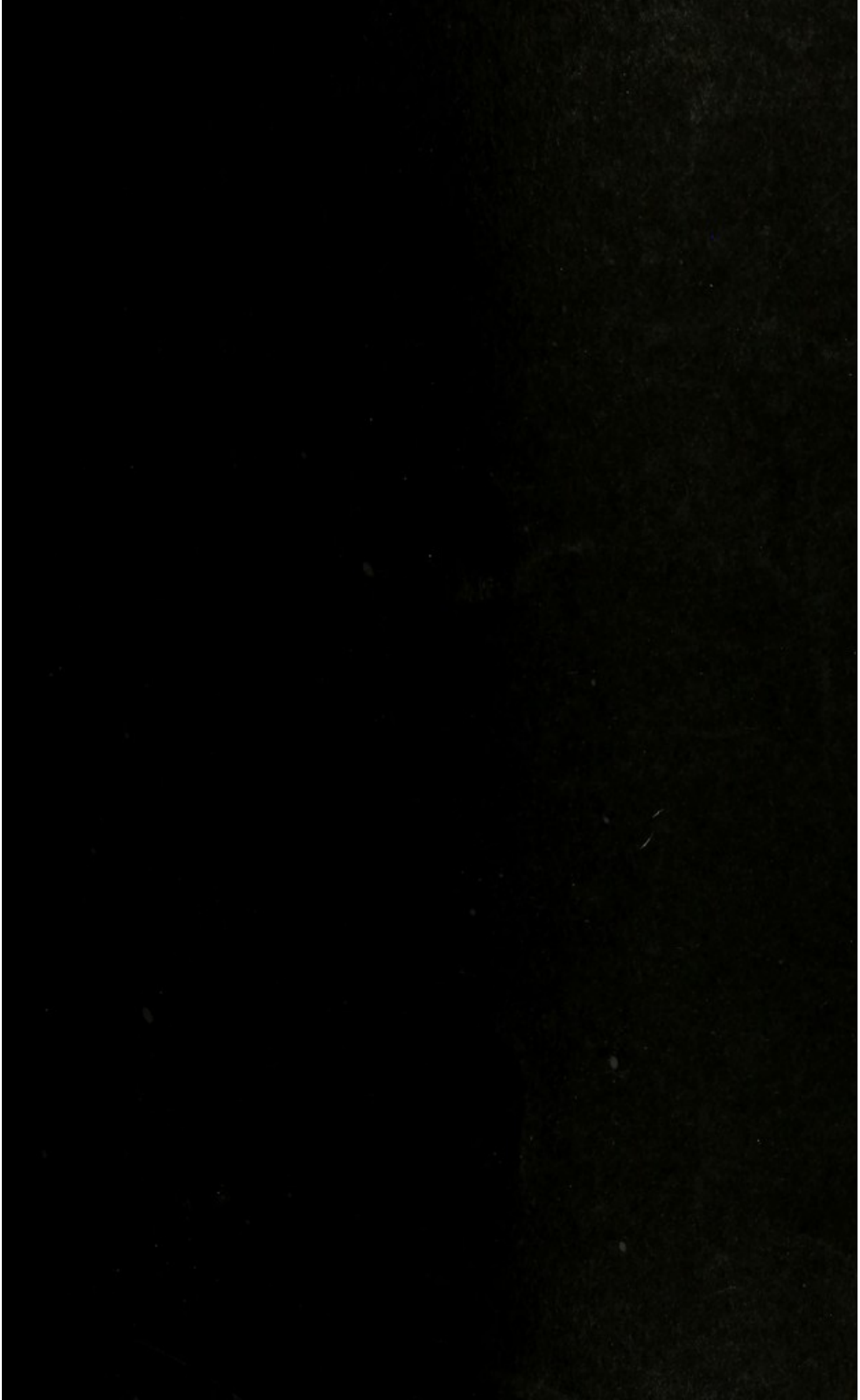
Biographical sketch of the late George Wilson, M.D / by Professor Balfour.



BIOGRAPHICAL SKETCH

OF

THE LATE GEORGE WILSON, M.D.,

F.R.S.E., F.R.S.S.A., F.C.S.,

REGIUS DIRECTOR OF THE INDUSTRIAL MUSEUM OF SCOTLAND, AND PROFESSOR OF TECHNOLOGY IN THE UNIVERSITY OF EDINBURGH.

