of the union, headed by O'Connell, was now the great excitement of Ireland, and a rising of the masses to enforce it was daily expected. With the reinforcement of troops sent there to preserve order was the first company of sappers, which was despatched by rapid conveyances, *via* Liverpool to Dublin, where it arrived on the 26th July. The company consisted of ninety men of all ranks, and their duties embraced repairs to the barracks and the planting of stockades in the rear of the castle, to prevent the ingress, in case of revolt, of the rebels.¹⁹ They also prepared several thousands of sand-bags for breastworks. Detachments of one sergeant and twenty rank and file were sent to Limerick and Athlone in November, where they strengthened the barracks and loopholed the outside walls for musketry. The store-rooms of the artillery barracks were also loopholed. Effectually, however, was the anticipated outbreak suppressed, and, under the authority of Sir James Graham, the Home Secretary, the company was recalled to England and arrived at Woolwich on the 22nd August, 1844.

¹⁸ Airy's 'Longitude of Valentia,' p. xi.

¹⁹ Owing to a rumour that the castle at Dublin could be entered by a subterranean passage or sewer from the Liffey, colour-sergeant Lanyon was directed to explore it. He did so, and found that a strong iron grating existed in the passage, which would effectually prevent the supposed entrance. In this duty, being much exposed to the influence of noxious vapours, he soon afterwards was seized with fever and jaundice, which shortened his days.

The yellow fever broke out at Bermuda in August, and continued with unabated virulence and fatality until the middle of September. In that brief period, out of a strength of 165 men, it carried off no less than thirty-three men of the eighth company and four men of the fourth, besides Captain Robert Fenwick, R.E., in command of the latter, and Lieutenant James Jenkin, the Adjutant.²⁰ The two companies were distributed to St. George's and Ireland Island; at the former, where the fever chiefly raged, was the eighth company, about ninety strong, and at the latter the fourth. Eighty-eight men had been seized with the malady, of whom twenty-four were admitted with relapses, and four had suffered three seizures, none of whom died. Dr. Hunter, a civil physician, attended the cases in the absence of a military medical officer. With the civil population his practice was remarkably successful; for out of 101 natives who took the fever only one died. He therefore concluded that the artillery, who lost nine men, and the sappers thirty-seven, fell easy victims to the epidemic from their intemperate habits. No comparison, however, was justifiable between coloured people, upon whom the fever had but little effect, and Europeans; but an analysis of the cases, as far as the sappers were concerned, confirmed the doctor's views to the extent of sixteen men. The remainder, twenty-one, were men of sobriety and general good conduct.

Lance-corporal Frederick Hibling being the only non-commissioned officer *not* attacked, performed the whole duties of the eighth company, and for his exertions and exemplary conduct was promoted to the rank of second-corporal. Seven widows and twenty-two orphans were left destitute by this calamity, among whom a subscription (quickly made through the corps, assisted by many officers of royal engineers, nearly amounting to 200*l.*) was distributed, in proportion to their

²⁰ Mr. James Dawson, foreman of masons, formerly colour-sergeant in the corps, also died during the fever. He was a clever tradesman and overseer, and while in the sappers did good service at St. Helena, Corfu, and Bermuda. He was succeeded as foreman by sergeant John McKean, who was discharged in November, 1843, and still fills the appointment with ability and faithfulness.

necessities—one woman with six children receiving as much as 33*l.* The lowest gift was 14*l.* to a widow without children. A monument of chaste and beautiful design, consisting of a fluted column surmounted by an exploded bomb, resting on a neat and finely proportioned pedestal, was erected in the military burial-ground at St. George's, in mournful commemoration of the victims. On three panels of the pedestal were inscribed their names, and on the fourth was sculptured the royal arms and supporters. The work was executed by the surviving stonemasons of the company, and the royal arms were cut by private Walter Aitchison.

On the 26th August, in the evening, the 'Missouri,' United States' steamer, Captain Newton, took fire in the bay of Gibraltar, and a detachment of the corps at the Rock was sent out by Sir Robert Wilson, the Governor, in charge of two engines under Captain A. Gordon, R.E., to assist in extinguishing the flames; but all their diligence and intrepidity were unavailing, for the vessel was soon afterwards burnt to the water's edge. During the service the men were in much danger from falling masts and spars, and from the explosion of a powder-magazine on board. The Governor, in orders, thanked Captain Gordon and other officers of royal engineers, and the non-commissioned officers and privates of royal sappers and miners, for the creditable and useful zeal displayed by them on the occasion; and added, "that the marines, military, and boatmen of Gibraltar have the consoling reflection that nothing was left undone to save the vessel, and that the gallant crew was preserved by their united labour and devotedness." To each sapper employed at the fire was issued a pint of wine by his Excellency's order.

One sergeant and thirty-three rank and file under Lieutenant T. B. Collinson, R.E., sailed for China in the 'Mount Stuart Elphinstone,' and landed at Hong Kong the 7th October. A party of variable strength had been stationed there, employed superintending the Chinese artificers in carrying on the public works until July, 1854, when the sappers were recalled to England. Some of their first services embraced

the construction of roads and sewers, the erection of barracks for the troops and quarters for the officers, with various military conveniences, such as stores, guard-houses, &c. A residence was also built for the General in command, and a sea-wall of granite to the cantonment on the north shore of the island. They also directed the Chinese in cutting away a mountain to a plateau, of about eight acres, for a parade-ground, much of which was granite; and the several explosions rendered necessary to dislodge the mass were fired solely by sergeant Joseph Blaik. A company of Madras sappers also assisted in the superintendence of the coolies, who sometimes exceeded a thousand in number. The working pay of the royal sappers and miners was 1s. 6d. a-day each until the removal of the East India Company's establishment, when the allowance was reduced to the ordinary payment of 1s. each. Before the party was quartered in barracks it was housed for a time in a bamboo hut and afterwards in a bungalow. The smiths and plumbers were invariably employed at their trades, as the Chinese were very incompetent in these branches of handicraft.²¹

On the 9th October his Imperial Highness the Grand Duke Michael of Russia inspected the troops at Woolwich, on the common. The royal sappers and miners at the station were also drawn up with them, and marched past. Next day the Grand Duke, accompanied by Lord Bloomfield, visited the sappers' barracks, walked through the rooms, examined the carbine of the corps, and then looked over, with every mark of attention, the small museum of the non-commissioned officers attached to the library. On leaving, he expressed his gratification at what he saw, and of the efforts made by the soldiers to improve themselves.

The percussion carbine and sword-bayonet, were generally adopted in the corps this year, superseding the flint-lock

²¹ In May, 1851, when the tour of service of the detachment had expired, only six men were at the station to be relieved. The remainder comprised one discharged in China, who soon afterwards died, twelve invalided to England, and fifteen deaths.

1843.

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Plate XV



Printed by W. & N. Heath

UNIFORM 1843

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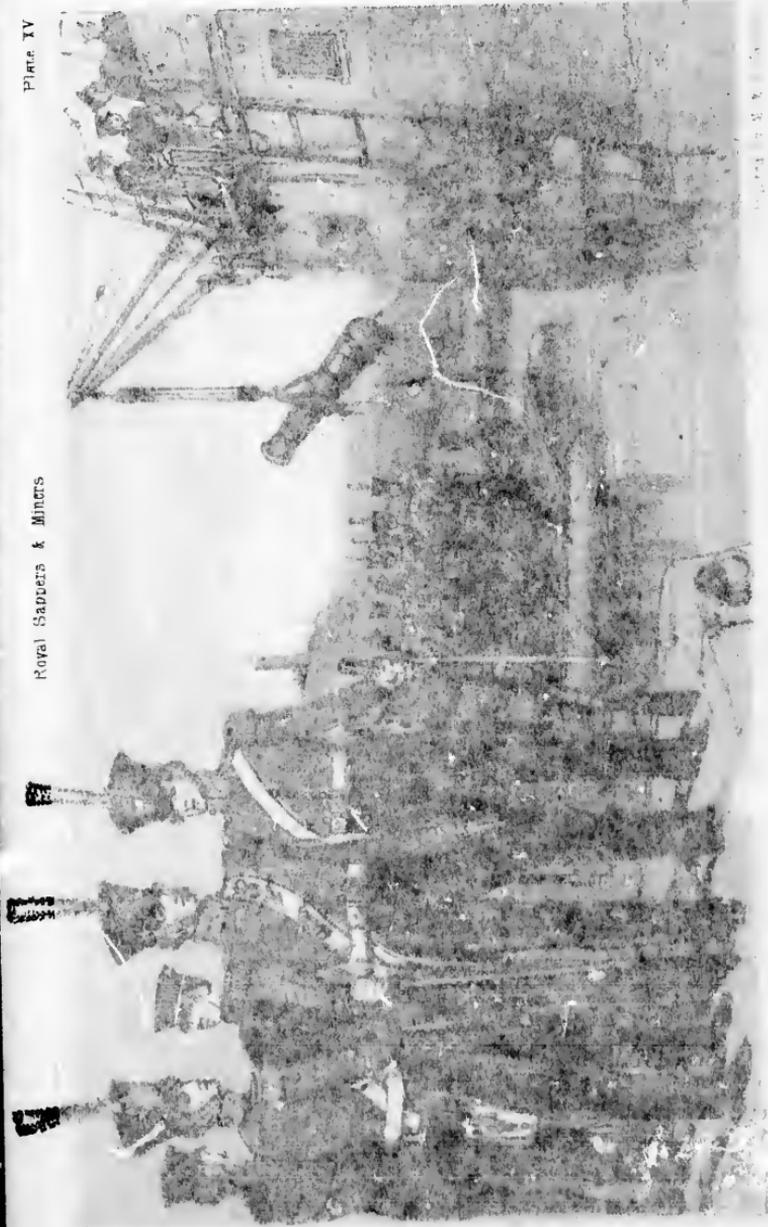
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musket and bayonet.²² The length of the musket with bayonet fixed was six feet two inches, but the carbine with sword was constructed an inch shorter. The carbine itself was nine inches and a-half shorter than the musket, but to make up for this reduction, and to enable a soldier to take his place in a charge, the sword-bayonet measured ten inches longer than the rapier-bayonet.²³

The shoulder-belt for the bayonet for all ranks was at this time abolished, and a waist-belt two inches broad, with cap-bag and sliding frog, substituted. This new accoutrement is the same as the present one; and the breast-plate then, as now, bore the royal arms without supporters, within a union wreath, based by the word "*Ubique*," and surmounted by a crown. The sword-bayonet was this year worn vertically for the first time, instead of obliquely as formerly.

The pouch-belt was not altered, but the pouch, the same as at present worn, reduced in dimensions, was made to contain thirty instead of sixty rounds of ball ammunition. The brush and pricker were now abolished.

The sergeants' swords were also withdrawn, and their arms and appointments made to correspond with the rank and file, the only difference being the addition of ornaments on the scabbard, which, with the waist-plate, were washed with gilt. These ornaments comprised a grenade bearing on the swell of the band the royal arms and supporters; detached from this, underneath, was a scroll inscribed "*Royal Sappers and Miners*," to which a ring was affixed sustaining a chain united to a whistle, resembling an old round watch tower; the whistle itself forming the battlemented crown, inscribed with the motto "*Ubique*."²⁴ These ornaments, the sugges-

²² Arms of the percussion principle had been on trial in the corps since July, 1840.

²³ These figures would seem to make the carbine and sword $1\frac{1}{2}$ inches longer than the old musket, but the loss of the supposed additional length was occasioned by the greater depth of the socket required to give strength and stability to the weapon. The comparative weight of the two arms gave a reduction in favour of the carbine of 2 lbs. $3\frac{1}{2}$ ozs.

²⁴ The idea for this ornament was taken from the martial custom among the Romans of presenting a mural coronet of gold or silver to the undaunted

tion of Major—now Colonel—Sandham, are still worn by the sergeants.

The buglers' short sword with three guards was replaced this year by one after the pattern of the Ceylon rifles' band. The hilt formed a ceremonial Maltese cross with fleury terminations, and on the flat between the horizontal limbs, above the blade, was an exploded grenade. The blade was straight, two feet ten inches long, and the mounting on the scabbard was chased and embellished. The weapon is still worn by the buglers, and is altogether neat, pretty, and convenient.—See Plate XVII., 1854.

soldier who should first scale the walls of a city and enter the place. Bailey in his Dictionary of 1727 says, "It was given to the meanest soldier as well as the greatest commander." As the assault of fortresses in sieges is the chief business of the sappers, the round tower with its mural crown on the sergeant's appointments, is an appropriate symbol for the corps.

1844.

Remeasurement of La Caille's arc at the Cape—Reconnoitring excursion of sergeant Hemming—Falkland Islands—Draft to Bermuda—Inspection at Gibraltar by General Sir Robert Wilson—Final operations against the 'Royal George'—and the 'Edgar'—Discovery of the amidships—incident connected with it—Combats with crustacea—Success of corporal Jones—Injury to a diver—Private Skelton drowned—Conduct of the detachment employed in the work—Submarine repairs to the 'Tay' steamer at Bermuda by corporal Harris—Widening and deepening the ship channel at St. George's—Intrepidity of corporal Harris—Accidents from mining experiments at Chatham—Notice of corporal John Wood—Inspection at Hong-Kong by Major-General D'Aguilar.

THE detachment set apart to measure the base line on Zwartland Plain at the Cape commenced the second season in September, 1841. It opened under a somewhat different arrangement with respect to the issue of provisions. Captain Henderson managed it in 1840, Mr. Maclear in 1841, and sergeant Hemming was appointed to act as his quartermaster-sergeant. Captain Henderson left the work in December and returned to England.

