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ANDERSON'S COLLEGE;

ITS FOUNDER

AND ITS MEDICAL SCHOOL.

*BEING THE INTRODUCTORY ADDRESS AT THE COMMENCE-
MENT OF THE SESSION 1878-79.*

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ANDERSON'S COLLEGE.

AFTER a few words of welcome, the address proceeded as follows:—

The erection of this college was decreed on the 7th May, 1795, in the following deed:—

“I, John Anderson, Professor of Natural Philosophy, in the University of Glasgow, being in soundness and vigour of mind, though reduced in strength of body by sickness, do hereby make my latter will and testament as follows:—

“Except what is contained in the painted chest with three locks, I give, grant, dispoise, and convey the whole of my property, of every sort, to the public, for the good of mankind, and the improvement of science, in an institution to be denominated ‘Anderson’s University.’”

This John Anderson was a most extraordinary man, and, like many other extraordinary men, has been very much misunderstood; and the misunderstanding of this great man’s work has not been lessened with the lapse of time. How very few people in Glasgow, where, for half a century, he lived and laboured, know anything about him? And even these regard him as having been but a very crochety old man, distinguished chiefly for his quarrels with his colleagues, and as being the author of a most absurd last will and testament. And the great work that he inaugurated and carried on for 40 years single handed, that work for whose sake he quarrelled with his colleagues, and for the perpetuation of which he founded this college—this very work has been attributed wholly to others—to men who were not born for near a score of years after it was in full operation, in his own natural philosophy class room.

Mr. Anderson was the grandson of a famous Scottish divine

—the Rev. John Anderson, minister of the Ramshorn or St. David's church, then known as the north-west church of Glasgow. This grandsire lived in stirring times, having been born in the reign of Charles II, and lived on to the time of the first George. He was a famous scholar, and was tutor to the celebrated John, Duke of Argyle and Greenwich, the Scottish statesman who was the chief agent in bringing about the union of the kingdoms of England and Scotland. In the religious warfare which then raged, Mr. Anderson took an active part. He dearly loved the old Church of Scotland and its simple Presbyterian form of worship, and he spoke and wrote most earnestly and powerfully in its defence. He was the author of a work still to be found in the libraries of divines, entitled *Defence of the Church Government, Faith, Works, and Spirit of Presbyterianism*. He also wrote, in 1710, a book entitled *Dialogue between a Curate and a Countryman concerning the English Service or Common Prayer Book of England*. Soon after, a second dialogue followed, and shortly after a third, bearing the title of *Curate Calder whipt*. He died in 1721, and in the Ramshorn church is a tablet erected to his memory, that speaks of him as "a pious minister, an eloquent preacher, and a brave defender of civil and religious liberty," and says:—"Such a man forget not, while thy country, liberty, and religion are dear to thee."

In such high esteem had he been held by the Duke of Argyle that his son James, also a licentiate of the Scotch church, was appointed to the living of Roseneath, on the first opportunity, and here, in 1726, the founder of this college was born, and was named John, after his grandfather, who had died five years before. The minister of Roseneath did not long survive his father. He died when John was 7 years old, and, soon after, the boy went to Stirling to live with his aunt, and be sent to school there. Of his life in Stirling we know little, except that, having inherited the strong Presbyterian and Hanoverian leanings of his grandfather, we find him assisting in the defence of the town against the Highlanders and Prince Charlie, in 1746; and the gun and other accoutrements that he bore as one of the Stirling volunteer guard are still preserved in the museum of this Institution. Soon afterwards we find him a student in the college of Glasgow, and so highly did he distinguish himself that, in 1755, when but 29 years of age, he was by the senate of the university appointed Professor of Oriental Languages. This position he held for two years only, until the death of Dr. Dick, in 1757, when he succeeded to the chair of natural philosophy. Here it was

that the great work of his life was to be accomplished, and speedily he set about it—that work was the *teaching of science to mechanics*—a work that, until then, no man had seriously attempted.