BY

PROFESSOR BALFOUR.

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PROFESSOR GEORGE WILSON.

THE late Professor George Wilson, whose life we purpose to notice in the following pages, was a man of exquisite literary power and fancy. His writings extend over a wide range of literature and science, and they are deservedly popular. By his death, the University of Edinburgh has been deprived of one of its bright ornaments, and Chemistry has lost one of its most felicitous and pleasing expounders.

Dr Wilson was born in Edinburgh, on 21st February 1818; and was thus, at his death, in the forty-first year of his age. "His parents were highly respectable, though not in such an elevated station as to diminish the credit due to his own exertions in attaining the position which he ultimately reached; but it deserves to be noticed, that he may be included in the number of distinguished men who have been in a great degree indebted for the development of their talents to the maternal character and influence."[1]

His father, Mr Archibald Wilson, was a wine-merchant in Edinburgh, and died about sixteen years ago. His mother, Janet Aitken, who is still living, was the youngest daughter of a land-surveyor in Greenock. She is a lady of great intelligence and piety, and she devoted much attention to the education of her children. There were eleven of the family; but of these only three now remain,—a son, Dr Daniel Wilson, the well-known author of "The Prehistoric Annals of Scotland," at present Professor of English Literature and History in the University of Toronto,—and two daughters. From his childhood, George was distinguished by many noble qualities—great truthfulness,

[1] Lord Neaves' Opening Address to the Royal Society of Edinburgh, December 5, 1859.

self-sacrifice, a delicate sense of honour, and generous feelings. Studious, and with a marked love for books, he gave early promise of great mental ability.

In 1822 he commenced his studies in a private school, and in 1827 he entered as a pupil of the High School, under Mr Benjamin Mackay, an able classical teacher. He was always among the first five in the class, and was remarkable for his *general knowledge* — a quality which was exhibited during life, and which seemed afterwards to fit him specially for the situation he occupied in the University. While at school, in 1828–29, he and his brothers formed among their companions a "Juvenile Society for the Advancement of Knowledge." They met once a-week in his father's house, when papers were read on natural history, mechanics, astronomy, etc. Minutes of their proceedings were kept by his brother Daniel. His mother presided over the youthful assembly, and usually wound up the evening by giving a verse from Proverbs.

Wilson remained at the High School until he was fourteen. On leaving it he selected Medicine as his object of study, and commenced by becoming an apprentice in the laboratory of the Royal Infirmary, where he remained for four years. The suffering and distress which he witnessed during this period, made an indelible impression on his very sensitive nature, and had a saddening effect on his mind. Many are the stories which might be told illustrative of his sympathy with the patients, and his eager desire to relieve them. In his opening Address to the Society of Arts on November 23, 1857, in referring to apprenticeships, he says,—"Ah me! when I recall some of the enforced companions of my apprentice days, I feel that I would make the greatest sacrifices rather than permit a youth dear to me to encounter similar temptations."

He entered the University of Edinburgh in 1832, passed as surgeon in 1837, took his degree of Doctor of Medicine in 1839, and wrote a thesis "On the Certain Existence of Haloid Salts of the Electro-Negative Metals in Solution." After taking his degree, chemistry became his favourite pursuit. He had studied the subject assiduously under Dr Hope and Mr Kenneth Kemp; and in 1836–37 he had been engaged for eighteen months as chemical assistant in Dr Christison's laboratory, which was at that time the best school of analytical chemistry in the University. His first lectures on chemistry were given to private audiences, in the drawing-room of his father's house, in 1837. In a MS. journal kept by him, we find the following entries: — "September 20th, 1838.— I meet with scarcely one lady in ten or fifty, who has sufficiently cultivated her natural intellectual powers." . . . "This winter shall see

me do my utmost to suggest an improvement among my own small circle."

"May 1839. Following out the proposal to amend the subjects of ladies' conversation and study, I assembled some of them in my father's house, and delivered a course of prelections on chemistry, especially the chemistry of nature. This was in the winter of 1837–38, so that I was then not nineteen. The majority of my audience were older than myself by a year or two. I was greatly praised and encouraged, most kindly listened to, and assisted in many ways, especially by J. M'G., a generous, unselfish, happy fellow, without whose aid I should have come on very poorly. This course, which began in October, was first interrupted by the illness of my sister, and afterwards by the mournful indisposition of my cousin C.; so that only ten or twelve lectures were given.