As soon as the base was measured, the triangulation began, and was carried on, with the exception of the winter interval, until January, 1842. Then the work was completed to the north extremity of La Caille's arc in the vicinity of St. Helena Bay. A few months were now spent in effecting the triangulation to the south as far as Cape Point, and in December, 1842, the work was resumed to the northward.¹

In January, 1843, the triangulation commenced at a headland north of St. Helena Bay, latitude about 32° S., and continued nearly parallel to the coast line, and about thirty miles

¹ 'Professional Papers,' N.S., i., p. 32.

from it until it reached Kamiesberg a little south of Lat. 30°. Here the arc was expected to terminate. The difficulties encountered this season were of a formidable kind, and the care required in the transport of Bradley's zenith sector and a large theodolite, occasioned much tedious anxiety for their preservation. The party, too, was formed of different materials; the infantry soldiers had quitted, and the shipwrecked crew of the 'Abercrombie Robinson' had been engaged in their stead. Most of these sailors were rough, ill-behaved fellows, and, therefore, the chief responsibility of the preparations and the conveyances devolved upon the sappers. In addition to this, the country passed over north of the Oliphant river was a stragglng desert, and the points used were at high altitudes—one of which exceeded 7,000 feet.²

In its progress northward, the party crossed the Oliphant or Elephant river on the 15th June, 1843, and the day being Sunday, encamped on its north bank to spend the sabbath. Six days after the expedition arrived at the foot of the Kamiesberg, where fell heavy rain for three days and two nights; and when the march was recommenced, the ground was so saturated, that the whole train had to be dug out of the mud repeatedly every day. In three days only eighteen miles were accomplished and that with great exertion. The oxen were now so knocked up that the farmers refused to go any further, and a fresh supply was procured at a missionary establishment twelve miles distant. When nearing that institution, the provisions were very low, and the difficulties of the expedition in this respect were greatly augmented by a heavy fall of snow. For the whole day the party were without food, nor could they make a fire to warm themselves.³ They laboured, however, with excellent spirit, and succeeded that night in bringing three of the waggons to the missionary station; but the other two, sticking fast in the deep ruts, were not brought up till the next day. The men were badly shod, and suffered

² 'Professional Papers,' N. S., i., p. 32.

³ About twelve miles from the sea ice was found three-eighths of an inch thick.

greatly. About a week after, the instruments were fixed and the observations commenced, which continued until October 1843, when the party returned to Cape Town,⁴ and afterwards marched up the country to join their company.

The objects used for reflecting or observing were heliostats about 7 inches in diameter, and were chiefly attended to by the sappers, who were sometimes detached on this duty for several months at a time with a couple of natives under them to assist. On account of the heat, the observations were discontinued at 11 A.M., and not renewed until 3 P.M. Notwithstanding this intermission, the signal duties were oppressive. All supplies were got from a distance, which fully occupied the two natives in procuring them. The sappers were also intrusted with large sums of public money to pay all demands as the work progressed. On the Kamiesberg mountain they helped in the observatory in working the great sector to determine the position of some stars. Two stone-cutters of the number were detached from the Kamiesberg to Zwartland and Groenekloof to cut and build a pillar of stone at each end of the line, to mark the termini of the newly-measured base; and all, as the general service of the expedition permitted, erected at every fixed point a strong pile twenty feet high, secured to a base of twenty feet, to indicate the sites of the several trigonometrical stations.

Sergeant Hemming, before the close of the duty, was sent by the colonial astronomer on a reconnoitring excursion to discover a track from the neighbourhood of St. Helena Bay along the mountain range to the eastward, to Cape L'Agulhas on the coast. He was out fourteen days exploring the country, but from its inaccessible nature returned not only disappointed and exhausted, but unsuccessful.⁵ In March, 1844, his connection with the astronomical department ceased.⁶

⁴ 'Professional Papers,' i., N.S., p. 32.

⁵ *Ibid.*, p. 33.

⁶ These particulars are chiefly collected from a paper by sergeant Hemming in the 'Royal Engineer Professional Papers,' i., pp. 31-39. This non-commissioned officer was pensioned at 1s. 8d. a-day, in May, 1845. Of his survey services Colonel Portlock gives an interesting outline in his prefatory remarks to the sergeant's paper. His dates appear to have been confined chiefly to the

The detachment at the Falkland Islands continued throughout the year to labour in the establishment of the new settlement at Port William, which was situated on the south side of Jackson's Harbour, and sloped from the shore to a ridge of rocks about a quarter of a mile inland. Notwithstanding the stormy character of the seasons, the detachment constructed three good jetties, made roads and pathways, and formed several ditches to drain the land and mark the different boundaries. They also erected and finished with interior fittings, the Governor's house, and besides building a temporary barracks for the party with workshops and other convenient premises attached, small commodious cottages were run up for persons in official employment. Of the services and intelligence of sergeant Hearn den the Governor wrote in terms of unqualified praise. Both as a soldier and private individual, the influence of his example was felt in the colony, and he is stated to have been in an eminent degree faithful and successful in the discharge of his duty. Most of the men were also well spoken of for their excellent behaviour and zeal; and amid the innumerable inconveniences of their situation and services, they maintained their military character and discipline unimpaired. This was the more commendable as the temptation to drunkenness—the prevailing vice in the colony—was, from the absence of the common recreations so usual in England, and the inclemency of the weather, almost irresistible.

On the 16th February, forty-four rank and file embarked for Bermuda under the command of Lieutenant C. R. Binney, R.E., to fill up the vacancies occasioned by the epidemic in the previous year, and landed from the 'Prince George' transport on the 8th April. Corporal David Harris, the chief military

mountains of Ireland, where in winter he was exposed to fearful inclemency and subjected to much hardship. "On one occasion," says the Colonel, "I had to place a young gentleman, who had graduated at Cambridge, under the sergeant for instruction, to whose zeal, intelligence, and respectability the pupil warmly bore testimony. Before receiving his discharge, he was appointed clerk and storekeeper to the road department in Cape Town, and some idea of the responsibility of his office may be inferred from the fact that he expended in four years, 1844-48, upwards of 36,000*l*."

diver, under Major-General Pasley at Spithead, was in subordinate charge of the party.

Sir Robert Wilson, the Governor of Gibraltar, inspected the companies of the corps at the fortress in common with the other troops under his command, in May and October, and on each occasion made flattering allusion to their conduct and discipline. On the 13th May, after some general remarks of commendation, Sir Robert Wilson adds—"All the corps and battalions merited unqualified approbation, and the Governor bestows it with pride and pleasure. The royal sappers and miners, however, whose laborious daily duties occupy their whole time, except the afternoons of alternate Saturdays, deserve, without any invidious preference, particular commendation for preserving a soldier-like mien, and exercising as if they had been in the habit of daily practice." And again, on the 13th October, he wrote :—"The practice of the royal artillery yesterday was highly satisfactory and impressive, and the royal sappers and miners, including the detachment which arrived only the night before, presented under arms an appearance and proficiency which corresponded with the character established by the capacity and assiduous labours that have distinguished this corps during its employment on the works of the fortifications since the Governor has had the honour to command."

Early in May, Major-General Pasley resumed, for the sixth and last time, his operations at Spithead. Lieutenant H. W. Barlow, R.E., was the executive officer under whose charge were placed sergeant George Lindsay and thirteen rank and file of the corps, with an equal number of the East India Company's sappers, and a strong force of seamen, riggers, &c. The removal of the 'Royal George,' notwithstanding that there still remained nineteen guns of that wreck at the bottom, was reported to be perfectly accomplished, and the roadstead quite safe for the anchorage of shipping. The Major-General, therefore, turned his attention to the recovery of the guns of the 'Edgar' man-of-war, which was blown up at Spithead in 1711. She had been armed with 70 guns, technically termed demi-cannons,

sakers, and falconets. The first were 32 and 12-pounders; and the others respectively 9 and 6-pounders. The great mass of timber, embedded in mud, composing the centre of the hull of the wreck, was discovered by corporal Richard P. Jones on the 23rd May. The sweeps from the boat having been caught by an obstruction below, Jones descended by them till he found himself astride a 32-pounder iron gun, which was peeping through a port-hole on the lower deck. It happened at the time to be unusually clear at the bottom, and to his amazement there stood upright before him the midship portion of the vessel, with an altitude above the general level of the ground, of thirteen feet and a half. From the open ports, in two tiers, yawned the mouths of about twelve pieces of ordnance, grim and deformed with the incrustations of 133 years. This part of the 'Edgar' was not much shaken by the explosions, but when the fore and after magazines took fire, the head and stern of the vessel were blown away from the body and scattered to distances exceeding three hundred fathoms. So violent indeed had been one of the explosions, that the best bower anchor was not only broken in fragments, but its flukes and shank were separated from each other, nearly half-a-mile. The midships, sharing but little in the convulsion, went down like a colossal millstone, scarcely heeling on her bottom; and the armament of the decks remained as if ready for battle, without a carriage unjerked from its platform, or a gun from its carriage. All the woodwork, however, was so completely decayed by the ravages of worms, and the insidious action of the sea, that when the guns were slung, they were hauled through the decks, as if no obstruction interposed.⁷

⁷ A few minutes elapsed before Jones quitted the hobby-horse he was exultingly riding. Meanwhile curious to explore the gun, he thrust his hand up the bore, where a member of the crustacean family, already in quiet possession of the apartment, and not over-pleased with the unceremonious intrusion, fiercely disputed the passage. Jones, unwilling to yield, did his best to capture the exasperated crab, but its inveterate shears had so nipped and lacerated his hand, he was forced, at last, to beat a retreat. Ever after, the cruel wounds inflicted upon him by this peevish red-coat, had the effect of fixing in Jones's memory, the date of his discovery of the 'Edgar.'

It may strike the reader as remarkable that for the six summers of the

Before the close of the season, the whole of this mass was got up, by the continual removal of pieces loosened by frequent small explosions. Almost the whole of the keel was likewise

operations at Spithead the divers were seldom attacked by any of the finny tribe; nor was it their privilege ever to meet in their subaqueous labours with any fishes larger than those ordinarily supplied for traffic in the markets. A lobster, a crab, or a conger-eel would now and then exhibit a wish to break lanes with the intruders, but beyond these few instances of piscatorial interference, the under-water men had little reason to complain of the ungenerous treatment of the inhabitants of the deep.

More than once Jones was threatened or assaulted by crustacea. As on one occasion he was traversing for guns, a lobster, measuring not less than sixteen inches in length, approached him with so quick a motion, it seemed as if a bird were hovering round him. Thus attracted, he stood still to learn a fact or two in the history of its habits. The lobster stared inquisitively at Jones, as if to discover what the strange phenomenon could be. Apparently dissatisfied with the extent of the information it had acquired, it darted off like an arrow, using its fanlike tail as a rudder to shape its course. Its movements were sharp and rapid—its track in circles, each less than the other, till poising for a while within a few feet of the diver, it settled warily on the ground to resume observations. Startled by an action of the phenomenon, the lobster sailed off again in concentric circles, swishing the fan furiously to augment its speed; then, reaching the ground it spread out its feelers and claws and was soon engrossed in a brown study. Accepting the series of evolutions as a challenge, Jones prepared for the combat. Geudly lifting his prickler, so as not to excite the instinctive suspicions of the lobster, he suddenly plunged it forward and pinned his antagonist to the earth. Instantly grasping it with his powerful hand behind the claws, Jones hurried on deck, and its body, weighing as much as a young goose, furnished a luxurious banquet for the captor and his friends.

Another lobster, less inquisitive but more combative, advanced upon Jones with true military boldness. Having performed the magic circles, it was evident that the fish in armour had taken the measure of its opponent. Pushing out its claws in front like a couple of blunt spears, the lobster furiously battered against Jones's legs, which, being cased in flannel, Mackintosh cloth, and impenetrable canvas, were proof against scars and punctures. Thick and fast came the blows, as from a ram or catapult; and it occurring to Jones that there was a chance of damage to his shins if the contest were prolonged, he turned upon his intrepid enemy, and with one kick from his leaden toe, broke up its morion and cuirass and gained the victory.

At another time, when Jones was busy making fast to a gun, a conger eel curled up in its muzzle forced out its slimy head to reconnoitre. Not relishing its savage attitude, Jones considered it best to make short work of the interview, and striking it on the cranium, the eel recoiled within its lurking place. A tompon being handy, Jones took it up and plugged up the bore. The gun in due time was hauled on deck, and on removing the tompon, the eel floundered out, and though small for a conger—about four feet long—it fought desperately, and was with great difficulty captured and decapitated.

sent up, with innumerable fragments of timber, spars, &c., and many guns, eight of which had been recovered in one week. The first was found by corporal Jones. A great number of sinkers or large stones, by which the wreck buoys were moored, and a number of small anchors were also recovered. In the early part of August the operations were much retarded by some very violent gales, preventing the divers working from time to time; but as soon as the weather moderated, corporal Jones, with his usual zeal, taking down with him a large crate, sent up at one haul, besides a load of staves of casks, &c., ninety-one shot of various sizes. The guns of the 'Edgar' were much scattered at the bottom by the explosion of her magazines, and the unexpected distances to which they were thrown, rendered a more extended sphere of action necessary. This was effected by a simple arrangement of ropes as guides, upon which worked a transverse line just over the bed of the roadstead, that caught in its track any object rearing itself above the general level. In this way the entire area of the bottom, supposed to conceal any of the fugitive canons, was traversed, Jones and Sticklen being the operators; and was attended with so much success, that nearly the whole of the guns and wreck were sent up and deposited in the dockyard before the 31st October, when the season closed. The party rejoined the corps at Woolwich on the 2nd November.⁸

In addition to Jones, the divers were John Girvan, Donald McFarlane, Philip Tremain, and William Frame, besides four of the East India Company and five others occasionally.⁹

During the season corporal Jones got up nineteen guns, besides an immense pile of other articles in endless variety;

⁸ The 'Times,' August 19, 1844.