At the present time every town has a mechanics' institute. Technical education is in every one's mouth. The government of the country have a special department in full swing for the popular diffusion of science, by offering substantial rewards to both teachers and students; and even the old universities have awakened to the necessity of encouraging popular education, and have shown the interest they now take in this by the establishment of local examinations in every town of importance. But in 1757, from one end of the land to the other, there was not any place where a mechanic might acquire a rational knowledge of the underlying scientific principles of the occupation in which he was engaged. Professor Anderson discerned clearly the great want there was of this; he saw that progress in the mechanical arts could only be hoped for when working men ceased to grope in blind ignorance of the fundamental physical laws; and on his appointment to the natural philosophy chair he determined that, so far as he could, he would enlighten the operatives of Glasgow. On Mondays, Wednesdays, Fridays, and Saturdays, he taught the mathematical part of physics, which, of course, could only be understood by those who had already received a good education, and, consequently, was attended chiefly by students taking the usual college curriculum. On Tuesdays and Thursdays he taught the experimental part of physics, which any one of ordinary intelligence could comprehend even without previous training. To this section of the class all were admitted who would come, and in it, to put strangers quite at their ease; no gown was worn. He called it his *anti-toga* class. This ungowned class was a great offence to Professor Anderson's colleagues, and everything was done to induce him to relinquish it, but without effect, their opposition but fanned his zeal in his new work; for, not content with throwing open his class room doors to all who chose to come, he visited every workshop in the town, spoke to the men individually, and, standing by the bench, explained the rationale of their work, and urged them to acquire further information by attending his lectures. He conceded to them one point more. His portrait in the managers' room shows him to have been exceedingly prim and neat; his elaborately arranged cambric neckerchief and frill, and powdered hair, speak of considerable attention to his toilet; but rather than any artizan student should miss the lecture, it

was granted that, if he had not time to go home to dress himself, he might attend in the class room in his working attire.

When a new work is entered into, whose object it is to educate and elevate masses of men, experience in all times has shown that the result, though sure, will come about only after the lapse of many years. Even at the present day, with teaching machinery in vastness and completeness unparalleled in the world's history, the educational status of the country at large rises but slowly. Much less likely was it, in the condition of Glasgow about 1757, that any very striking results would be immediately forthcoming from Mr. Anderson's labours.

Then Glasgow was but a thriving country town, with a population, for city and suburbs, of only 24,000 persons. Old maps show that at this time it had but one long street stretching from the Clyde up to the Archepiscopal Palace, that stood on the site of the present Royal Infirmary. From this thoroughfare a few short streets branched off at right angles. One of these was the Tron Gate, running westwards only as far as the Old Vennel, where it ended at a gateway known as the West Port; the remainder of our present Trongate and Argyle Streets being then a country road, known as the Wester Gate. The wealthier burgesses had their dwellings in the Saltmarket, while the Duke of Montrose and other great county families had mansions in the Drygate, where, at a still earlier date, lived prebendaries and other dignitaries of the cathedral.

Many of the inhabitants were employed in agricultural pursuits in the surrounding country; many others were commercial men; some were employed on the river. Only a very limited number of the adult males, of the 24,000 inhabitants, were artizans or mechanics.

The manufactures of Glasgow were few, and had acquired no celebrity, the articles made being coarse and homely. In 1667 a soap work had been erected on the site of the upper part of the present Candleriggs. Eight years later a small paper mill was built on the banks of the Cart, and eleven years later still was begun the manufacture of coarse linens, woollens, and plaids. In 1725 the weaving of lawns, cambrics, and gauze from home spun yarns commenced. In 1730 a glass bottle manufactory was established. It stood on the side of the river, about midway between the present Broomielaw and Stockwell bridges, and so important in the estimation of the inhabitants was this new glass work, that in drawings then made of the town, as seen from the south, the conical brick building in which the glass was melted appears

always greatly exaggerated in size. In 1740 a stocking factory, in 1742 a calico printfield, in 1745 a brewery, in 1748 a delft pottery were established—all on a very small scale.

These were the manufactures carried on in Glasgow when Mr. Anderson became Professor of Natural Philosophy, and his anti-toga class consisted of as many of the workmen from these as he could induce to attend.

How small then was the chance, even although Mr. Anderson's life might extend to the full period allotted to man, that he would see any great result evolve from his labours, or that any portion of the scientific bread he so liberally cast on the waters would return to his sight. And yet, ere eight years were past, from the time of his appointment to the natural philosophy chair, an invention was made that has since revolutionized the world—an invention traceable directly to his enthusiastic endeavours to afford every aid in his power to aspiring mechanical genius.