"I place here the names of those who smiled on a juvenile attempt, both because I would keep on record the titles of those persons, who gave rise to many a happy thought, and that, as I hope to address other audiences, I may not lose the recollection of my first, which was more kind, generous, and forgiving towards me than any future audience can be."

Subsequently to this Dr Wilson went to London, and entered as assistant in the laboratory of University College, under the superintendence of Professor Graham, now Master of the Mint. There, with Dr Lyon Playfair, Mr James Young of Glasgow, Dr Livingstone, the African traveller, and other zealous students, he carried on his chemical pursuits for a period of six months.

During his attendance at the University, he took an active part in all the doings of students, and joined in many of the *jeux d'esprit* which were in vogue at the time. He sent contributions to the University periodicals which were then established. In the University *Maga* for Tuesday, 23d February 1838, there is a paper by him, with the initials B. I. (meaning Bottle Imp), on "The Consulting Room and College Philosophers." He refers to the various classes of students who frequent the room, and, in speaking of medical students, says: "We draw attention to a *species*, individuals of which are to be found at every table. They are known by their care-worn, anxious looks, and by having a huge volume of folio anatomical plates before them, and a Dublin Dissector lying hard by. You peep over their shoulder, and find them tracing the course of the Vidian nerve, the relations of the external carotid, or the like; and you know that before the eyes of each floats, like the mirage of the desert, a japanned tin case, which, when attempted to be grasped, fades, like Macbeth's visionary dagger, into viewless air. Reader,

these unhappy mortals are aspirants to the name and honours of Surgeon."[1]

He began to lecture publicly on chemistry in Edinburgh in 1840. About this time, however, his health began to suffer, in consequence of over-exertion during a pedestrian excursion in the Highlands with a cousin. His first course of lectures was arranged while he was confined to bed, and he was scarcely convalescent when he commenced the session of November 1840. His health continued broken after this. An attack of rheumatism was followed by disease of the ankle-joint, which ultimately called for amputation. This was performed in January 1843, by his friend, and afterwards his colleague, Professor Syme. His case is thus described in Mr Syme's "Contributions to the Pathology and Practice of Surgery," 1848:—"A medical gentleman, about twenty-five years of age, after suffering from general rheumatism, was, twelve months ago,[2] attacked with severe pain in the left ankle, accompanied with swelling and inability of using the limb. Various remedies were used without benefit. An abscess opened in the course of the summer, and continued to discharge from a sinus behind the ankle and heel. Six weeks ago I saw him with Mr Goodsir. He was much reduced in strength, and greatly emaciated, obtaining no rest except through the use of opiates, and evidently sinking under his protracted sufferings." Amputation seemed to offer the only hope of relief, and Mr Syme proposed disarticulation. Accordingly, he performed this operation; and as the articulating surfaces of the joint were everywhere divested of cartilage, rough and carious, instead of removing the malleolar projections separately, he exposed the bone sufficiently to saw off both together, with a thin lamina of the tibia connecting them. This was the first instance in which Professor Syme amputated through the ankle-joint for disease of the joint. It is therefore interesting in the annals of surgery. The case proceeded favourably. Dr Wilson, on 9th June 1846, wrote to Professor Syme in these terms:—"You will remember that I lost my foot in January 1843. The stump healed rapidly,

[1] He wrote a paper for the same periodical, "On the Natural History Museum," which was sent to Edward Forbes, the editor, but was not published. In it, after some amusing remarks on the etymology of the word Museum, he proceeds to comment on the mode in which some of the quadrupeds in the Museum are stuffed. He found that the lower lip of an elephant, in the collection, was made up of a piece of cloth, painted black on the outside and red within. He had read of canvas-backed ducks, but never of canvas-lipped elephants; and he proposes to designate the species "*Elephas linteolabiatus.*" A rhinoceros also attracted his notice, on account of a piece of wood supplying the place of a skull, and projecting into the mouth. To this animal he applies the name of "*Rhinocero xylocephalus.*" It was this paper which called the attention of the editor to Wilson.