⁹ These were sergeants Reid and Clarke, and privates Sticklen, Herbert, McDonald, Vallely, Canard, Robertson, Gillies, Mais, and Whelan. Clarke sent up two guns, Sticklen six, Herbert five and a half, and McDonald two. Sticklen, the most successful diver of the batch, met with an accident. In pulling him up from the bottom, he was drawn against some hard substance, which broke one of the side eyes of his helmet. His dress instantly filled, and the water rushed into his mouth. So quickly however was his removal to the deck accomplished, that his struggles for relief were short, and the injury he received was scarcely more than a temporary inconvenience.

and when the rough and generally unfavourable state of the weather which prevailed is taken into account, his activity and industry appear strikingly prominent. "Whatever success," writes General Pasley, "has attended our operations, is chiefly to be attributed to the exertions of corporal Jones, of whom as a diver I cannot speak too highly."¹⁰

Corporal Girvan was also very successful as a diver while health permitted, but he was prevented from rendering any particular assistance after the 27th July, from an accident occasioned by the air-pipe of his apparatus blowing off the pump on deck. He was aware that something had gone wrong, and making the signal, was drawn up sensible, but much injured about the throat and head, and blood was flowing copiously from his mouth and ears. The air rushed violently out of his helmet, as if no safety valve had been attached to it. This arose from the valve not having been taken to pieces since the commencement of the season, and, moreover, being clogged with verdigris, could not be properly shut, and hence the air was enabled to escape.¹¹

¹⁰ With the reputation of being the best diver in Europe, he sailed for China in February, 1845. In April, 1847, he was present in the expedition to Canton, and took part in the capture of the Bogue and other forts. Soon after he was reduced from sergeant, but his energy of character and perseverance brought him again into favour, and he is now a sergeant in the corps. He was present during the summer of 1854 at the capture of the Aland Islands, including the demolition of the forts of Bomarsund. After his return from the Baltic he was placed at the disposal of Mr. Goldsworthy Gurney of the House of Commons, to learn the properties and management of a brilliant light that gentleman had discovered, and which he proposed to use in the trenches before Sebastopol to exhibit the enemy, at night, in their works. The experiments were carried out under the auspices of Lord Panmure; and the sergeant evinced so complete an acquaintance with its principles, that the inventor determined to intrust him with its use in the field. Submitted, however, for trial with rival lights to a committee at Woolwich, it was soon seen that its results did not equal its pretensions, inasmuch as the light at a distance was far less intense than in the vicinity of the operator. In this way sergeant Jones was relieved from a nightly exhibition, which would have made him a certain mark for the enemy to shoot at. On the occasion of the trial he also used the Drummond light, a twin invention with that of Mr. Gurney. The third light was an electric flame; all of which were condemned for the sole and sufficient reason that our own workmen would have been more exposed by the illumination than those of the garrison. Sergeant Jones served subsequently in the Crimea.

¹¹ The 'Times,' August 19, 1844.

Private John Skelton, so frequently praised for his ingenuity as a workman and for his daring as a diver, was during the operations drowned by accident off Southsea Castle.

The conduct and exertions of the whole detachment were flatteringly spoken of by Major-General Pasley, particularly sergeant Lindsay,¹² who, next to the officer in command, had the chief superintendence. Corporal John Rae¹³ and private Alexander Cleghorn were also named for their intelligence and services in the management of the voltaic batteries and firing of the charges, and their duties, next to the divers, were the most important. The divers occasionally went down as many as twenty times in a tide, and the remuneration of each was from 1*s.* 3*d.* to 2*s.* a tide, besides the usual working pay of 1*s.* a-day. This enabled each first-class diver to realize between 5*s.* and 6*s.* a-day, exclusive of his regimental allowances.

The royal mail steamer 'Tay,' on her passage to Bermuda, sustained some damage to her bottom by running a-shore on the Cuban coast. On her arrival at Bermuda on the 16th August, corporal Harris was employed to examine her. Supplied with a diving-helmet and suit from the dockyard, he went down and found part of her cutwater and keel and about twelve feet of planking on her starboard side carried away. Forty-one times he dived in repairing the injury, and in three days so effectually finished his work that the vessel was enabled to return safely to England with the mails.

By an order from the Secretary of State for the Colonies,

¹² Discharged with a pension of 1*s.* 10*d.* a-day, in April, 1848, and obtained from the Surveyor-General of Prisons the appointment of foreman over the contractors, on the part of the Government, at 5*s.* a-day. Subsequently he was removed by promotion to be foreman of works in the convict establishment at Woolwich, which embrace the supervision of the convicts working both in the arsenal and dock-yard. His salary, with rent and rations, exceeded 130*l.* a-year. He now fills a similar situation at Chatham, with a more lucrative recompense.

¹³ Subsequently became a sergeant, and was employed on special duty at Romney Down Cliff, Dover, and in the drainage works at Windsor. After passing five terms at Sandhurst, he was rewarded for his intelligence and good service, with a case of drawing instruments; and in September, 1848, was promoted to the rank of staff-sergeant at the College. Several interesting models, made by himself, of military importance, he presented to that institution.

then Lord Stanley, this non-commissioned officer was attached, late in the year, to the department of the Naval Inspector of Works at Bermuda, for the purpose of removing, by submarine mining, coral reefs from the entrances of harbours, so as to make them accessible to ordinary vessels. Lieutenant-Colonel Reid, R.E., the Governor of the Island, carried on a correspondence which extended over a period of eighteen months, to obtain the services of this diver.¹⁴ The first work undertaken by him was widening and deepening the ship channel leading into the harbour of St. George. For three or four years he confined his exertions to this point, and so well planned and skilfully executed were his operations that all natural impediments militating against the safety of the channel, were at length completely removed by the explosions of innumerable charges of gunpowder, fired through the agency of voltaic electricity. Under Colonel Barry, the commanding royal engineer who had the superintendence of the service for most of the period, the work was successfully prosecuted. The spaciousness of the channel for the passage of steam-vessels of large tonnage and great draught of water, was practically tested on the 26th February, 1848, by Her Majesty's steamer 'Growler,' of 1,200 tons, Captain Hall. The vessel steamed into the harbour against wind and tide, drawing fifteen and one-third feet of water, and effected the passage with ease and steadiness, having beneath her keel when passing "the bar," the worst part of the channel, at least five feet of water.¹⁵ These signally successful operations saved the Government several thousands of pounds; and in the event of Hamilton losing its commercial importance, the harbour of St. George will, no doubt, be selected as the chief water for the passage of the mails and the trade and marine of the Islands.

At Chatham, late in the year, some mining operations were carried on under Colonel Sir Frederick Smith, the director of the royal engineer establishment. The works were pushed under the glacis in front of the left face of the ravelin, and the

¹⁴ 'Second Report, Army and Ordnance Expenditure,' 1849, p. 617.

¹⁵ The 'Bermudian,' March, 1848.

right face of the Duke of Cumberland's Bastion. All the corps at the station, with the East India Company's sappers, were present, working night and day in three reliefs of six hours each, and the numerous explosions that took place, and the attempts made to render abortive the schemes of opposing parties, invested the operations with the character in many essential respects of subterranean warfare. The exciting experiments, however, were not concluded without casualty, for on one occasion from inhaling foul air, a sapper of the East India Company named James Sullivan was killed, and three of the royal sappers were drawn out in a state of dangerous insensibility. These were privates John Murphy, John A. Harris, and Edward Bailey. Lieutenant Moggeridge, R.E., who had charge of the party, also fainted, but he was saved from serious injury by colour-sergeant George Shepherd rushing into the gallery and bringing him out. At the time of the accident, the miners were about one hundred and fifty feet from the mouth of the shaft; and several who went in to rescue their comrades suffered more or less from the air. Singular, however, as it may appear, lights were burning near the ground the whole time, and instantly after the last man was carried out of the gallery, it was traversed in its whole length by lance-corporal John Wood,¹⁶ who carried a light in his hand and experienced no great difficulty in breathing.¹⁷

The Hong Kong party under Major Aldrich, R.E., was inspected in the autumn by Major-General D'Aguilar, C.B., in command of the troops in China; and his Excellency in his official report "regretted that a detachment of so much importance, and so well constituted, should have been reduced by six deaths and three invalided during the half year, and that

¹⁶ Joined the corps from the military asylum at Chelsea. By his attainments and merits he was in time promoted to the rank of corporal. His career, however, was marked by occasional intemperance, which at length settled into confirmed drunkenness and mental eccentricity. Unable to control his propensity to intoxication, he became a useless soldier, and after twenty years' service was discharged without a pension. He is now a vagrant and a beggar.

¹⁷ 'Professional Papers,' viii., pp. 156-180, in which will be found an interesting detail of the operations.

the men present should, in their appearance, show the effects of climate." In December following the detachment was ordered to be increased to a half company, and the reinforcement of fifteen rank and file, sailing from the West India Docks in the 'William Shand' freight-ship, in February, 1845, landed at Victoria on the 28th June following. In May, 1851, the party returned to England, but its strength was reduced by casualties to six men only. Of the remainder, four were invalided, three died, one was drowned on passage from Victoria to Macao, and one was killed by falling over a precipice.

1845.

Sheerness—Increase to the corps at the Cape—Survey of Winds—Skill of privates Holland and Hogan as draughtsmen—Etchings by the latter for the Queen and Prince Albert—Unique idea of the use of a bullet—Inspection at Gibraltar by Sir Robert Wilson—Falkland Islands—Discharges on the survey duty during the railway mania.

On the 15th May twelve rank and file were detached to Sheerness, and, with little variation in its strength, continued to work there till April, 1849. The men were employed at their trades, and assisted in carrying out some boring experiments to ascertain the nature of the strata. Corporal Charles Hawkins, who discharged the duty of foreman of works, was highly spoken of for his activity and ability, and the men were praised for their good conduct and exertions.

A company was added to the strength of the corps at the Cape of Good Hope by the arrival from Woolwich of the ninth company under the command of Captain R. Howorth, R.E., on the 20th August. On landing at Algoa Bay, the reinforcement was removed to the different military posts on the frontier.¹ The two companies in the colony now reached a total of 174 of all ranks. This addition to the command did not occasion an

¹ The voyage was full of incident. On the freight-ship, 'Gilbert Hender-son,' sailing from Woolwich, the crew mutinied and left her at the Nore. A fresh crew, chiefly foreigners, unable to speak English, was engaged, and soon after putting to sea, the ship took fire, but the exertions of the company soon extinguished it. Near Dungeness she ran on a sand-bank, but by working all night, she was got off. When about a fortnight's sail from Port Elizabeth, she was overtaken by a heavy squall, which carried away the greater part of her gear, and her fore and main masts. To complete the chapter of accidents, the disembarkation took place in a heavy surf, and as boats refused to venture out, the men, women, and children were borne to land on the backs of nude blacks.

augmentation to the corps, but reduced one company of the disposable force at home.

The survey of Windsor, including the Home Park, Castle, Frogmore, and the Royal Gardens, undertaken by Her Majesty's command in 1843 by a party of about twenty non-commissioned officers and men of the survey companies, was completed in the summer of this year. Captain Tucker, R.E., had the direction of the work, and colour-sergeant Joseph Smith the executive charge. The drawings were accurately and very beautifully executed on a scale of five feet to a mile, which admitted of the fretwork of the ceilings being panned in for each apartment of the castle. So exquisitely was the work performed, that the drawings by privates Charles Holland² and Patrick S. Hogan³

* Became second-corporal, and after being pensioned in April, 1847, returned as a draughtsman to the ordnance map office at Southampton. He is, perhaps, the best man of his class in the department, and his drawings are always executed with fidelity and beauty. Frequently their neatness, and richness of colouring and ornament, give them an effect truly artistic and pictorial.

³ Made an etching of the 'Adelaide Oak,' in the Home Park, which, submitted by Sir Henry de la Beche to Lord Liverpool, obtained for him a complimentary introduction to Prince Albert. His Royal Highness accepted the etching, and expressed himself much pleased with the beauty and minuteness of the execution.—'Morning Post,' Saturday, August 19, 1843. The tree had a pretty seat hut nearly half round the bottom of its trunk, and in another part of it was a remarkable hollow occasioned by time. Her Majesty the Queen Dowager had been known frequently to sit reading under its ample shade, and on that account it was considered to be her favourite oak. Hogan afterwards presented, through Colonel Wylde, an etching of the 'Victoria Oak,' in the Green Park, to the Prince; and His Royal Highness, in thanking the giver, expressed the admiration he felt for his talents as an artist, and rewarded him with the sum of 5*l*. These handsome pair of etchings are now the property of Her Majesty. Hogan never received promotion in the corps, as he was unqualified for command; and being discharged, on the usual pension in January, 1845, soon afterwards emigrated to South Australia.

An anecdote, which is unique in its way, may be added of this good easy man. At Trinity College, Dublin, he had gained prizes as an artist, but when he enlisted, was as ignorant of the use of fire-arms as a child. Having fired blank cartridge in the usual routine of drill, he was considered to be ripe enough to enter upon the more advanced stage of firing ball. Accordingly, with others of his company, he was ordered to attend this instructional duty. When directed to prime and load, he was observed to separate the bullet from the cartridge and throw it away. Sergeant Hilton, who had charge of the party, picked up the discarded bullet; and on asking Hogan his reason for biting it off, he replied, "Sure, sir, I didn't know that the knob was of any use!"

were constantly mistaken for engravings; and Prince Albert, to mark his approbation of their merits, presented each with a useful and elegant case of mathematical drawing instruments. The plans were made to show the contour levels at every four vertical feet above and two vertical feet below the flood-line of 1841. Several sectional plans were also executed by the party to assist Sir Henry de la Beche in the drainage of the town and castle, which, at the time, was considered very defective. The plan for the office of Woods and Forests, designed with a view to the improvement of the sewerage, was drawn on a sheet eleven feet square; and a reduced plan was also drawn for the library of the Prince Consort. His Royal Highness and other distinguished personages frequently visited the office to view the progress of the work, and never quitted without graciously commending the party for their zeal and proficiency.