Professor Anderson had a brother, Andrew, some seven years younger than himself, having been born just about the time of their father's death. Andrew was sent to be educated in Greenock, and was the intimate school companion and friend of James Watt. In 1755 Watt went to London to learn the trade of mathematical and philosophical instrument maker, there being then no one who could teach him this in Glasgow. In little more than a year he returned to Scotland, and made arrangements to begin business in this city, on his own account. This, however, was opposed by the guild of hammermen, on the ground that he had not served such apprenticeship as would entitle him to become a member of their craft; and only members, at that time, could carry on, in their own name, any mechanical trade. But this opposition that threatened to be fatal to Watt's prospects turned out to be one of the greatest pieces of good luck that could have happened to him. His intimacy with Andrew Anderson in Greenock, had brought him the friendship of Professor Anderson, and his mother's uncle, George Muirhead, was the Professor of Latin in the University. At various times great inconvenience had been experienced by the college authorities, from the want there was in Glasgow of some one who could keep in repair their philosophical apparatus. Watt's friends in the university took advantage of this, and urged the senate to appoint him mechanic to the college, and to give him a small shop within their own buildings, where the unfriendly hammermen had no jurisdiction. This was agreed to, and he had allotted to him a little room on the left hand side of the

second quadrangle, a part of the old college still standing, and used in the meantime as a goods' store by the railway company.

In this new sphere the connection between Watt and Professor Anderson grew closer and closer. Watt's great desire was to perfect himself in the science of his art, and Anderson, in this, gave him all the assistance in his power. Williamson, the biographer of Watt, speaks of Anderson as "his early and attached friend, whose house, conversation, library, and valuable scientific apparatus had been at all times free to satisfy the strongly awakened exigencies of that inquisitive and ingenious mind."

And now a most extraordinary circumstance was to occur. Mr. Anderson's predecessor in the natural philosophy chair had obtained for illustration in his class a model of Newcomen's steam engine. The model had not worked satisfactorily, and had been sent to London to be put right, but for some reason or other this had not been accomplished. A minute of the senate at this time bears that two pounds were paid to Mr. Anderson to have the model of Newcomen's engine brought back from London, and this little old fashioned machine Anderson put into the hands of Watt, to see what he could make of it. Of this every one knows the result. Steam had been a favourite subject of study and observation with Watt in his early days at Greenock. Great dreamy wondrous ideas had flitted through the boy's mind, of what might yet be done by the subtle power that lifted the lid of his aunt's tea kettle. The old thread of thought was taken up anew. Newcomen's engine, the best up to that time invented, he saw to be utterly impracticable, and, with the aid of the model, now, by the kindness of Anderson, in his possession, he set himself with all his might to discover wherein lay the cause of the non-success hitherto attending all forms of the steam-engine. How he worked at his problem day and night is matter of history, until, on a Sunday morning, when walking on Glasgow Green, and when just beside where the house of the Humane Society now stands, the thought of the separate condensing chamber flashed into his mind. At that moment, on that homely spot, with Sabbath stillness all around, a new era for mankind began.

This stupendous invention was Watt's own, and his only; and yet, just as certainly was it directly due to that assistance so unwearyingly and unselfishly given to Watt, and given to all who came under his benign influence, by the illustrious founder of this institution.

Year after year Professor Anderson continued his philanthropic labour with ever increasing fervour, and almost every mechanic in Glasgow came more or less under his influence. It has been well said of him, that the distinguishing feature in his life and character was "a liberal and diffusive benevolence in regard to the instruction of his race." He had many quarrels with his colleagues; he called loudly for reformation of abuses in the management of the college, he believed its revenue to be misapplied, and he stirred up the Trades' House of Glasgow to send a petition to London, seeking for a royal visitation to the college to inquire generally into the manner in which its business was carried on. He was the best hated man in the university.

In 1786 he published a book entitled *Institutes of Physics*, which was much esteemed, and went through many editions. In 1791 he invented a new form of gun carriage, having an arrangement which, by water power, greatly lessened the recoil on firing. He offered this to the British government, who did not accept it. It was, however, adopted by the Republic in France, and his original drawing of it which he presented to them they hung up in their senate hall, and inscribed under it the words, "the gift of science to liberty."

At that time, the German government, being afraid of the spread of republican opinions among the people, placed an armed barrier all along their frontier, to prevent the importation of French newspapers, and all other literature deemed by them obnoxious. Anderson, always an extreme Liberal, suggested to those at the head of affairs in Paris that balloons should be constructed to carry communications between the people of the two countries. This was done and the prohibitive efforts of the German government were thus rendered futile. Each balloon carried a little flag with the inscription,

"O'er hills, and dales, and lines of hostile troops, I float majestic,
Bearing the laws of God and nature to oppressed men;
And bidding them, with arms, their right maintain."

As we all know, this balloon post of Anderson's was revived and carried out on a large scale during the environment of Paris in 1870-71. Not only letters and papers, but living people being carried safely out of the besieged town in full sight of the German host.