[2] The account was written in 1843, and appeared in the April number of the *Edinburgh Monthly Medical Journal.*

and in six weeks had all closed except one small aperture, from which a slight watery discharge continued to come till the month of June, when it suddenly ceased, and complete cicatrization occurred. Since that period I have experienced no pain or uneasy sensation of any kind in the stump, nor any tenderness, making standing or walking irksome or unpleasant. . . . I can lean the weight of my body on the naked stump without inconvenience. . . . The artificial foot I wear within an ordinary half-boot, is made of light wood, with a spring across the part corresponding to the roots of the toes. This spring, however, is of no use, as the rigidity of the boot enclosing it prevents its acting. The foot might be made of one piece of wood. At the heel, it is hollowed into a concavity corresponding to the shape of the stump, but rising up before and behind into two prolongations, which, seen in section, would resemble the horns of a crescent. The foot is cased in chamois leather. . . . I have stood for six hours (not consecutively) daily, for months together, without any inconvenience; and I wear the artificial foot, without intermission, from morning till bed-time." John Goodsir was the only assistant at the operation. The feelings which Dr Wilson experienced previous to the operation, and during its performance, are graphically portrayed by him in a letter on "the Anæsthetics of Surgery," which he addressed to Professor Simpson, and which is published in Simpson's Obstetric Works, edited by Drs Priestley and Storrar, Vol. II., p. 796. He contrasts the condition of patients in his day, before the use of chloroform, with their state at the present time:—

"Several years ago," he says, "I was required to prepare, on very short warning, for the loss of a limb by amputation. A painful disease, which for a time had seemed likely to yield to the remedies employed, suddenly became greatly aggravated, and I was informed by two surgeons of the highest skill, who were consulted on my case, that I must choose between death and the sacrifice of a limb,—and that my choice must be promptly made, for my strength was fast sinking under pain, sleeplessness, and exhaustion. I at once agreed to submit to the operation, but asked a week to prepare for it; not with the slightest expectation that my disease would take a favourable turn in the interval, or that the anticipated horrors of the operation would become less appalling by reflection upon them; but simply because it was so probable that the operation would be followed by a fatal issue, that I wished to prepare for death, and what lies beyond it, whilst my faculties were clear and my emotions were comparatively undisturbed. For I knew well that if the operation was speedily followed by death, I should be in a condition, during the interval, in the last degree unfavourable to making preparation for the great change."

During the interval, he diligently and prayerfully studied the Bible, and at the end of a week the operation was performed.

There were no anæsthetics in those days, and the operation was a very painful and somewhat tedious one. Not being gifted with great physical courage, he was one of those to whom cutting, bruising, burning, or any similar physical injury, even to a small extent, was a source of suffering never willingly endured, and always anticipated with more or less apprehension. He states that he could never forget the black whirlwind of emotion, the horror of great darkness, and the sense of desertion by God and man, bordering almost upon despair, which swept through his mind and overwhelmed his heart. Chloroform would have been the greatest boon to him. From his relations he concealed the impending operation, fearing that the expression of their grief would shake his resolution. They were not aware of what had happened until the surgeons made it known to them. "During the operation," he continues, "in spite of the pain it occasioned, my senses were preternaturally acute; I watched all that the surgeons did with fascinated intensity. I still recall with unwelcome vividness the spreading out of the instruments, the twisting of the tourniquet, the first incision, the fingering of the sawed bone, the sponge pressed on the flap, the tying of the blood-vessels, the stitching of the skin, and the bloody dismembered limb lying on the floor." He then dwells on the value of anæsthetics, and concludes thus:— "The sum, you will perceive, of what I have been urging is, that the *unconsciousness* of the patient secured by anæsthetics, is scarcely less important then the painlessness with which they permit injuries to be inflicted on him. . . . . I plead, therefore, for the administration of anæsthetics. I have thanked God many a time that He has put it into your heart to devise so simple and so safe a way of lessening pain. As for the fear entertained by some, that the moral good which accrues from suffering, and is intended by the Ruler of All to be secured by it, will be lost if agony is evaded by sufferers having recourse to anæsthetics,—we may surely leave that to the disposal of Him who does all things well."