Sir Robert Wilson inspected the companies at Gibraltar in October, and when he concluded, was pleased to convey the expression of his satisfaction in these words, "that on parade, they showed they had duly attended to their military acquirements whilst employed at work, which," he added, "will be a lasting monument to their merits."

The Falkland Islands' detachment was still toiling in the formation of the colony, subjected to all the inconveniences and vicissitudes of a bad and depressing climate. Their duties embraced every variety of hard and laborious service, such as making excavations, drains, roads, jetties, building houses, luts, &c. Carrying heavy burdens of stores, and loading and unloading boats, were among their roughest tasks, accompanied as they were with the necessity of wading in the water on sharp stony beaches, which destroyed in a week or two the strongest boots. The wear and tear of clothes was almost ruinous; and to make up for the expenses incurred in replacing them, and in purchasing provisions which were dear, working pay, exclusive of regimental allowances, was granted to the men from 1*s.* 6*d.* to 4*s.* 6*d.* a-day. The sergeant received the highest rate, the privates the lowest. In winter they lived mostly in tents, with snow around and a humid soil beneath; and being constantly

at work out of doors, they frequently returned at night, wet through, to a small cheerless fire, never lending heat enough to dry their dripping clothes. At times they were on short allowance; and when flour was selling at 6*l.* 10*s.* per barrel of 192*lbs.*, the men were glad of the chance of buying a small handkerchief-full of damaged biscuit for 4*s.* 4*d.* To the recklessness of a wretched and lawless community, composed of men of the lowest class, was opposed the five or six gentlemen in official appointments and the sappers. The latter, however, from constantly working with them, were incessantly exposed to every kind of evil influence; and without amusement or subjects of interest to occupy their attention in the intervals of labour, four of the party gradually yielded to the prevailing corruption and were removed from the settlement. The residue were highly commended for their "esprit de corps," and sergeant Hearnden in particular, for his admirable conduct, was specially noticed in the Governor's despatches to the Secretary of State for the Colonies. The sergeant's trials were very great, his exertions unflagging, and his unrestricted devotion of every hour to the public weal was frequently warmly acknowledged by the Governor.

A mania for railways set in this year which caused an excessive demand for surveyors to trace and survey the lines. This occasioned the withdrawal of more than 200 civil assistants and about 60 labourers, besides 1 sergeant, 1 corporal, 6 second-corporals, and 19 privates, who were discharged from the survey companies at their own request. Many of those who quitted, possessed superior abilities as surveyors and draughtsmen. The offers made were too tempting to be resisted; and some of the men secured employment, which enabled them to realize an income of more than six guineas a-week. To make up for the loss in the survey force, Colonel Colby proposed the augmentation of another company for the duty; but the measure was not acceded to till April, 1848.

1846.

Boundary surveys in North America—Duties of the party engaged in it—Mode of ascertaining longitudes—Trials of the party; Owen Lonergan—The sixty-four mile line—Official recognition of its services—Sergeant James Mulligan—Kaffir war—Corporal B. Castledine—Parties employed at the guns—Graham's Town—Fort Brown—Patrols—Bridge over the Fish River—Field services with the second division—Dado's kraal—Waterloo Bay—Field services with the first division—Patrol under Lieutenant Bourchier—Mutiny of the Swellendam native infantry—Conduct of corps in the campaign—Alterations in the dress—Drainage of Windsor—Detachment to Hudson's Bay—Its organization—Journey to Fort Garry—Sergeant Philip Clark—Private R. Penton—Corporal T. Macpherson—Lower Fort Garry—Particular services—Return to England.

THE survey of the boundary between the British possessions in North America and the United States, as settled by the treaty of Washington, was completed this year. Six non-commissioned officers selected for the duty embarked at Liverpool in April, 1843, and landing at Boston, thence re-embarked on board a coasting steamer, and sailed to St. John's, New Brunswick. By boat they then passed on to Fredericton, and on the 1st June commenced operations at the Grand Falls. All were dressed in plain clothes. Corporals James Mulligan, Daniel Rock, and Alfred Garnham had been for three months at the Royal Observatory at Greenwich, and were instructed in the mode of making and computing such astronomical observations, as were considered best suited to the service to be performed.¹ Very soon the detachment "drew forth the praise and admiration of the American party. The Americans," adds the despatch, "had no persons to stand in the place of them." So useful were they found in the service, that, in the second season, when

¹ 'Military Annual,' 1844. 'Corps Papers,' i. p. 107.

the work of the commission had to be extended, the detachment was increased to twenty men of all ranks.²

Captains Broughton, Robinson, and Pipon, R.E., commanded the party under Lieutenant-Colonel Estcourt, the chief commissioner; and at the close of the second season, the survey had so far progressed, that nine men were removed from the duty, and arrived at Woolwich in January, 1845. The services of three other men were dispensed with at the close of 1845, and reaching head-quarters in December, they were followed, on the 9th July, 1846, by four more. Three were discharged in Canada, and the twentieth man, corporal Garnham, arrived in England 10th September, 1846.

A few details of this international service would seem to be required to explain the nature of the duties intrusted to the men. Having once entered the woods, the survey was continued without interruption, until the termination of the out-door operations of 1845. Occasionally the men worked in concert with the officers of the United States' topographical engineers. Two non-commissioned officers were constantly employed under Captains Robinson and Pipon, in taking and calculating observations for latitudes and longitudes, and for absolute longitudes by lunar transits and culminating stars, to discover the azimuthal bearings of the line, as pointed out by the treaty of Washington. They also ascertained the comparative heights of astronomical stations, &c., at various points of the line from barometrical observations. One non-commissioned officer for many months was attached to the American party to see that they effected their survey according to the treaty; one carried the chronometers between the astronomical camps; and the remainder were employed singly in charge of large parties of labourers and axemen, carrying on the general business of marking out the boundary, and of surveying and levelling it. Embraced in the operations also was the survey of the waters, roads, and other prominent objects in the vicinity of the line, essential to the discovery of the boundary, at any time, by reference to the natural features of the country; and when the

² 'Corps Papers,' i., p. 107.

survey closed in 1845, seven of the party were, for more than eight months, stationed with the commission at Washington, engaged in the duty of computing and registering astronomical observations, also in laying down and plotting the work and finishing the plans of the line.

The process of surveying and levelling is too well known to need notice, but it may be desirable to afford an idea of one description of work, to show in what respect assistance was given to obtain the longitude of a particular place. Between the north-west branch-station and Quebec, it was required to ascertain the difference of longitude; but as the usual method of finding it by the interchange of chronometers could not be resorted to, a hill some twenty miles away from the branch station, which could be seen from Quebec, was selected as the station for an observing party. Captain Pipon, therefore, left the woods, and established his transit instrument on the Plains of Abraham. With a pocket chronometer, tent, provisions, gunpowder, &c., sergeant Bernard M'Guckin removed to a range of hills from the station above Lake Ishæganalshegeck, and encamped himself and his labourers on the highest point of the range, which was covered to the top with dense wood. Climbing the height, and finding he could see back to the Lake Hill and forward to Quebec, he set his labourers to clear away the summit, except one high tree which he stripped of all the leaves and branches likely to intercept the free range of the observations. At the base of this tree he constructed a high platform, and every evening for two hours, at intervals of ten minutes, the sergeant fired flashes of gunpowder, by hoisting the charge, with the assistance of a pulley, to the top of the tree with a burning slow match attached. The quantity of powder used for each flash varied from a quarter to half a pound. Some of the nights the wind blew strongly, and the charge exploded before reaching the top of the tree. On a clear night the flashes could be seen with the naked eye at the Quebec observatory, forty miles distant. Simultaneous observations were made on six different evenings, and forty-six flashes were noted, sufficient to give a good difference of longitude. The result of the experiment

was most successful. An attempt was afterwards made to find the difference of longitude between the stations, by the transmission of chronometers; but the effect deduced was worthless compared with that obtained from the flashes. These observations were a part of the scheme for tracing the straight sixty-four mile line of boundary from the outlet of Lake Pohenagamook to the hill station on Lake Ishæganalshegeck. When the observations were completed, Captain Robinson left the woods and placed his chronometers in charge of a non-commissioned officer of sappers at Montreal, who wound them up and compared them during the winter.³

The accuracy of this means of observation was further tested on the western portion of the line ending at St. Regis by the operations of corporal Bastard. In August, 1845, having selected the highest summit on Mount Rougement, near Chamblay, for a station, he reciprocated flashes with Major Graham of the U. S. topographical engineers at Rouse's Point, with great precision and success.⁴ The same was done by corporal Thomas Forbes from the top of Jay's Peak in Vermont, who flashed at ten-minute intervals from the surface of a piece of flat board. In six fine nights eighty flashes were observed in common. These series of observations connected the points of St. Regis and St. Helen's, and the latter again with Rouse's, testing at the same time the difference of longitude between the several stations.⁵

When not in tents, a sort of hut constructed on the spot was the only habitation of the surveyors, and twigs of the spruce tree, felled by the axemen, formed their bed. They had good blankets and warm clothing; but such was the severity of the weather, and such the inconvenience of their bivouac, that frequently in the morning they arose for work either with stiffened limbs, or soaked with melted snow. For the most part, however, the detachment was free from sickness despite the intense cold in winter, and the great heat in summer. Locked as they were in a thick forest, covered by an impene-

³ 'Corps Papers,' i., pp. 125, 126, 155.

⁴ *Ibid.*, i., p. 155.

⁵ *Ibid.*, i., p. 128.

trable foliage, the oppressive heat of midsummer was almost insupportable. In the spring scurvy was common among them, accompanied with sore gums, loose teeth, discoloured legs, and emaciated frames, but some well-known simple specifics soon restored them to health.⁶ Only one man became an invalid on the duty, arising from an injury he sustained by falling from a shelving bank, on account of which he was sent home and discharged.

The royal engineers with their sappers and assistants were the first to penetrate these wilds and the first to open a way through their mazes. Scrambling through an unbroken forest with snow-shoes on, interrupted at every step by stunted under-wood, not a little augmented their fatigues. Often the snow was hip deep; and when the melting commenced, the obstacles and toils of travelling became greater. The snow-shoes then became useless, and yet without them the men sank above their knees in half-thawed snow, and then had to wade through the swamp. Streams in those seasons became rivers, and rivers deep torrents; and such was the difficulty of pushing through the snow, that one party was four days going ten miles.⁷ Difficulties like these were more especially felt in the region embraced within the "sixty-four mile line." A vast prairie it was, thickly overgrown with tangled bush, undisturbed for centuries, by the axe of industry. The full influence of many a storm, however, had beaten down the forest and levelled trees too old to bear its blast. These lay across the track intersected and confused, just as the wind had blown them; and the dense bush, climbing over the aged trunks, so matted the vegetation, that the trials of travelling were only overshadowed by the general hardships of the enterprise. There were perils too encountered of a serious character, which only stout frames and sturdy hearts could have conquered. On one occasion, corporal Owen Lonergan was sent to measure three check lines; it was biting cold at the time, and the ground was covered with snow some two or three feet deep. Though encumbered with an instrument, a greatcoat, and heavy clothes,

⁶ 'Corps Papers,' i., p. 108, 109.

⁷ *Ibid.*, i., p. 114.

he entered with spirit upon his work and rapidly completed two of the checks, but on commencing the third he was obliged to relinquish it, as his hands, painfully benumbed, had lost their power. The snow by this time was very high, and it was only by superhuman effort, sustained for several hours, that he succeeded in mastering the difficulties of his situation, and regaining his hut before nightfall.

The survey of the sixty-four mile line was important because of the necessity imposed by the treaty of making it rigidly straight. A force of labourers, guided in the duty by the most intelligent men with the commission, first struck out the line as indicated by astronomical observation. When this preliminary trace was effected, other labourers, in strong batches, "directed by non-commissioned officers of the sappers and miners were sent to cut the whole line thirty feet wide, clearing a way in the centre, of about eight feet wide, but leaving the other part with the stumps breast high and the trees as they had fallen. These parties were guided in their cuttings by the marks which had been set up on the ridges at no very great distances apart from each other. When the line had been thus cut out from end to end, a transit instrument was sent through it, adjusting correctly all the station poles, and insuring the straightness of the line beyond all doubt."^a

At the termination of the survey, Lieutenant-Colonel Estcourt thus wrote of the conduct and services of the detachment: "I beg to acknowledge the valuable assistance they have rendered. The character of the duties intrusted to them has been such as must have been given to an officer had they not been attached to the commission, entailing thereby a great additional expense, not only on the score of wages, but also of equipment and assistance; and I doubt whether the work would have been better executed. All that was expected, therefore, from their employment has been fully realized; their efficiency in the field, and their general good conduct and respectability, have been very creditable to them and to their corps. Those who are now about to leave us, and have been at Washington during all our residence here, deserve

^a 'Corps Papers,' i., p. 124.

the highest commendation for their uniform good conduct. In no single instance has there been the least occasion for complaint or even remark." In his orders to the detachment at parting, he reiterated the substance of the above tribute, and spoke of the unmixed satisfaction he would look back upon the whole of his intercourse with the sappers. The survey pay of the men, in addition to their regimental pay, ranged between 2s. 10d. and 3s. 9d. a-day, and free rations and hotel expenses were also allowed them.⁹

The war in Kaffirland again broke out this year and afforded ample employment for the two companies of the corps, which were scattered in sections to the several posts on the frontier. A small detachment of sappers appears to have been the first troops to meet with hostile interruption in the prosecution of its duties, and the circumstance is quaintly alluded to in the following free metrical version of a facetious alarmist:—

"There was a stir in Kaffirland one morning,
A chief with Government some ground disputed;
And then he very fairly sent us warning
Our plans and his were totally unsuited:
So Colonel Hare, as did of old, Mahomet,
Call'd for his boots, and flar'd up like a comet.