In 1795, being then in his seventieth year, he made his will, bequeathing nearly everything he possessed for the foundation of this institution, and urging the trustees named by him to carry out this scheme, which he says is for the improvement of

human nature, of science, and of the country where they live. His plan was, indeed, comprehensive, resembling very closely the scheme of education proposed by Knox at the time of the Scottish Reformation. Not only did it comprise a university with four colleges of arts, medicine, law, and theology; it included besides a school or academy to carry on the earlier part of education.

In his ideas, too, of the plan of teaching in each college, he was far before his day. At that time the university of Glasgow, like other Scotch universities, had but two professors in the medical faculty—the professor of anatomy and the professor of medicine. The college of medicine, as designed by him, was to include *nine* professors:—

A	Professor of	Institutes of Medicine.
„	„	Practice of Medicine.
„	„	Anatomy, and Theory of Surgery.
„	„	Practical Surgery.
„	„	Midwifery.
„	„	Materia Medica.
„	„	Clinical Cases.
„	„	Botany.
„	„	Natural History.

At the present time the teaching staff of the leading Scotch and English medical schools is almost literally in accordance with this scheme, designed by him more than eighty years ago. His will contains ample directions for the popular teaching of science; and also for lectures to ladies; for, he says, he wishes them to lay in such a stock of general knowledge as will make the Glasgow ladies the most accomplished in Europe.

In January, 1796, Mr. Anderson died. The trustees nominated by him accepted office, and, in the following June, proceeded as far as possible to carry out his will. The funds in hand would then but allow of the appointment of a single professor, and it was decided that he should teach chemistry and natural philosophy.

At this time there was in Liverpool a young physician, Dr. Thomas Garnett, a graduate of Edinburgh, who, with his wife, had come there in the previous year, with the intention of emigrating to America. He had been a distinguished student of the celebrated Dr. John Brown, whose new theory of medicine he had most ably upheld in his graduation thesis on the subject of health. He had done what he could to get into practice, first at Bradford and then at Harrowgate, but without success; and shortly after his marriage he resolved to go to

America, and give lectures there on natural philosophy and chemistry. While waiting in Liverpool for a ship, some friends induced him to give a few lectures, and so successful were they, and so well attended, that he was asked to repeat them in other towns, both in England and Ireland. In June of 1796 he was appointed the first professor of this college; and in the following November entered on the duties of his chair, and conducted his course on the plan prescribed by Anderson. His success was marvellous. He had 1,000 students in his class. Session after session added to his reputation; and he also began to do well as a medical practitioner, when, unfortunately for him, in 1799, he accepted an offer made to him by Count Rumford, to become the first professor of the Royal Institution, then just set up in London. The Count was desirous of beginning in the metropolis a course of instruction similar to that carried on by Garnett in the Andersonian; and in planning his new institution he had made careful inquiry regarding the nature and economy of this college. In London, as in Glasgow, Garnett was successful; his class room was crowded with persons of the first distinction and fashion. But he was soon sorely annoyed by the arrogant interference of Count Rumford, whose enormous self-conceit led him to meddle in everything. Poor Garnett, too, had just lost his wife in child-bed, and was not in a frame of mind to tolerate persistent worry and bother. The transactions of the second winter, his biographer says, almost completely undermined his constitution. In the summer he resigned, and tried to begin practice in London, and became physician to Mary-le-bone Dispensary, where, in a debilitated condition, both of body and mind, he caught typhus and died. He was the author, while in Glasgow, of a little work, entitled, *Outlines of a Course of Lectures on Chemistry*; and, after his death, his executor published a series of lectures he had given on the *Laws of Animal Life*.

When Garnett resigned his chair here, a man was appointed to succeed him whose name subsequently became very famous—Dr. Geo. Birkbeck. He was a native of Yorkshire, and had studied medicine in Leeds, London, and Edinburgh. He was professor here from 1799 to 1804, and, like Garnett, taught natural philosophy and chemistry in accordance with the directions laid down in Anderson's will. He was an excellent lecturer, and was very popular. In 1804 he went to London, where he achieved considerable success as a medical practitioner. In 1820 he once more turned his attention to the teaching of science, and, in the London Institution, gave a course of

lectures. In 1823 he published a paper in the *Mechanics' Magazine*, advocating the erection of a Mechanics' Institute in London, and he also wrote an essay on the scientific education of the working classes. In November of that year, at a meeting held in the "Crown and Anchor," attended by Dr. Lushington, Jeremy Bentham, David Wilkie, Cobbett, and other distinguished men, and at which Birkbeck presided, it was resolved to form the London Mechanics' Institution, and the first office-bearers were appointed, Dr. Birkbeck being elected president. At first slowly, then very rapidly, other towns followed this example, and the most eminent men in the country took part in the movement. Soon every town in the kingdom, almost every agricultural village even, had its institution, with its news room and library, and evening classes, under the patronage of the great men of the neighbourhood. Scarce a place of any consequence is there in England but, in some street or other, you will find a building, more or less pretentious, with the words Mechanics' Institute over the door, and the date 1824, or from that onwards to 1830.