His friend Goodsir visited him most assiduously. They were both keen medical students, and had been associated together in that scientific brotherhood which was established mainly by the late Professor Edward Forbes, under the name of the "Oineromathic." A bond of fellowship had been thus formed among many of the votaries of science at the Edinburgh School, which operated in no small degree on their after career. Forbes was an older student than Wilson, and had attained eminence as a rising naturalist before their acquaintance began. He was a genius in science who had the wonderful power of attracting followers, and of stimulating to exertion. Forbes'

influence told in no small degree on the mind of Wilson, who afterwards undertook to write his Biography. This work occupied his leisure hours ever since the lamented death of his friend; but we fear that little more than half the task has been completed. In a MS. note-book, the chapters of the Life of Forbes are sketched out thus:—

1. Isle of Man. 2. Boyhood and School Life. 3. London Artist Life. 4. The University of Edinburgh. 5. The Student Life of E. F. 6. The Sea Naturalist. 7. The Mediterranean Cruise. 8. The London Chair of Botany. 9. The Geological Survey. 10. The Edinburgh Class of Natural History. 11. The Artist and Litterateur. 12. The End. 13. Epilogue.—Of these the first five chapters are ready for the printer. As the materials have all been accumulated, it is earnestly hoped that the work may be completed by other hands.

Up to manhood the vigour and elasticity of his health was unusual; but from the year 1840 to the end of his career, a thorn in the flesh never ceased to buffet him. It was during his illness, in 1843, that his attention was specially directed to matters of eternal moment. He had been religiously brought up amidst the hallowing influences of domestic piety, and had always shown a great respect for religion; but he does not appear to have closed with the Gospel offer, and to have had settled peace, until this epoch of his life. "A student of God's works, and not ignorant of His Word, he as yet stood only in the outer court of the temple of Divine truth; the veil had yet to be parted that hung between him and the mysteries of its inner shrine; and there needed a power to be put forth to draw him with meet reverence and truthful confidence into the presence of Him who is there revealed."[1] He now realized deeply his personal need of a Saviour. The bed of affliction was made to him a blessing. The chastening of the Lord was for his profit. There happened at that time to be a student at the Divinity Hall who became acquainted with Dr Wilson, and was a constant visitor at his house. This was the Rev. Dr Cairns of Berwick. He became acquainted with Wilson at a Non-intrusion meeting in the Assembly Rooms of Edinburgh, in the spring of 1839. He writes thus:—"I was introduced by his cousin, my intimate friend, Mr James M'Gibbon Russell, a most distinguished student of philosophy, who died in 1844, before completing his studies for the ministry. I had known Mr Russell from 1837, and about the time that he introduced his cousin to me I began to visit at the house in Gayfield Square." The friendship which sprung up between Dr Cairns and himself was of the warmest

[1] Rev. Dr Alexander's Sermon on Wilson's Death, p. 17.

kind, and continued throughout the remainder of life. Their fellowship was cemented by holier ties than any of a mere earthly nature. Dr Wilson always regarded Dr Cairns as his spiritual father, whose counsels encouraged him, and whose ministrations at the hour of death helped to cheer his spirit. What he owed to God's discipline during his life was ever gratefully present to his mind.

Dr Cairns, in speaking of Wilson's state of mind at this time, writes :—"I have the impression that his conversion was not altogether sudden, and perhaps earlier than his own representations, naturally followed by others, would seem to indicate. Many circumstances conspired to prepare his mind for that event. He had had strong religious impressions in his childhood. He wrote me, in a letter dated August 14th, 1856, in these words :—'In reality, the other world and the shadow of death have been in my thoughts since I remember.' His twin brother had died some time before at the age of seventeen. A cousin, Miss Catherine Russell, had also died in singular peace, and her decease had much impressed the family. Besides the lessons of his admirable mother, he had an elder sister who died in 1847, and whose influence upon him, in a religious point of view, was eminently favourable from the singular soundness of her judgment, and her calm, patient endurance of suffering; add to all, the religious tendency of his student-cousin, though this was afterwards more conspicuous. Of all these influences, perhaps at that time, from equality of age, that of his sister was greatest; and I have reason to believe that, during his lengthened illness, she was a great help to him. I had myself become quite intimate beforehand. General conversation was often succeeded by discussions such as might be expected from a student of Divinity visiting a pious family; and though George took at first little or no part in these, gradually he began to feel interested; and we used to have long and earnest talks when others had withdrawn. I cannot recall accurately his religious difficulties. He had no sceptical tendency, beyond a general inability to reconcile the Gospel as miraculous, with the uniformity of nature; and I think, too, that some misgivings disturbed him as to the doctrine of the atonement. But his great want was the power to realize the value of the Gospel remedy, from his heart having been greatly set on literary and scientific eminence. God took His own way to abate this hindrance, by sending ill health, and thwarting all his plans of rapid elevation. A very slow and steady increase of interest in eternal things now set in; and I was always inclined to believe that he was a Christian, some time longer or shorter, before the amputation took place. An extraordinary change took place in his use of the Bible. The phrase quoted in his 'Life of John Reid,'