"Meanwhile Sandeli, who's a lad of metal,
Swore that the sappers should not light a fire
To cook their dinners or to boil their kettle;
And so—denouncing on them vengeance dire,—
He bid them pack their tools and strike their tents,
And made believe to seize their instruments."¹⁰

The nature of the service upon which the companies were

⁹ The senior non-commissioned officer, sergeant, James Mulligan, was much noticed for his attainments and exertions. His duties with the commission were of a nature to require the exercise of patience and resolution, and demanded always a scrupulous, unremitting attention. In this he was never found to fail, but rendered valuable services, "which," adds Colonel Esteourt, "few civilians could have undertaken, or, if capable, would not have undertaken, but for the highest salary." Mulligan's survey-pay was 3s. 9d. a-day. After his discharge, in September, 1846, he was awarded, for his high merit, a silver medal, and a special gratuity of 25*l.* On leaving the corps he retired, with ample pecuniary means, to Ireland.

¹⁰ "The Alarm," in 'United Service Magazine,' 1846, ii., p. 383.

employed precluded them from taking any very active or prominent share in the operations of the campaign, or of their numbers being collected in any force to render their movements impressive and conspicuous; nevertheless, as opportunities offered of withdrawing them from their more pacific duties, they were made to participate with the other troops in the harassing war which, without intermission, continued with vigour until the winter.

Corporal Benjamin Castledine, ordered to proceed from Fort Beaufort to Post Victoria, started on the 21st March, 1846, with a gunner of the royal artillery who was armed with a sword only, in charge of a waggon with twelve oxen and two natives—a driver and a leader—who had one musket between them. In crossing a drift, after marching seven miles, the oxen were knocked up, and the corporal sent the driver back for more cattle. At night the corporal took turn as sentry with the artilleryman. Next morning at daylight, the leader was ordered to collect the cattle then grazing about three hundred yards off; but while away, shots were heard in the direction he had taken. The corporal, leaving the waggon in charge of the artilleryman, ran to the banks of the drift, and before he had time to seek cover in the bush, was met by a volley from several armed Kaffirs, who had already wounded the leader and taken his gun. The corporal stood his ground, and wounding two of their number by his correct firing, the rest carried off the injured men and drove away the corporal's cattle. Luckily, soon afterwards, a patrol of one sergeant and seven men of the 7th dragoon guards came up, and hearing what had happened, they pursued the Kaffirs and retook the oxen. The corporal with his escort and cattle, except two of the latter, which were lost on the road from exhaustion, resumed the route and reached Post Victoria on the 22nd March. Colonel Somerset, then commanding the frontier, hearing through Lieutenant Stokes, R.E., of the affair, gave corporal Castledine much credit for his conduct. This was the first skirmish in the war.

From the 16th to 18th April three men served with a detach-

battery of artillery as gunners, during Colonel Somerset's operations in the Amatola mountains, and retreat from Barn's hill to Block drift, where they were present in a smart action.

Ten men took part with the artillery at the guns, from 20th April to 29th September, at Victoria, Fort Beaufort, and Block drift. At these forts and at Graham's Town the men for weeks together lay down in their clothes and accoutrements ready to meet any sudden attack. At Beaufort, four guns were manned by them, two 9-pounders and two 5½-inch howitzers: one of these had horses attached, which were mounted by the sappers.

Graham's Town, denuded of its garrison to scour the Amatolas, was left unprotected. Bodies of Kaffirs pressed into the colony, marking their track by murder and desolation. Tidings of their savage proceedings being brought in by mounted burghers, breathless with the intelligence, it was feared the town would be early attacked. At once the engineer at the station set to work to fortify it, and with the assistance of some Fingoes and Hottentots, the few sappers that remained rapidly blockaded the streets and avenues leading into the town. The return, however, of Colonel Somerset's division checked the enemy's advance on this, the metropolis of the frontier.¹¹

On the 23rd April, under Lieutenant Bourchier, R.E., fifty-one non-commissioned officers and men repulsed an attack by the enemy on the Farmer's camp near Fort Brown. The action lasted about four hours, and though the night was extremely dark, the sappers, serving both as infantry and artillery in charge of two field-pieces, beat off the enemy with the loss, as was afterwards acknowledged by the chief *Stock*, of thirty killed. The sappers *only* were engaged in this affair, and their spirited and gallant conduct was reported by Lieutenant Bourchier.

On the 17th and 31st May and 1st and 18th June, about forty non-commissioned officers and men, sent from Fort Brown under Lieutenant Fourchier, went in pursuit of marauding

¹¹ United Service Journal, iii., 1846, p. 328.

parties of the enemy. From Double drift under the same officer, four other parties were despatched through the bush after the Kaffirs on the 25th June, 7th July, and 7th and 18th August. Sergeant Thomas P. Cook and corporal John Campbell were reported to have shown great determination and intelligence in following the enemy in their fastnesses. The former accompanied six of the patrols and the latter seven. Near Fort Brown, three Kaffir spies, discovered creeping up to the place to reconnoitre, were shot; two of these were brought down by privates Alexander Irvine and John Patterson.

From 3rd June to 13th July, ten men with a company of the 90th regiment, fifty marines and some sailors, under Lieutenant Owen, R.E., constructed a flying bridge of boats, &c. for crossing the Fish river mouth, and threw up a field-work on the right bank. In this service private John Vance, a superior carpenter, "showed remarkable zeal, skill, and intelligence." The work was undertaken to establish an open line of communication to Fort Peddie.¹²

Under Lieutenant Stokes, R.E., twelve men shared in the operations with the second division in the field and at the passage at the mouth of the Keiskama river from the 6th to 16th July. From the latter date to the 13th September, under the same officer, six other privates served with the second division during Sir Peregrine Maitland's attack upon the Amatola mountains, and constructed a field-work for the protection of the camp at Perie.

On the 15th and 16th July, sixteen non-commissioned officers and men under Lieutenant Bourchier were present in action with the enemy at Dodo's kraal, under the command of Captain Hogg, 7th dragoon guards.

¹² Vance is noticed in Colonel Pasley's 'Practical Operations for a Siege' for his assistance in executing some of the wood engravings to the work. He was an excellent carpenter and modeller, but his efforts at engraving show but little refinement. Untaught in the art, his attempts to supply the place of competent practitioners can only be regarded as the neat and more advanced stages of carpentering. Pity, however, that such a man, so apt, so ready—should have been enslaved by his vices. A drunkard, in the most degraded sense of the word, no one regretted, when his service expired, to see him quit the corps.

From the 16th July to 13th September, twelve men constructed a field-work for the protection of the camp at Waterloo Bay under Lieutenant Owen, R.E.

From 20th July to 12th September, thirty-eight non-commissioned officers and men served in the field with the first division during Sir Peregrine Maitland's attack on the Amatola mountains; and under the direction of Captain Howorth, R.E., restored Fort Cox. On the 29th July the camp on the Amatola flats was attacked by the enemy, and sergeant Joseph Barns of the corps was killed.

Seven men under Lieutenant Bourchier were present, from the 25th to 30th August, with Colonel Somerset's patrol between the Fish river and the Keiskama.

On 24th October, the Swellendam native infantry at Fort Beaufort, directed to escort waggons to Waterloo Bay, marched from the parade, contrary to the remonstrances of their officers towards Graham's Town. There were about 350 of the levy present, and the simultaneous and unhesitating movement of the mutineers, gave reason to fear that the conspiracy was well organized. Captain Ward, of the 91st regiment, the commandant, at once ordered the two artillerymen and five sappers under corporal Edward Barnecoat to follow in pursuit with the three-pounder howitzer. This was all the commandant's force. The gun was up in a few minutes, and bounding down the street, reached the bridge, where halting, the captain ordered the howitzer to be put in action. With only eight men Captain Ward thought it imprudent to proceed further. Trying the effect of firing three rounds of blank ammunition, the mutineers pushed up the acclivity with increased speed at every discharge, and reforming on its brow, seemed disposed to hazard a fight. At this moment a detachment of the 90th regiment—which happened to be at the fort on escort duty—pressed up to the bridge. Immediately the gun was limbered up and when the little column was about to scale the height, Colonel Richardson, who had now arrived, countermanded the order to advance. With only a handful of men, there was but a remote chance of success against 350 exasperated rebels all armed and posted on

commanding ground; and so swayed by merciful considerations the colonel employed two missionaries to parley with the misguided men, who, soon, in great part, returned to their allegiance.¹³

These comprise the active services of the companies during the year, in which, though the parties do not appear to have gained any mention in dispatches or reports for their conduct and efficiency, they always behaved like good soldiers, and spared no exertion to accomplish the objects for which they were employed. They were likewise much harassed on varied escort duty, such as conveying from fort to fort waggons with ammunition, provisions, and wounded men, and took part in all those multifarious services, carried on at twenty different frontier posts and forts, which the character of that desultory and peculiar warfare continually exacted.

In April, the small blocked epaulettes were superseded by others with loose twisted cords of three inches long suspended from a raised corded crescent. Those for the sergeants and staff-sergeants were of the artillery pattern—long loose gold fringe and gilt crescent to correspond with the privates' epaulettes. The shoulder-strap for the sergeants and other ranks was of blue cloth faced with gold lace. The staff-sergeants' epaulettes continued boxed as before, with a full laced gold strap edged with raised embroidered wire, and a gilt crescent, but the bullion was longer than formerly. The collar of the coatee for all ranks, which had a triangular-shaped piece of scarlet cloth at the back, was this year entirely of blue cloth, but laced as before, with rectangular loops. The alteration was made to give, in appearance, breadth and squareness to the men's shoulders.

Corporal John Rae, second-corporal John Mealey and eighteen men, were employed from the 8th June to the 17th August, in executing some underground works for the drainage of Windsor. These consisted of a tunnel or cutting from the entrance of the long walk to the north side of the quadrangle

¹³ Mrs. Ward's 'Cape and the Kaffirs,' Bohn's edit., 1851, pp. 145-147.

of the castle, and also the excavation of a driftway under the north front, moving east and west. The tunnel was approached from several circular shafts 4 feet 6 inches in diameter, of an average depth of about 25 feet; and the gallery—the height of which was six feet, and width 4 feet 6 inches—was driven between 750 and 800 feet through chalk, flint, made earth, old moats, and crumbling vaults and foundations; and, notwithstanding the difficulties of the work, was prosecuted with such exactness, that the line of driving between the shafts, was rarely more than an inch or two out of its true level. Indeed, it was remarked that the tunnel, commenced at opposite sides of the castle, was so correct in its progress, that on reaching the centre, there did not exist two inches of difference where the tunnels merged into one.¹⁴ In hazardous earth, mining frames and sheeting were resorted to, but even these expedients, at times, did not prevent the earth from falling and impeding the workmen. Thirty civil labourers worked the windlasses and drove the barrows for the party. All hands worked from five in the morning until half-past six in the evening, and made by their exertions, seven days and a half a-week, at 1s. 6d. each a-day. Captain Vetch, late of the corps, was the engineer for the work, and Lieutenant the Honourable H. F. Keane, commanded the detachment. The Board of Woods and Forests paid the expenses of the undertaking, and praised the skill and energy with which the excavations had been conducted and completed. The Lords Commissioners of Her Majesty's Treasury also acknowledged the great advantage which resulted from the employment of the sappers on the occasion.

1846
Sergeant Philip Clark and eleven rank and file embarked at Deptford, in the 'Blenheim,' on the 3rd of June, 1846, for the territories of the Hudson's Bay Company. A detachment of artillery, and three companies of the 6th foot, under the command of Lieutenant-Colonel Crofton, were also with the expedition. The employment of this small force on the Red River was occasioned by the menacing hauteur of the Americans

¹⁴ The 'Times,' August 19, 1846.

respecting the Oregon territory, which at this period was a momentous question between the two countries; but fortunately, the dispute terminated in a treaty which settled amicably the national differences.

The party was composed of excellent mechanics and well-conducted men, two of whom were also good surveyors and draughtsmen. Three chronometers and barometers, with measuring chains and surveying instruments, were placed in charge of sergeant Clark. Captain H. C. B. Moody, R.E., took command of the party on its landing at York Factory on the 14th of August, and subsequently, for about a year, the command was held by Captain Beatty, R.E.

It was not intended to attach the sappers to the divisions of the troops in pushing up the country, but to employ them on services for which they were more peculiarly adapted, such as measuring the heights of the several falls in the course of the rivers that occasion the necessity for the portages, and improving the latter whenever any short proceeding would give them facilities for doing it: also cutting, on prominent objects, bench marks to show the height of the water for the information of travellers, and embodying in memoranda a description of the nature of the ground traversed and the features of the country, with suggestions for improving the passage. Owing, however, to the scarcity of officers, the colonel in command could not permit the employment of the detachment in this manner. Accordingly, eight men accompanied the first division of the force, two the second, and two, with Captain Moody, the third. The first party took the barometers; and the chronometers were taken by the two surveyors in the 3rd brigade. In concert with the troops, they tracked, hauled, rowed, and poled the boats the whole way to Fort Garry; and, notwithstanding the intensity of the cold, such was the nature of the duty, it required them in its execution, to go barefooted with their trousers tied above the knee. At night, for a few hours only, they slept under canvas frequently in wet clothes, upon the damp snow-covered ground. The distance traversed was about 400 miles, through swamps and rapids, over rocky islets, and

up and down steep and slippery banks and declivities ; and the operation, one of immense difficulty and peril, was not achieved without much labour and discomfort.

At each portage, sergeant Clark himself carried the chronometers, and, after examining them, placed a sentry to watch them. He also measured the heights of the falls and took the difference of the levels. In shoal water, or in running the several rapids, the delicate instruments were invariably removed from the boats to save them from shocks by bumping against hidden rocks and impediments. The chronometers were wound up every morning at nine o'clock, and the results and comparative differences registered. Three times a day the indications of the barometers, the changes in the atmosphere, and the force and direction of the wind were registered, and these observations were recorded until the expedition quitted the settlement.