Lord Brougham's eloquent advocacy greatly assisted; and to him and Dr. Birkbeck has been very generally ascribed the honour of having been the founders of Mechanics' Institutes. Undoubtedly the great agitation of 1824 and the following years was chiefly owing to them, but they were not the *originators* of the movement; that began in Anderson's class room, in Glasgow, nearly twenty years before Birkbeck was born. And he and Brougham but sowed, in new soil, seed from the little plant that, for forty years, Anderson so carefully and lovingly tended, and for whose welfare, when he would no longer be by, he provided in the foundation of this institution.

Meantime, while these events were transpiring in London and throughout the country, this college was thriving. In the year 1800 a professor of Surgery had been appointed, and the first incumbent was John Burns, the son of Dr. Burns, so long minister of the Barony church. The surgical lecture room was then at the north-west corner of Virginia Street. In the year previous to his appointment he published a work that is still famous—the *Anatomy of the Gravid Uterus*. In 1800, the year of his appointment, he published another work on Inflammation. In 1806 a third treatise followed, entitled *Observations on Abortion*, in 1807 another work—*Observations on Uterine Hæmorrhage*, and in 1809, the most famous of all his works, his celebrated *Principles of Midwifery*, that was translated into almost every European tongue. In 1815, when George III founded the chair of surgery in the university, Dr.

Burns was translated thither, and held that position until 1850. His chair in the Andersonian does not appear to have been filled up for three years, when, in 1818, Dr. Granville Sharp Pattison was appointed to it, but he held it only for one year, and in 1819 was succeeded by Dr. William M'Kenzie, who became the most celebrated oculist in Europe, and whose great work, *Practical Treatise on Diseases of the Eye*, was translated into French, German, and Italian. He was the founder of the Glasgow Eye Infirmary, and in 1828 he was appointed Waltonian Lecturer on Diseases of the Eye to the University of Glasgow.

He was followed in 1829 by Dr. James Adair Lawrie, who was professor of surgery here for thirty-one years, when, on the death of John Burns in 1850, he, too, went to the regius chair in the university. He did little in the way of authorship, but the profession reposed great confidence in his surgical skill and ability, and for many years he was the leading consultant in the West of Scotland. Since he left it, this chair has been held successively by Dr. Robert Hunter for ten years, by Dr. Geo. H. B. Macleod for nine years, and by Dr. James Dunlop since 1869. This, then, is the oldest of the purely medical chairs, having been, as I already said, instituted in the first year of the century.

When Dr. Birkbeck left the Andersonian, as we have seen, in 1804, to go to London, he was followed by Dr. Andrew Ure, one of the most celebrated of Scottish chemists. He held the chair for the long period of twenty-six years. He resembled Anderson more than either of his predecessors; for besides being an able popular teacher, he was an eminent scientific worker, and, like Anderson, all he did in the way of research had a highly practical aspect. He directed his attention chiefly to the application of science to the arts and manufactures; and with persons engaged in these, his class rooms and laboratories were thronged. In 1821 he published his great *Dictionary of Chemistry*, which went through many editions, and was translated into more than one Continental tongue. In the preface to this, he gave an interesting account of his manner of educating his popular classes. While in this college he published many important papers. One of them was entitled "Experimental Researches on some of the leading Doctrines of Caloric, particularly on the relation between Elasticity, Temperature, and Latent Heat of different Vapours, and on Thermometric Admeasurement and Capacity." Another paper on "Mean Specific Gravity." Another on "Experiments to determine the Constitution of Liquid Nitric Acid, and the

Law of Progression of its Density at Various Degrees of Dilution." Another on "Sulphuric Acid and Law of Progression followed in its Densities at Different Degrees of Dilution." Another paper on "Muriatic Acid and Chlorine," in which he described his Endiometre which he invented to carry out the experiments detailed in this paper. Still another paper, on the "Ultimate Analysis of Vegetable and Animal Substances." He also published *A New System of Geology*. Having to teach materia medica for a short time, at the request of the trustees, before that chair was formally established, he published a "Systematic Table of Materia Medica, with a Dissertation on the Action of Medicines."