that he 'had a sair wark wi' his Bible,' describes his own state exactly; and we used to discuss, I think in the company of his sister, many passages. He was especially devoted to the Epistle to the Hebrews, which he valued for its clear view of the atonement, and of the sympathy of Christ; and no part of his Bible is so much worn, this being, indeed, almost worn away. (Some years afterwards, he conducted a class of young friends through part of this epistle.) I used to report to him the discourses of my late venerable friend Dr John Brown, spending the interval of service every Lord's day, as well as the Saturday afternoon, with him; and I rather think that, when his illness confined him to bed, I was in the habit of offering up prayer. I remember, with vivid accuracy, the earnestness with which, on the last occasion I saw him before the operation, he spoke of the danger before him, and of the great anxiety, mingled with trembling hope in Christ, which he showed as to his spiritual state. He took the Bible, asked me to read, and explain or enforce some passage, and then pray. The remembrance of that day survives, while the multitude of other conversations has left only a vague impression of progress and saving enlightenment. He soon gave it to be understood, by his mother and other relatives, that he was interested in the Gospel as he had not been before; only this was done with singular quietness, and I do not know of any special revelation that he made to them. There can be no doubt, as he himself had none, that, during the progress of that illness, he became a new man, and emerged with a strength and maturity of piety, such as could only have proceeded from remarkable teaching and influence of the Holy Ghost. He was not baptized till a considerable time afterwards; and then, as the result of careful study: though we hardly ever discussed that matter, and both thought it comparatively subordinate.

"I have dwelt on his earlier religious history, but I cannot compendize his later. I have whole masses of letters, most of which have some religious utterance in them, and not a few of which enclosed hymns written specially in seasons of illness. He sometimes requested me to visit sick persons in whom he was interested. A great many letters were written by him to persons needing religious advice or counsel, and some of them I know have been blessed to the highest results and ends."

That his afflictive trials at this time were blessed to him, may be gathered from the following statements:—On his mother expressing sympathy with his physical sufferings, he said to her,—"Don't regret them; think how much better I am off than so many in the Infirmary. Besides, I have learned from them to look at things in a new light, which is worth them all."

In a letter to a friend, in 1843, he makes remarks on

Trench's Sermons and on a work by Maurice, and alludes to his own spiritual experience :—

"We shall discuss," he says, "Maurice first, then the Puseyites, and finally we shall say a word about ourselves. Now, you must understand that I can offer you no *criticism* of the 'Kingdom of Christ.' To do that would demand an amount of classical, metaphysical, theological, historical, and political acquirements such as I have not, and never will possess. . . . Though I have learned much from his volume, and admired much, I have sympathized with very little of it." After giving some critical remarks, he goes on to say :—"I have been greatly pleased with the account of Quakerism, and the comments on Unitarianism ; still more with the decided way in which the Professor sets his face against Carlyle's nonsense. You know how much I admire the great Thomas, as an original thinker and a noble poet. I hold him, however, as a most unsafe, nay, to many minds, pernicious spiritual guide. I have seen several imaginative young men of my acquaintance led away by him. Samuel Brown's first lay sermon was a specimen of the cloudy religion his interpreters would substitute for the clear revelation of the Bible ; and that dogma, of each age needing a new revelation of truth, may be true in a high sense, but is a dangerous doctrine in the hands of speculative, fanciful young men. I have been quite grieved with the conclusions which many have derived from the works of Carlyle, and am pleased, therefore, to see them opposed ; for the men (of religious feeling at least) who read Carlyle will read Maurice also. There are many other passages I have admired and profited by, but I cannot conceal from you that the general impression the book has made upon me has been unfavourable. It so completely contradicts my individual religious experience, and is so opposed to all I have learned from the Bible, that I cannot believe it to be true. What does Maurice mean by saying that 'the individual prayer is not the highest and most essential prayer, but rather is *no prayer at all ;*' or, 'the idea of prayer and the idea of a church can never be separated?' I will never believe such a statement. I cast it from me, not without a strong sense of indignation at the narrowing of God's promises which it proclaims. When I was recently struggling in 'a great fight of afflictions,' soul and body racked and anguished, my life hanging in the balance, and eternity in prospect, I prayed to God for light and help, and my prayer was heard and answered—my solitary individual prayer, offered up without idea of church, or idea of anything but that God had promised to listen to every needy prayer, and to help all who believe on Christ Jesus. Will I, think you, sacrifice my sense of pardon and acceptance, realized in most trying circumstances, to any doctrine, however supported by secular evidence, which would deny its reality, and contradict what I dare not, cannot disavow, even if I wished to do it?"