Sergeant Clark and private Robert Penton showed great zeal and intelligence in the manner they carried out their scientific duties on the route, and corporal Thomas R. Macpherson, who had charge of the party that accompanied the first brigade from York Factory, was commended for the notes he took of the route, and for the report he framed thereon.

At Lower Fort Garry, the troops, under the officers of engineers, with the sappers as overseers, made a trench round the fortress, and cleared away the wood contiguous to it for 300 yards in every direction. A varying party was detached with corporal Macpherson to Upper Fort Garry ; and at both places, the sappers carried out all those services which the nature of the settlement and the weather made indispensable for the health and accommodation of the troops. While at work the detachment wore leather jackets and trousers.

In the second year of the station, corporal Macpherson with one sapper was sent to York Factory, and returned in charge of the magnetic and other instruments left there the year before. Although the intricacies of the passage were considerable, increased by the necessity of personally carrying the cases over the portages, he safely conveyed them to the fort without detriment

or derangement. Some of the party were employed at intervals, in the survey of portions of the Assiniboine, Saskatchewan and Red Rivers, and corporal Macpherson¹⁵ and second-corporal Penton, under Captain Moody, examined and explored the country in the vicinity of the boundary line of the United States at Pambina.

On the 3rd of August, 1848, the sappers quitted Fort Garry under the command of Captain Blackwood Price, R.A.—Captain Moody having then returned to Canada—and after completing the arduous and fatiguing descent to York Factory, they embarked there on the 24th of August, and landed at Woolwich, 18th of October, 1848. Both Lieutenant-Colonel Crofton, and Major Griffiths, his successor in command, awarded an honourable meed of approbation to the detachment for its exemplary conduct and services; but sergeant Clark was particularly noticed by the former for his attainments and ready zeal. “His exertions,” adds the Colonel, “were never wanting,

¹⁵ In the life of some men there happen singular incidents, which give either a romantic or a strangely-degraded cast to their career. In this category corporal Macpherson may be fairly included. He was a very talented and superior artificer, and his general knowledge and experience made his services conspicuous. At Hythe he absented himself, and leaving his clothes on the bank of the canal, a belief prevailed that he was drowned; he, however, turned up about a year afterwards, and was convicted of the crime of desertion. But soon gaining favour by his diligence and talents, he rose rapidly to the rank of sergeant, and was entrusted with responsible duties at Gibraltar, Hudson's Bay, and finally in Nova Scotia. At Halifax he again deserted, with 206*l.* of the public money, but a vigilant piquet being on his trail, he was apprehended at Annapolis, fortunately for the captain of his company, with the whole of the treasure in his pocket. Being tried and convicted he was sentenced to fourteen years' transportation. A review of his useful services, and the humane intercession of Colonel Savage, R.E., his commanding officer, obtained for him a full pardon—only to be followed by the basest ingratitude and crime. A few months elapsed, and the forgiven felon a *third time* deserted. On the passage to the States he robbed a gentleman with whom he got into conversation, but as the theft was discovered before the debarkation took place, the gentleman repossessed his money, and a gold watch supposed to be stolen. On landing, the gentleman took steps for the apprehension of the delinquent, but, by artful remonstrances, he made the public believe that the reason of his arrest was not for theft as alleged, but for desertion from the British service. At once the mob sympathized with his fate, rescued him from custody, and he is now at large in the States. The gold watch, brought to Halifax by the gentleman, proved to be the property of a comrade.

even in matters not in immediate connexion with the corps, and to him I owe the good arrangements made for the garrison library, in aid of which, his services as librarian were cheerfully given without gratuity."¹⁶ Sergeant Clark, corporal Macpherson and second-corporal Penton,¹⁷ received promotion for their useful exertions on this expedition.

¹⁶ Sergeant Clark was brought up in the royal military asylum. He was for some years on the survey of Ireland, and by subsequent application, became a fair surveyor and draughtsman. He served a station at Corfu before going to Hudson's Bay, and subsequently passed a few years as colour-sergeant of the 20th company, at Freemantle, Western Australia.

¹⁷ An enterprising and superior surveyor. He was importantly employed in 1843 in the determination of the longitude of Valentia, and is now a sergeant at Halifax, Nova Scotia, whither he had been sent to superintend the laying of asphalt.

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1846.

Exploration survey for a railway in North America—Services of the party employed on it—Personal services of sergeant A. Calder—Augmentation to the corps—Reinforcement to China—Recall of a company from Bermuda—Royal presents to the reading-room at Southampton—Inspection at Gibraltar by Sir Robert Wilson—Third company placed at the disposal of the Board of Works in Ireland—Sergeant J. Baston—Services of the company—Distinguished from the works controlled by the civilians—Gallantry of private G. Windsor—Coolness of private E. West—Intrepid and useful services of private William Baker—Survey of Southampton, and its incomparable map.

SERGEANT ALEXANDER CALDER and seven rank and file of the survey companies embarked at Liverpool in the 'Britannia' steam-ship, and landed at Halifax, 2nd July. Subsequently, the party was increased by the arrival of four rank and file who had been employed on the boundary survey in the state of Maine. This detachment, with two pensioner non-commissioned officers of the corps, served under the direction of Captain Pipon,¹ and afterwards of Lieutenant E. Y. W. Henderson and Major Robinson, R.E., in surveying the country between Quebec and Halifax, to ascertain the best route for a railway to connect the provinces. The party was dressed in plain clothes, and for the service of the woods, fur caps, pea-coats, and over-boots were added.

Five different routes, the projects of rival interests, were surveyed, and the neighbouring forests and wilds, abounding with wood and water, explored. The forests were in their primeval state—dense and rugged. Pine trees were the chief growth,

¹ Accidentally drowned in the Restigouche, 28th October, 1846. His body was identified by private John Ashplant, and taken charge of by him and sergeant Calder until its removal from Campbelltown to Fredericton, where it was interred in the public cemetery.

and the ground, encumbered with sharp-pointed branches thrown down by time or the violence of winds, formed a regular abattis, and with a thick undergrowth of shrubs and bushes rendered the woods almost impervious. Parties exploring, as soon as they left the rivers or beaten tracks, had to cut their way before them. The difficulties of carrying out the service were considerable. The hills being as much covered with the forest as the plains and valleys, views of the surrounding country could not easily be obtained. Generally this object was effected by climbing, in which some of the sappers became very expert, "and, assisted by creepers—a contrivance of iron spikes buckled to the feet—could climb well."² To wander in the least degree from the path cut or marked was dangerous, as the chances of being benighted or lost in the prairie were very great.³

The detachment was divided into parties of two each as assistant-surveyors, with ten or twelve labourers, under a civil surveyor of the country. "Each party had a particular line to explore. The sappers carried either two or three barometers and detached thermometers with them; also a 5-inch theodolite, a measuring chain, pocket compasses, &c. As the lines were cut out by the axemen and labourers, the sappers measured them, and took the angles for direction, and also for elevation or depression. The barometers were registered at the summits of ridges and bottoms of valleys. Somewhere, at the most convenient spot, in the neighbourhood of the exploring parties, a sapper was stationed with a standard barometer, who did not move from his post until ordered to do so. His duty was to register his barometer and thermometers every hour during the day."⁴

The result of the surveys and investigations was an able report from Major Robinson, describing a range of country through which a railway could beneficially pass, extending in length to 635 miles, from Halifax to Quebec. The proposed route was determined with reference to the resources of the tract to be traversed, its accessibility, and facility of adapta-

² 'Professional Papers,' N. S., ii., p. 36.

³ *Ibid.*, p. 38.

⁴ *Ibid.*, p. 37.

tion to the purpose, as well as its military and general advantages.

After completing the plans and sections of the lines explored, the party, in September, 1848, returned to England and rejoined the survey department.

The personal services of sergeant Calder on this duty are sufficiently interesting to receive notice in this place; and, with some little difference in points of duty and incident, may be taken as an average type of the individual adventures of the rest of the party. From Halifax to Folly Village, he surveyed a line of seventy-five miles with the barometer, and from thence, for twenty-five miles, measured the roads from the high-water mark of the Bay of Fundy, by taking the heights with the theodolite, using the angle of elevation and depression, and checking the same simultaneously, by barometrical observation. He afterwards traversed a varied country for about sixty miles to Amherst, from whence he carried on the survey, barometrically, to Mirimichi. The completion of another rough road of ten miles now took him fully into the wilderness, where he continued his work till the winter set in. During his labours in the woods he ran short of provisions. He was then in charge of twelve men, carrying with them 3 lbs. of pork, 1 lb. of oatmeal, and a small bag of ginger. Upon this scanty fare the party subsisted for three days; and, harassed as they were by hard travelling through a mountainous country, entangled with a tissue of bush and branches covered with deep snow, their fatigues and privations were considerably increased. Heavy loads also they carried, and so closely were the trees packed together, in the exuberant vegetation of the forest, that the adventurers not only had to tear themselves through the thicket, but were continually impeded by logs of fallen trees and tufts of stubborn underwood. On the evening of the third day the hunger of the men began to show its effects in emaciation and despondency. At this moment sergeant Calder found it necessary to relieve the party of the stores and abandon them in the woods. The theodolite and barometers he attached in a safe position to a tree. He then directed the men to use their

utmost exertions in tracking a spot where provisions could be found. Scrambling down the banks of a large river they hurried onwards some six miles, when a newly-blazed tree was discovered, indicating the proximity of a lumbering camp. The blazed marks were followed further on for about five miles, and then, to the unbounded joy of the party, a light seen through the clinks of a log-but on the opposite shore drew the men in the dark on a fallen tree across the stream to the desired camp, where their wants were appeased and their exhausted strength restored. Sergeant Calder acted with coolness and kindness throughout, and maintained the strictest discipline and order. He afterwards recovered the instruments and stores left in the woods, which his men, from weakness and want, had been unable to carry.

In the second season the sergeant returned to the Cobiquid Mountains, the scene of his former exertions. This range was the vertebræ of the country, and the hinging point of an important tract in the route of the proposed railway. Some doubts were entertained as to the practicability of accurately ascertaining the gradients of this dangerous and unknown district, and had they not been determined, the scheme must have proved abortive; but sergeant Calder undertook the service, and accomplished it by means of rods and the spirit-level, to the entire satisfaction of his officers, verifying at the same time the correctness of his former investigations in connexion with the survey of the hills. After this, travelling 200 miles to Cape Carco, he surveyed a branch line along a rugged coast and through an intricate wilderness, to within a few miles of Pietou. In conducting this work one of his labourers was seized with fever. Calder took especial care of the man's comforts, which, however, from the necessity of crossing rivers and lakes of great breadth on catamarans, or rafts of logs, were unavoidably much restricted. As he proceeded, the trials of the sergeant and his men multiplied, both from the fatigue of travelling and the want of provisions. Wild berries were eaten to supply the cravings of hunger; but to assuage the more fastidious necessities of the sick man, the berries were taken by

him with a little sugar. What was most distressing at this time was the absence of all shelter from the inclement weather, and both hale and sick were therefore forced to stretch their limbs under the snow-laden boughs of some dwarf trees, exposed to the keenness of the night frost. At last the party arrived at a district known as the "Garden of Paradise"—a rugged and inhospitable region, where the men were benevolently entertained by some wild Highland settlers. Soon afterwards the sergeant journeyed to Halifax, where he completed the plans and sections of his surveys, and returned to England after a service with the exploration expedition of two years and three months.⁵

A large increase to the army and artillery led to a proportionate increase to the royal sappers and miners. This was suggested by Sir John Burgoyne, the inspector-general of fortifications, to maintain a sufficient disposable force for employment in any military services rendered necessary by the exigencies of the times. Eight companies were ordered to be added to the corps, but their formation was spread over three or four years. The first addition gave, on the 1st April, 1846, 1 sergeant, 1 corporal, 1 second-corporal, and 8 privates to each of the 10 service companies; and a company numbered the 12th, of 100 non-commissioned officers and men, was formed at the same time. The corps was thus raised in establishment from 1,290 to 1,500, and on the 1st September it was further increased to 1,600, by the formation of the 15th company. The Corfu company remained at its original establishment of 62 sergeants and rank and file.

⁵ This non-commissioned officer acquired, in his early service, a sound knowledge of surveying in all its branches. For more than eighteen years he had charge of large parties of surveyors and draughtsmen, and his systematic habits and intelligence rendered his assistance of great advantage. Well adapted for carrying out any arrangement connected with the survey, and for conducting the beneficial employment of large parties over extensive districts, he was, in 1846, selected for the exploration duty above referred to; and his report on a portion of the line, which embraced the intricate parts of the Cobiquid Mountains, was considered of sufficient interest to receive a place in the 'Parliamentary Blue Book,' on the subject of that railway. In April, 1853, he was pensioned at 1s. 11*d.* a-day, and, on quitting the corps, bent his course westward and settled in Canada.

On the 22nd July, eighteen rank and file embarked for China, and landed at Hong Kong on the 26th December. This was the third reinforcement to that command. When relieved in November, 1852, the party had dwindled away to 8 men: 7 had died, 2 deserted, and 1 was invalided. The total deaths in the three parties, whose united strength was 67, amounted to 27 men.

The abandonment of the execution of some extensive works in Bermuda permitted the recall to England of the eighth company, which arrived at Woolwich on the 5th August, 1846. The strength of the company on landing at Bermuda was seventy-nine of all ranks. Of this number eight were invalided, thirty-eight had died, one was drowned, one killed, and one transported for desertion. Only thirty-one men, therefore, regained our shores.