In 1830 he resigned his chair and went to London, and advantage was taken of the vacancy to establish a separate chair of natural philosophy, so that the next incumbent might give his undivided attention to chemistry. The new professor, Thomas Graham, was by far the most distinguished chemist who ever held a chair in this college. He taught here from 1830 to 1837, and in those seven years the amount of work he did was simply astounding. His papers were so numerous that I dare not trespass on your time and patience by going over their titles. But the principal of them were relations of the discoveries he made regarding the Diffusion of Gases, and his researches into the constitution of Hydrated Salts. He became famous all over Europe, and in 1836 was elected to the chair of chemistry in the University of London, and afterwards appointed Master of the Mint. In London he continued his scientific investigations, and published, in the *Transactions of the Royal Society*, his celebrated papers on "Dialysis." After his death, and in commemoration of his having been born in Glasgow, and having been a professor here, a statue was erected in his honour at the south-east corner of George Square. X

An able but very erratic man succeeded Graham, Dr. William Gregory, who held the chair for two years only, when he was appointed to the chair of medicine and chemistry, at King's College, Aberdeen. He had been an earnest student of Liebig's, and he taught here, with great enthusiasm, the new chemical theories of his master, and translated several of his works into English. In later life, when a professor in Edinburgh, he became a mesmerist, and published a book on mesmerism and clairvoyance, in which are narrated most wonderful stories of persons seeing and hearing what was taking place hundreds of miles away.

When he left the Andersonian, Dr. Frederick Penny was

elected to succeed him. Of Penny I can speak from personal knowledge, as I had the great privilege of being one of his students. His success as a teacher of chemistry was almost without a parallel. In this room he taught the largest classes of chemistry that, up to that time, had assembled under one roof, to be taught by one teacher. His faculty for illustrating difficult portions of his subject was wonderful; into the most obscure recess of organic chemistry he would flash a beam of light, which would so illumine the abstruse problem, that, without conscious effort, it was clearly apprehended by the hitherto groping student, and never afterwards forgotten. On one occasion, standing where I now stand, and addressing an audience that filled this hall, he desired them to understand clearly the nature of *isomeric* compounds. After giving the usual definitions, and the ordinary example of oil of turpentine and oil of lemon, which have not only the same kind of elementary atoms, but also the same number and proportion of these atoms, and yet have different properties; I say, after enunciating the usual proposition of the text books and lecture rooms, he led us, in imagination, to the studio of a painter, and pointed out the thousand tints and shades of colouring of foliage and flower, cloud and sky, landscape and water. He then called attention to the small number of original pigments on the artist's palette, and spoke of the painter's wonderful skill in producing from so few, such innumerable variety, merely by mixing the same colours in slightly different proportions. Then, pointing to his isomeric compounds he said, the divine artist takes the *same things* in the *same proportions*, and from these constructs substances infinitely diverse. He did not need again to return to the subject of isomerism.

He was highly distinguished as an analytical chemist; and as a scientific witness in a court of law he had no equal. His evidence in the celebrated cases of Madelaine Smith and Dr. Pritchard called forth the warmest approval of the presiding judges.

It has been frequently said of him that, after all, he was more of a mere teacher of chemistry than a chemical discoverer; and, no doubt, in his later years he did but little in the way of original investigation. But in his early days at the Andersonian it was very different. In 1839 he conducted a series of researches regarding the atomic weights of chlorine, nitrogen, silver, potassium, and sodium. The results arrived at I have placed in this table, and in a parallel column the numbers given by Staas, more than twenty years later, and which are now universally received throughout the chemical world.

	Staas.	Penny.
Cl. . . .	35°·457	35°·45
N. . . .	14°·044	14°·02
Ag. . . .	107°·930	107°·97
K. . . .	39°·137	39°·08
Na. . . .	23°·045	23°·05

And you see that, in 1839, Dr. Penny did the work that Staas did over again in 1860, and for which the foreigner now gets the sole credit.

When Dr. Penny died in 1870, Mr. James Young, of Kelly, then president, and still, I am glad to say, a manager of this college, in the most liberal and public spirited manner, set aside the sum of £10,500 to endow a chair of technical chemistry, and for the accommodation of this class he is, at the present time, erecting, at a further great cost, laboratories and class rooms which, when finished, will be the most complete of their kind in the kingdom. No one since the time of the original founder of this college has taken a warmer interest in the spread of practical science in Glasgow than Mr. Young; and certainly no one, by pecuniary aid, has done so much to encourage it. Of the present incumbents of the chemical chairs it would, of course, be entirely out of place on my part to say anything.