His recovery from his severe illness was tedious, and he was rendered unfit for public duty for some time. His father died very suddenly in April 1843, and this added not a little to his

sufferings. The family were at this time pressed hard by troubles in various ways.

He became a member of Dr W. Lindsay Alexander's congregation. In his letter to Mr Walpole, on the Grievance of the University Tests, he thus writes :—" To prevent any misunderstanding, let me further state that I am a member of a Congregational church. There are two sections of Congregationalists, Independents and Baptists, who differ as to the mode, the subjects, and the significance of baptism, but agree in other respects, in reference to doctrine and Church government. I am a Baptist; but regarding a difference with respect to baptism as not a valid ground of separation between Christians who are at one in other matters, I am a member of a church, the majority of whom, including their minister, the Rev. Dr W. L. Alexander, are Independents."

The commencement of Dr Wilson's career as a lecturer was thus also that of his ill health. His sympathy for the sufferings of others was enhanced by what he had experienced; and, at the same time, his buoyant happiness, and his power of deriving pleasure from almost anything, made him the sunshine of every circle in which he moved. He specially enjoyed his visits to the country, and his residences at the Bridge of Allan, and other places, tended not only to improve his health, but also added to the enjoyment which he derived from the study of God's works. His interest in the young, and especially in young men, was very great. Inability from ill-health to conduct a Bible class for them for more than one winter was a real trial to him. In the autumn of 1854 he met with an accident at Rothesay, and broke his right arm near the shoulder. He recovered rapidly, and was able to undertake all duties at the commencement of the winter session. His weak body seemed often to be sinking into the dust, while his noble spirit ignored its fetters, and seemed to rise above the feebleness of the flesh. For fifteen years he continued to teach as a private lecturer, and he acquired eminence and celebrity. During all this time he struggled with many difficulties; but in the midst of them all he exhibited a Christian equanimity of temper. Ill health and the *res augustæ domi* only tended to wean his affections from earthly things, and to centre them in heaven. In 1844 he was appointed by the Directors of the School of Arts their lecturer on chemistry; and in the same year, with the sanction of the Highland and Agricultural Society, he became lecturer in the Veterinary College of Edinburgh. Between 1844 and 1852 he continued to deliver regularly nine lectures on chemistry every week during the six winter months, and at a later period of his history he even delivered occasionally eleven. For many years the Friday was welcomed by him for the opportunity it gave him of blistering,

in order to fit him for the recurring Monday's work. He often lectured with a blister or an issue on his chest.

Dr Wilson had a peculiar power of making science popular, and describing intricate subjects in such a way as to make them plain to a common audience. His inventive powers in illustrating his lectures were remarkable. His graceful diction and æsthetic taste, combined with his play of fancy and of genial wit, gave peculiar attractions to his prelections, and crowded audiences hung on his lips whenever he appeared in public. His power of lecturing was so great, that he was asked to give his services on many occasions; and his kind heart could not always refuse to grant a favour where the cause was a good one, even although by so doing he taxed his powers to the utmost. In the Academic Hall, the Philosophical Institution, the learned society, and in the miserable lecture-room in the Cowgate or the Canongate, he was equally at home and equally successful.