A reading-room was established for the corps at Southampton in the summer, which obtained much attention from distinguished visitors. The Marquis of Anglesey—then Master-General—presented an engraving of himself to the room, and the Queen also patronized it by presenting an engraving of his Royal Highness, Prince Albert.⁶ In placing the gift in the room, Colonel Colby thus recorded the fact in a general order to the companies under his command;—"The valuable services of this distinguished corps, having been brought under Her Most Gracious Majesty's notice by the ordnance surveys of Great Britain and Ireland, the demarcation of the boundary line between the British dominions and those of the United States in America, and more especially by the survey of the royal domains at Windsor and the duchy of Lancaster, Her Majesty has condescended to mark her gracious approval of these services, by ordering the presentation of a portrait of the Prince Albert to be placed in the reading-room."

Twice this year the second and eleventh companies were inspected by General Sir Robert Wilson, the Governor of Gibraltar—on the 16th May and 17th October. On both occasions they presented a very creditable appearance under

⁶ A companion plate to Chalon's portrait of Her Majesty.

arms. "The progress of the new work," observes his Excellency, "attests their skill and indefatigable diligence, and their merits become the reputation of the service to which they belong."

The third company of three sergeants and forty-five rank and file, under Captain Wynne, R.E., received orders at ten o'clock at night on the 21st September, and in seven hours after was on route *via* Liverpool for Dublin, where it arrived on the 24th. Placed at the disposal of the Irish Board of Works to oversee the poor during the continuance of the famine, which, from the failure of the potato crop was now the scourge of Ireland, the company was instantly removed in small parties to Limerick, Castlebar, Roscommon, Newcastle, Boyle, and Castlereagh, retaining at Dublin as storekeeper and accountant for the Board sergeant John Baston.⁷ From these several stations the men were again dispersed over districts of wild country, where the poor, clamorous for subsistence and life, were in a state of revolt. Numbers of these turbulent but starving people were employed on the construction of public roads, &c.; and the sappers, appointed their overseers, not only laid out their work, but instructed them in its performance. To this general duty several of them united the office of steward and inspecting check clerk; and besides controlling the check clerks, superintended and examined the measurements of tasks, and had a general supervision of all arrangements in the field. More than six months they continued on this duty,

⁷ Had charge of the implement store, at 48, City-quay, which embraced the receipts and issues of thousands of wheelbarrows and hand-carts, and a great assortment of road and draining tools. These sergeant Baston was often employed to purchase, and to obtain them he perambulated both town and country. The duties entrusted to him were performed with promptitude, accuracy, and fidelity. Mr. M'Mahon, the civil engineer, found him an exceedingly useful and zealous assistant. He is now colour-sergeant in the corps; is a well-read and talented man, and his qualifications as an artificer and overseer have rendered him capable of much higher employment. He joined the corps a lad, from the royal military asylum, and his acquirements and usefulness have entirely arisen from his own application. Besides his home services, he has passed with credit about seventeen years at Halifax, Nova Scotia, and Corfu.

and returned to Woolwich on the 8th April, 1847, with a high character.

The works superintended by them were always distinguished from other works by the superior order and discipline which they enforced, not unfrequently in circumstances of great personal danger, and during a winter of unusual severity. In detecting frauds and correcting abuses they were found particularly valuable; and their uniform zeal, ability and good conduct, met with the perfect satisfaction of the Board of Works and the Lords of the Treasury. Even Daniel O'Connell spoke favourably of their employment.* The working pay of the men while under the relief board ranged between 1s. and 2s. 6d. a-day.

While on this novel service, private George Windsor, from the upright way in which he performed his duty, made himself obnoxious to the peasantry in the lawless district of Croom; and but for the gallantry with which he defended himself, would probably have lost his life. On the 26th December this private was employed in the barony of Cashma on the Pullough line of road, and on passing down the line in advance of the check clerk and a number of labourers, &c., was met by two persons dressed in women's clothes, with veils hanging from their bonnets covering their faces. One was armed with a gun, the other with a pistol. Presenting their pieces, they ordered him to kneel, but this the private refused, and though he was unarmed, the ruffians at once closed upon him. At this moment Windsor seized the person armed with the pistol, (dexterously thrusting his finger between the trigger and the guard) and getting hold of his throat with the other hand, they fell together, fortunately in such a way that the desperado with the gun could not, without injuring his accomplice, shoot the sapper. He, therefore, beat Windsor with the butt-end of his piece. Several minutes the struggle was maintained strangely enough in the presence of a large number of stewards and labourers; and had he met with the slightest assistance from any of them, would have captured both the offenders; but

* The 'Times,' November 4, 1846.

incredulous as it may appear, it must be added to the disgrace of Irishmen that, just as he had overpowered the ruffian with the pistol, a man named Joseph Lindsay⁹—brother to the check clerk—came forward, and dislodging Windsor's grasp, aided the parties to decamp! For his spirited and manly conduct in the attack, private Windsor was promoted to be second-corporal.

Private Edward West received three threatening notices through the post-office warning him not to appear at work again on pain of death, adding that, if he did, he should "drop into a bit of a hole already dug for his carcase." Unmoved by these missives, the private was always the first on the line; and when the labourers were collected, he told them he had received the notices, and then burning them in their presence, observed in a loud voice, "that would be the way his intended murderers would be served at another time." Once he was attacked by a party from behind a hedge with stones. Struck on the head, he was stunned for a few moments, and nearly fell. On recovering, he boldly dashed over the hedge to meet his assailants, but the cowards made a precipitate retreat. Thirty men suspected of being concerned in the assault were at once dismissed from employment.

Six other men were promoted for their coolness, as well as tact and fidelity, in carrying on their appointed services. Of these private William Baker was perhaps the most conspicuous. A brief detail of his services will show the nature of his duties and the difficulties he had to contend with. Detached to Shonkeragh, eight Irish miles from Roscommon, he was placed over a number of labourers who were in the last stage of insubordination. At first they took their own time of going to work and quitting it, although the regulations required them to be present from 7 A.M. till 5 P.M. To train them to punctuality was not an easy matter, but by checking them and carrying out a firm discipline he soon gained his point. That there should be no excuse for absence, he employed a strong boy to blow a

⁹ Afterwards tried and convicted for the offence at the Limerick Spring Assizes, 1847.—'Saunders's News-Letter,' March 9, 1847.

tin horn on the top of the highest hill, central among the cabins of the workmen, to call them to work, and at its sound the rapid gathering of the poor at the rendezvous, on all occasions, showed their willingness to be guided by any useful reform.

This command over a half-civilized class of men made his services very desirable in irregular districts; and among several places where he was beneficially employed was Drumshanaugh—a desolate spot where a knot of Molly Maguires held sway, and obtained payment without work, by intimidating the civil overseers, who feared the consequences of not yielding to their exactions. The farmers' sons and others who had plenty of cattle were receiving 4*d.* a day more than the people who really did work, and 30*l.* in this way were paid for bad labour not worth 50*l.* With these labourers he had a trying duty to perform; but, amid threats and insubordination, he calmly effected his purpose, and suppressed both the spirit of turbulence and the practice of fraud.

The labourers received from 4*d.* to 8*d.* and 9*d.* a day, and the rough wall builders 1*s.* 6*d.*, in strict proportion to the work executed. When task-work was introduced, it was difficult to remove the prejudices which set in against the change, and quicken into zeal the indolence which followed. To carry out the instructions of the Board of Works, private Baker selected some of the mildest men of his party to work at easy tasks, by which they earned 11*d.* a day—3*d.* more than formerly. At the end of the week the overseer made a point of this, and paying his choice men first, made suitable remarks as they received their money. Next came the day-men, who being checked for wet days and lost time, only averaged about 3*s.* 2*d.* a week. The disparity of the payments had a wonderful effect, and ever afterwards the system of task labour was eagerly preferred by the peasantry.

Deception, however, soon crept into the tasks, which it required some tact and alertness to detect. In excavations, the labourers frequently came in contact with stone, and for such quantities as they dug out and heaped up, they were paid by the cubic yard; but often these heaps were merely

superficial. In every such case private Baker had the mass pulled down and solidly repiled. Acts of repetition were followed by the dismissal of the delinquents, despite the danger it involved. When this cheat failed they resorted to another, by rolling large stones into the heaps from adjacent places; but as these always bore unmistakable evidence of exposure to rain and wear, the private never omitted to reject them from the pile.

On several occasions when threatening notices of death were posted up prohibiting the civil overseers and check-clerks from returning to a particular line, a car was despatched, even at midnight, to bring private Baker to the excited district. Next morning, appearing at his dangerous post, unarmed, he would pacify or humour the desperados into order and tranquillity.

When a pay-clerk was discharged, the regular payments were for a time interrupted, and the labourers would clamour for a settlement. In Baker's district there were four lines, three of which were superintended by civilians: the labourers on them were about 700. These threatened daily to go in a body to Boyle, and, should they fail to get their pay, to take the lives of the engineer and his clerks, and burn down the town. Baker represented the state of affairs to the authorities; and on his own recommendation obtained permission from Boyle to give checks for meal upon a tradesman in Carrick-on-Shannon. By this means he fed the people, and kept their irritation in successful check. These periods of disorder occurred two or three times, till pay-clerks were appointed to succeed those who were discharged or had resigned. The pay-clerks seldom paid without the protection of a supper, who frequently, in instances of dispute, took the bag with its responsibilities and perils, and served out the wages himself. So well did private Baker manage the matter at a wild place in Cashel, that the labourers stood round like soldiers to receive their earnings; and to prevent litigation or seizure, the money was handed to the recipients through an aperture in the pay-lut.¹⁰

¹⁰ Baker became a second-corporal, and fell heroically at the first storming of the Redan, 18th June, 1855.

Frauds were very common; and when detected, the offenders were dismissed. Several civil overseers were, however, afraid to place themselves in opposition to the populace; and a sapper working on one line has in such instances been sent to another to perform the duty. This, of course, produced much ill-feeling against the sappers; but beyond a few threats and an occasional attack, the sappers passed from the country without material hurt.

The survey of Southampton was completed late this year for the Southampton Improvement Board. A detachment of the corps, directed by Captain Yolland, R.E., under the local superintendence of sergeant William Campbell, executed the work. The map, on a scale of 60 inches to a mile, occupies thirty-five large sheets, which have been magnificently bound in bureau folio, and placed in the municipal archives of the town. Sergeant Campbell attended at a meeting of the Commissioners on the 31st March, 1847, and presented the map, on the part of the Ordnance to the Corporation. The work is one of extreme beauty. A more artistical display of ornamental surveying does not exist. The stonework of the pavement, the styles of the public buildings, the masonry of the graving-dock, the undulation of the silt on the shores, and small streams of water running into it from the coast, the gardens of private houses, and the trees and shrubberies of the common, are all delineated with a minuteness of detail and beauty of colouring unexampled in any town map in England. Even the map of Windsor, which obtained the approbation of Her Majesty for its accuracy and exquisite finish, is much inferior to the map of Southampton. The draughtsmen were second-corporals Charles Holland¹¹ and George Vincent, with Patrick Hogan,¹¹ late royal sappers and miners, and Mr. Maclachlan.¹² The Commissioners of the town gave a unanimous vote of thanks to Captain Yolland, the sappers, and the assistants for the survey

¹¹ Each received a case of instruments from Prince Albert for merit in the execution of a drawing of Windsor.

¹² 'Hampshire Telegraph,' January 30th, 1847; 'Hampshire Advertiser,' April 3, 1847.

and map of the borough, and also expressed "the high sense they entertained of the great ability and unrivalled skill displayed in the execution of the work." A committee was formed to take steps for rewarding Captain Yolland and sergeant Campbell "with an adequate testimonial of the Commissioners' high approbation of the work;" but the intended honour, on military grounds, was declined.¹³

¹³ 'Hampshire Advertiser,' April 3, 1847.

1847.

Detachments in South Australia—Corporal W. Forrest—Augmentation to the corps—Destruction of the Bogue and other forts—Services of the detachment at Canton—First detachment to New Zealand—Survey of Dover and Winchelsea—Also of Pembroke—Flattering allusion to the corps—Sir John Richardson's expedition to the Arctic regions—Cedar Lake—Private Geddes's encounter with the bear—Winter quarters at Cumberland House—Road-making in Zetland—Active services at the Cape—Company to Portsmouth.

THE detachment in South Australia was in July, 1845, on the representation of his Excellency Lieutenant-Governor Grey, ordered to be reduced, its employment being considered no longer necessary or advantageous to the province. Scarcely had steps been taken to effect its disbandment, when Governor Grey, removed to another settlement, was succeeded by Colonel Robe, who, taking a different view of the services of the party, submitted the desirableness of its immediate completion to the authorized establishment. In this suggestion Earl Grey concurred, regarding it of the greatest importance that the survey department in the province should not be permitted to fall into arrear in its work; and under authority, dated 22nd October, 1846, a party of seven mechanics, who were also surveyors and draughtsmen, sailed for Port Adelaide in February and landed there the 30th June.¹

¹ One of the party discharged under Governor Grey's order was corporal William Forrest. Governor Robe, in a despatch to Earl Grey, spoke of his entire approbation of the corporal's conduct, both as a soldier and surveyor. Captain Frome, the surveyor-general, attributed the rapid progress of the field surveys, and the general correctness of the work, to his steady zeal and talent. At first he superintended four or five detached survey parties, and laid out and corrected their work; but when a sufficient quantity of land had been divided into sections, corporal Forrest was transferred to the triangulation of

The corps was increased by 200 men this year, on account of the formation of a company on the 1st April, and another on the 1st December. These companies were numbered the seventeenth and eighteenth; and the establishment now reached a total of 1,800 officers and soldiers. When the estimates for the year were under consideration in the House of Commons, Colonel Anson, the surveyor-general of the Ordnance, in claiming an increased amount to cover the augmentation, passed a high eulogium on the corps. After speaking in flattering terms of the royal engineers, the Colonel added, "He might say as much for the sappers and miners. This body was composed of most intelligent men, who applied themselves most assiduously to the discharge of their duties, and were equal to any services which they might be called upon to perform."²

Thirty-five non-commissioned officers and men accompanied the expedition from Hong Kong to Canton, under Captain Durnford and Lieutenant Da Costa, R.E., and were present at the capture of the Bogue and other forts in the Canton river on the 2nd and 3rd April. The forts taken were fourteen in number, and 865 heavy guns were rendered useless by spiking, while a number of barbaric weapons were captured.³

The sappers were in advance, and opened the gates of the forts for the assaults, and afterwards destroyed the magazines and assisted to spike the guns. Privates James Cummins and James Smith placed the powder-bags on the gates.⁴ Corporal Hugh Smith⁵ laid the trains to two forts, and was favourably

the known portions of the colony, and connected all the detached surveys with the trigonometrical stations. This service he conducted in a most satisfactory and creditable manner. Returning to England, he was discharged in April, 1848, and is now living, in ease and comfort, at Edinburgh on his pension and his savings.