In point of antiquity, the chair of Botany ranks next after chemistry and surgery, having been founded in 1816. Mr. Roger Henedy, the late incumbent, had a very high reputation as a Scottish botanist, and he was the author of the *Clydesdale Flora*, a work that is extremely accurate, and very comprehensive, and has gone through several editions.

In 1825 the professorship of Mathematics was established, and the present much respected professor has held office for the long period of thirty-two years. His predecessor was the now greatly celebrated mental philosopher, Professor Alexander Bain, of Aberdeen.

In 1828 four new chairs were added to the college—anatomy, midwifery, practice of medicine, and materia medica.

The first professor of Anatomy was Mr. Robert Hunter, and so successful was he as a teacher that, in 1841, he was solicited by the Westminster Hospital School of Medicine in London to take the chair of anatomy there. He did not, however, feel at home in the metropolis, and in 1850, when Dr. Lawrie resigned the surgery chair here, Dr. Hunter sought and obtained it, and taught this subject until he died in 1860.

The second incumbent, Dr. Moses S. Buchanan, was for thirty years well known by the whole profession in Scotland, as

a most enthusiastic teacher of anatomy, and as an eminent and successful surgeon; and in his time the medical school became more prosperous than it had ever been before. He was the author of a very important paper on the surgical anatomy of the subclavian, brachial, and femoral arteries, in which the suggestion was made for the first time I believe, that the subclavian might, in certain cases, be advantageously tied in the middle part of its course. He also wrote an able and original article on "Excision of the Joints." At his death he was followed by his son Dr. George, now professor of clinical surgery in the university, whom hundreds of Andersonians scattered over the world hold in most kindly and grateful remembrance. In turn after him came the present occupant of the chair, of whom I do not need to speak.

The chair of Midwifery has always been ably filled. The first professor, Dr. Armour, was a most accomplished classical scholar, being famous in his day for his knowledge of the language and literature of ancient Greece. He was the author of two papers that, at the time of their publication, attracted much attention; the one entitled "Remarks on Insanity;" the other, "Remarks on the Action of Ergot of Rye." The immediate predecessor of the present professor, my own old teacher, Dr. James Paterson, now an Andersonian trustee, was one of the most entrancing lecturers I ever listened to, and had he published his lectures when he resigned the chair he would have conferred a boon on the whole profession.

Of the five gentlemen who, besides Professor Charteris, have lectured here on the Practice of Medicine, only two are dead. One of these, Dr. Andrew Anderson, was a grandnephew of the founder, and no man was ever more cordially esteemed and venerated by students than he was, and the most painful regret was felt by all connected with the Andersonian when failing health, in 1863, compelled him to resign his charge. He was the author of many valuable papers, among them being "Observations on Typhus," published in 1845, "Post-febrile Ophthalmitis," in 1846, and on the "Cause of Scurvy," in 1847. In 1861 he published a work, specially for the students of his class, entitled *Outlines of a Course of Lectures on Medicine*. But by far the most important of his works is his *Lectures Introductory to the Study of Fever*, which forms, I believe, the most clear and lucid exposition of the subject in the English language.

The first occupant of the chair of *Materia Medica* was Dr. Andrew Buchanan, who held it for ten years, until 1838, when he was appointed *Regius Professor of Institutes of Medicine*

in the university. But although only ten years in this college, he made, while here, that contribution to science for which his name will for ever be held in remembrance. Prior to his time, many investigations had been made, and much had been said and written concerning the fibrin of the blood and the phenomenon of coagulation, but no one had suggested that, in the living blood, fibrin did not exist as such, no one doubted that in the blood coursing through the arteries and veins it really was present in a liquid form, and investigation had only taken the form of endeavours to determine the causes that brought about the precipitation or solidification of the already pre-existing fibrin. But observations of the behaviour of pathological serous exudations, and afterwards most carefully conducted experiments, led Dr. Buchanan to form the opinion that in normal living blood there is no fibrin. He taught that fibrin is *formed* in the process of coagulation, by the union of at least two distinct substances, one already existing in the liquor sanguinis, and the other liberated from the blood corpuscles after exudation from the body; or under certain morbid conditions actually within the living body itself. When Dr. Buchanan, first to the Philosophical Society of Glasgow, and subsequently in the *Medical Gazette* for 1836, gave the first sketches of his new theory, very many members of the profession thought little of his theory, and until quite recently the text books of physiology gave his views only a passing and very imperfect notice. But within the last few years substantially the same views have been wafted across from German laboratories, and Schmidt has actually succeeded in isolating the component factors of fibrin. And this *isolation* is exactly Schmidt's share in the matter, except that he imagines the presence of a ferment to be theoretically necessary. All teachers and books now give a prominent place to the theory, but curiously many of them most ignorantly attribute wholly to Schmidt what are only Dr. Andrew Buchanan's views, made more exact certainly, but withal somewhat disfigured by a new, clumsy nomenclature.