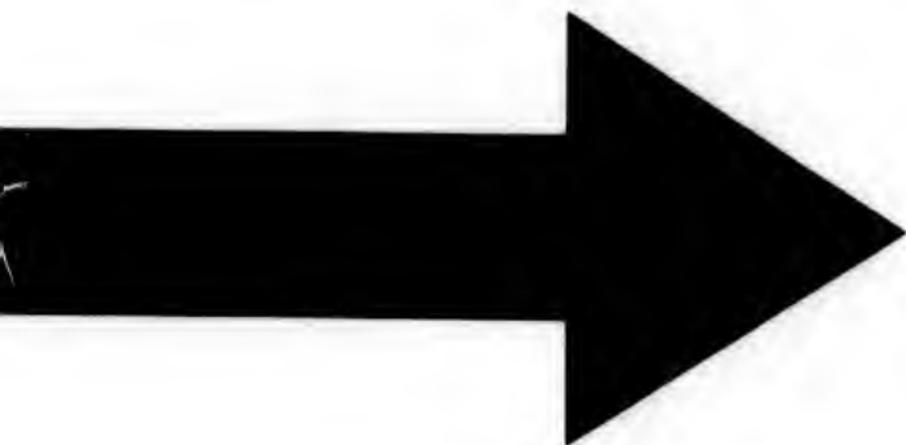
² Debates in the 'Times,' March 6, 1847.

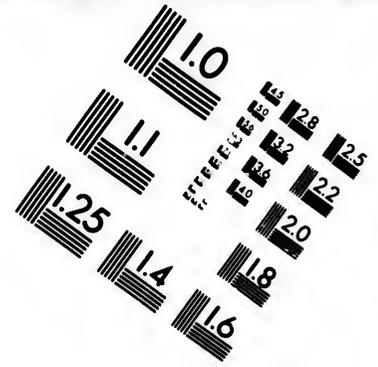
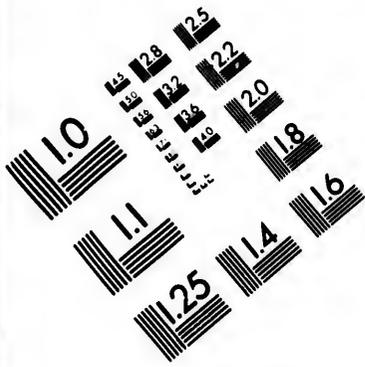
³ About twenty of these curious arms, all of the spear form, but grotesquely varied, are in the model-room of the royal engineer establishment at Chatham.

⁴ Both died in China; the former on the 15th August, and the latter 15th September, 1847.

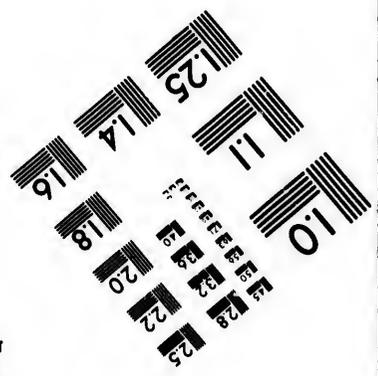
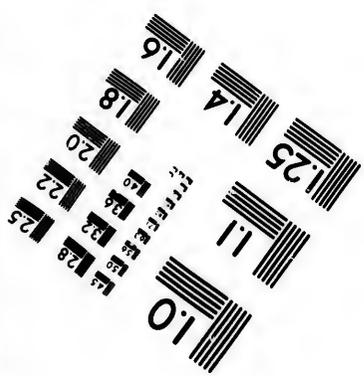
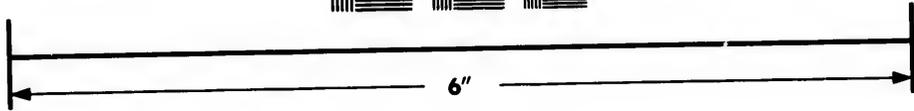
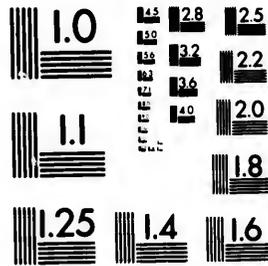
⁵ Discharged 8th October, 1850. He was then a sergeant. See *ante*, Syria, 1841.







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mentioned by Major Aldrich, R.E., to Sir John Davis, the Governor, and Major-General D'Aguiar. Sergeants Joseph Blaik⁶ and Benjamin Darley⁷ conspicuously distinguished themselves: the former blew in the gate of Zigzag Fort, and the latter blew up the magazine at Napier's Fort.

At Canton the sappers were employed in barricading streets, making scaling-ladders, &c., and pulling down houses, walls, and other obstructions required to be removed. "My own observations," wrote Colonel Phillpotts, the commanding royal engineer in China, "of the cheerful and ready manner in which they at all times performed their various and arduous duties by day, and often by night, demands my most marked approbation." The gallant conduct of sergeant Blaik attracted the notice of Major-General D'Aguiar, for which he was promoted to the rank of colour-sergeant. The whole detachment remained at Canton until the 8th April; but on the troops quitting for Hong Kong four of the sappers were left behind, and assisted Lieutenant Da Costa, R.E., in making a survey of the European factories at that commercial emporium, until the 14th May, 1847, when they rejoined the detachment at Victoria.

On the 10th April one sergeant and twelve rank and file embarked at Deptford on board the 'Ramilies,' and landed at Auckland, New Zealand, on the 9th August. This was the first party of the corps detached to that remote settlement.

From April to June one sergeant and twelve rank and file from Chatham, under Captain McKerlie, R.E., assisted in the survey and contouring of Dover, within a range of a thousand yards from the fortifications. Early in the previous year five non-commissioned officers and men were employed in a military survey of portions of Winchelsea.

Pembroke was also surveyed by a party of one sergeant and eight men from the survey companies, between April and December, under Captain Chaytor, R.E. This survey included the docks, dockyard, and property in its immediate vicinity, to enable measures to be taken for raising essential defensive

⁶ Died at Hong-Kong, 15th August, 1848.

⁷ Now colour-sergeant in the corps stationed at New Zealand.

works to protect the place. The survey was well executed; and private John Wall,^a who remained at the duty until March 1848, executed with neatness and accuracy, the required plans.

About this period the survey operations of the corps, both in the triangulation and the detail duty, were very conspicuous, and drew from the greatest of the daily London journals, in a leader, a high commendation for its services and trials. The language of the article is too forcible and brilliant to justify abridgment, and the complimentary passage is therefore given entire.—“An Englishman has a constitutional repugnance to the intrusion of soldiers into civil duties; he would rather pay them to walk about than to work, and he chooses to make a separate and private hiring of his own police. Ordinarily, soldiers are unwelcome visitors to him, seldom appearing but at the beck of some scared sheriff or meddling mayor, to correct his refractory disposition. But there is a corps which is often about him, unseen and unsuspected, and which is labouring as hard for him in peace as others do in war. If he lives near a cathedral city, he may perhaps have occasionally observed a small wooden cradle perched on the very summit of the spire or tower, and he may have pitied, perhaps, the adventurous mason who had undertaken the job. That cradle contained three sappers and miners, stationed there for five or six weeks to make surveys, and who only quitted their abode for another equally isolated and airy. Within these last five years, a handful of these men, with an engineer officer, have been frozen upon the peak of a Welsh mountain, on an allowance of provisions fit for the sixth month of a siege, and with no more possibility of communicating with the scanty natives of the place, than if they had been shipwrecked on the Sandwich Islands.”^b

A party of fifteen men, selected from a number of volunteers by Sir John Richardson, joined the expedition under his orders to the Arctic seas in June. The object of the mission was to

^a Discharged October, 1848, and is now employed with advantage as a draughtsman on the Ordnance Survey.

^b The ‘Times,’ 8th March, 1847.

search for Sir John Franklin and his crews, by tracing the coast between the Mackenzie and Coppermine Rivers, and the shores also of Victoria and Wollaston lands, lying opposite to Cape Krusenstern. All the men were intelligent artisans, accustomed to boat service and laborious employment. They were, moreover, strongly built, of good physical powers, and, with one exception, bore excellent characters. The defaulter was addicted to drinking, but in other respects he was a good and active workman. Knowing that there would be no means of obtaining intoxicating drinks in Rupert's Land, Sir John Richardson accepted his services, and he turned out an invaluable man. Seven of the party were carpenters, joiners, and sawyers, one was a miner, one a painter, and six were blacksmiths, armourers, and engineers, who were found useful in repairing the boats, working up iron, constructing the domicile for the winter residence of the expedition, and making the furniture required for its few and simple wants.¹⁰ To suit the hard climate of the Arctic zone, each man was provided with a flannel jacket and trousers, a stout blue Guernsey frock, a waterproof overcoat and cap, and a pair of leggings. They also wore mocassins and leather coats, when the nature of the season and their employment rendered it necessary.¹¹

On the 4th June the men were discharged from the corps, and sailed on the 15th from the Thames in the 'Prince of Wales,' and the 'Westminster.' Delayed much by ice in Hudson's Straits, they had a long passage, and it was not until about the middle of September that the stores for the journey were wholly landed.¹² As soon as this service was effected, the expedition, with a number of hired men, quitted Norway House in five boats, which, from being "often stranded and broken in the shallow waters, caused frequent detention for repairs." Overtaken by winter in Cedar Lake, Mr. Bell, who had charge of the expedition until Sir John Richardson arrived, made this a depôt, where he stored the boats and goods in a suitable house constructed by the sappers. Several of the

¹⁰ Sir John Richardson's 'Journal of a Boat Voyage through Rupert's Land and the Arctic' edit. 1851, p. 43. ¹¹ *Ibid.*, p. 44. ¹² *Ibid.*, pp. 46, 47.

party were left here to take care of the *matériel*, and also the women and children, who were unequal to a long journey over the snow.

In October the bulk of the expedition started for Cumberland House, and reached it on the eighth day after leaving Cedar Lake. On the first day's journey private Hugh Geddes and a half-caste Indian were attacked by a bear on Muddy Lake. The latter fired three times at the beast without bringing him down. Neither of them now had any ammunition; but Geddes, who was incapable of much exertion from an axe wound in the foot, anticipating the peril, forgot his pains and felled two young birch trees, one of which he handed to his companion: with these formidable defenders both made a desperate onslaught on the raging bear, but it was not until after much labour and hazard that they succeeded in slaying it. In due time they sleighed his huge carcase to the rendezvous at Cedar Lake.

At Cumberland House one of the divisions passed the winter, and was kept in constant employment by attending to several seasonable occupations, such as cutting firewood, driving sledges with meat or fish, and fulfilling a round of services no less laborious than necessary. They also established a fishery on the Beaver Lake, two days' march north of the *dépôt*.¹³

From July to December three rank and file were employed under Captain T. Webb, R.E., in surveying and laying out roads in Zetland, in connection with the Central Board for the Relief of Destitution in the Islands of Scotland. His service was ordered by the Home Government, and the party returned to Woolwich when the winter had fairly set in. Second-corporal Harnett was well reported of for his intelligence and capabilities, and the two privates for their industry and exertions.

At the Cape of Good Hope the two companies were distributed to fifteen posts and forts on the frontier. On the 2nd May the sapper force there was increased to 198 of all ranks by the arrival of thirty-five men, under Lieutenant Jesse, R.E.

¹³ Sir John Richardson's 'Journal of a Boat Voyage through Rupert's Land and the Arctic,' edit. 1851, p. 47.

Between the 14th September and 23rd December one sergeant and sixteen rank and file were in the field, under Captain Walpole, R.E. They had with them an assortment of carpenters' and smiths' tools, engineer stores, and a quantity of intrenching tools, besides a large five-oared cutter, and the materials and gear to form a raft of casks. From the 1st to 6th December, eleven of these men were actively employed in transporting men and provisions to a large portion of the division on the left bank of the Kei, under Lieutenant Jervis, R.E., at a time when the rise of the river prevented any intercourse by waggons. During the six days, the party exerted themselves in a most praiseworthy manner, and sergeant Alexander McLeod was particularly active and zealous. Between the 21st November and 1st December, three sappers, with a party of the line, under Lieutenant Stokes, R.E., opened a road for waggons in the Amatola mountains, and constructed a temporary bridge across the Keiskama. Before the execution of this service provisions were conveyed to the camp in the mountains on mules, and hence the transit was slow and uncertain.

On the representation of Colonel Lewis, R.E., a company of full strength was removed from Chatham to Portsmouth, on the 22nd December. Its employment was confined to the erection and repair of such works as could not be undertaken by contract, such as strengthening the fortifications, repairing gates, laying platforms, curbs, &c. It was also considered indispensable to retain a company in that command, to execute, in the event of a war suddenly breaking out, the numerous wants likely to occur in such an emergency.

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