Dr. Buchanan's successor in the chair was Dr. William Hooker, the uncle of the present president of the Royal Society, Sir Joseph Dalton Hooker, whom, a few months ago, it was proposed to make Lord Chancellor of the University of Glasgow. The present professor has held office since 1855, and I am sure we all congratulate him on the circumstance that, within the last fortnight, his treatise on "Spina Bifida" has been translated and published in France.

The chair of Medical Jurisprudence was established in 1831,

and has been filled in succession by Mr. George Watt, Dr. John Crawford, Dr. J. B. Cowan, Dr. William Leishman, Dr. Pierce Adolphus Simpson, and Dr. Alexander Lindsay. Dr. Cowan, in 1856, the year of his appointment to the chair, conducted a series of experiments which went far to show that the poisonous effects of strychnine could be held in check by the continuous administration of chloroform, until the total elimination of the poison from the system had been effected. These were among the first experiments performed, by which has been demonstrated the mutual *antagonism* of action of certain medicines.

Prior to my own appointment, the Institutes of Medicine class has been taught by Dr. Andrew Anderson, Dr. Maxwell Adams, and Dr. Eben. Watson. I was a student of Dr. Watson's, and such was the simplicity and logical arrangements of his lectures that, even at this distance of time, I could repeat many of them almost word for word.

In 1869, by the liberality of several individuals, a lectureship on Ophthalmic Medicine and Surgery was endowed, and Andersonian students have the privilege of attending free of charge.

Last summer Dr. James Christie was appointed Lecturer on Public Health to this college, by recommendation of the medical faculty.

In the spring of this year a dispensary for the treatment of the sick poor was opened in the college buildings, and is now being carried on by a most able and energetic staff of physicians and surgeons. Besides attending to such patients as are able to come to the dispensary, the more serious cases are visited at their own houses, and the senior medical students are in this way educated as to the manner of conducting themselves in private practice, a part of their training that, in Glasgow, has hitherto been entirely neglected. From the day that the doors were opened, the dispensary has been largely taken advantage of, and within the last six months no fewer than eight thousand poor persons have been prescribed for.

The medical school, then, of this college, has been in existence, in a form more or less complete, since the first year of the century, when John Burns began to lecture on surgery under its auspices. During that time very many of the most distinguished physicians and surgeons of Glasgow have been connected with it. It very early became, with only some six or seven exceptions, the largest medical school in the United Kingdom, and, in its time, it has sent forth several thousands of medical practitioners; many of whom have attained to

eminence, and a few to very great distinction. Four names among Andersonian students stand out very conspicuously; two of them purely medical, Dr. David Livingstone and Dr. Benjamin Ward Richardson; two of them chemists, Dr. Lyon Playfair and Mr. James Young, F.R.S., of Kelly.

I have thus, gentlemen, very imperfectly I know, endeavoured to bring before you some of the leading events in the history of this college, and in the life of its generous founder. To you who, this day, are setting sail in unknown waters, it must be of consequence to hear something of the experience of those who have made the voyage before you. Anderson and others whom I spoke of to-day attained to great eminence, and their deeds live after them. This greatness was not reached in virtue of anything peculiar to the times they lived in, or to any singularity in their surroundings. It is as open to you as to any who have gone before, so to work in your profession as to command the commendation of your contemporaries, and the respectful remembrance of those who will follow you. You will all succeed if you all work for success; this is as unalterable and inevitable as the law of gravitation. The old border chief, the ancestor of the great house of Buccleuch, said to the English queen, in explanation of some heroic achievement, "Whate'er a man dares he can do;" and most men who do much are of his way of thinking. The great profession you aspire to enter is worthy of every effort you can put forth. No man ever regretted work done in relief of human suffering; and from the day you obtain your diploma, that will be the work of every one of you. Men's lives will be in your keeping. In the coming months, then, of this session, and in all the sessions of study yet before you, do your duty here, so that when the time of responsibility comes you may be prepared for it, equipped at all points, and in your war with disease, wielding your weapons with consummate skill. In Egypt, Napoleon reminded his soldiers that from the pyramids forty centuries looked down on them. Our profession is older than the pyramids—all the centuries of the world's history look down on you.