The attention which he devoted to Economical Science, and to the applications of Chemistry, pointed him out to the Government Department of Science and Art as the man best qualified to occupy the situation of Director of the Industrial Museum of Scotland. The news of his election was received by him in 1855, on his birth-day, when he was recovering from a severe attack of hæmatemesis, which had temporarily prostrated him. In the autumn of the same year he was chosen by the Crown to fill the newly-instituted chair of Technology in the University of Edinburgh. In a letter to Dr Cairns, after his appointment to the Chair of Technology, he says, "It will bring with it, I hope, some bodily rest, although it does not add to my wealth, nor diminish my responsibility; and I know too well that the world must be to every wise man a scene of struggle, and to every humble man a place of sorrow, to expect that I shall have less of its cares or woes than before. With unfeigned sincerity I can say, that I have rejoiced at the prospect of serving my Saviour more and better through the influence it may give me; and the prayer is often on my lips, and oftener in my heart, that I may be made bold and wise to confess Him before men." Dr Cairns remarks, "This is one of ten thousand examples of his devoted spirit. God make up to us the loss of such a friend."

The duties of this unendowed chair he fulfilled with the greatest ability and success. Although the class was not demanded for any academic honours, and was not included in any curriculum of study (except that of the Highland Society), still the talents of the Professor secured a large attendance. At the time of his death (although the entrance was not completed) the number of pupils was eighty-four, embracing students from all the Faculties and many amateurs. Nothing could more plainly

indicate the value put on his lectures. In his inaugural lecture he considers the subject, What is Technology? and he thus writes: "Technology is the sum or complement of all the sciences which either are or may be made applicable to the industrial labours or utilitarian necessities of man. While the subject has a connection with various subjects already taught in the University, it steers a course distinct from all, has a province of its own, and will not, when properly handled, interfere with the duties of any other professor." Dr Wilson was particularly desirous that he should not tread needlessly on the domain of other professors, and he was very sensitive on this matter. At the same time, he felt that there must of necessity be a certain overlapping of courses. Thus he remarks, "Every professor of the Faculty of Medicine is continually discussing, to a greater or less extent, the subject specially taught from all the other medical chairs. Anatomy, Chemistry, Physiology, and Pathology are more or less expounded by them all. The Professor of Chemistry and Natural Philosophy must largely consider the same phenomena and laws. Light, heat, electricity, magnetism, actinism, are included within the domain otherwise peculiar to each; and it must be left greatly to the judgment of each professor, and to the mutual arrangement among themselves, to determine how much or how little of these common subjects any one will appropriate."[1]

The full course of technology embraced three sessions, in each of which certain of the industrial arts were made the subject of lecture, which were not discussed in the other two. The course was divided into Mineral, Vegetable, and Animal Technology. Under the first were included the relations of the atmosphere, the ocean and tributary waters, and the earth, to technology; and among special subjects, fuel, building material, glass and glass-making, pottery, earthenware, stoneware, and porcelain, metallotechny, electrotechny, and magnetotechny. Under the second, or Vegetable Technology, were considered: saccharo-amylaceous substances, sugar-making, albuminous substances and fermentations, distillation, wood and wood-fibres, textile tissues, bleaching, dyeing, calico-printing, paper-making, scriptorial or graphic industrial arts, caoutchouc, gutta-percha, and the resins, fats, and oils. Under the third section, or Animal Technology, were included the mechanical application and chemical products of bones, ivory, horns, hoofs, tortoise-shell, shells, and corals; skins, tanning, fish-scales; hair, fur, wool, bristles, quills and feathers, animal refuse.

The lectures were fully illustrated by experiments and drawings, and by specimens from the natural history collections and

[1] Inaugural Lecture, Nov. 7, 1855.

the Industrial Museum. Occasion was taken throughout the course to visit various manufactories.

The Museum of the University had been handed over to the Government, on the condition that, being still under the superintendence of the Professor of Natural History, this, and all other collections in the general building, should be available for the instructional purposes of the University. It is also in contemplation to hand over other Museums, such as those of Comparative Anatomy and of Agriculture, under similar conditions. It seemed, therefore, to the Government proper to put the Director of the Museum in immediate connection with the University by means of the Professorship of Technology, allowing him to lecture on the varied applications of science to the industrial arts, without interfering with the elementary departments of science, which are taught by separate professors. The salary of the Director was at first L.300, and subsequently L.400 a-year. Dr Wilson was now placed in a position which seemed to be most congenial to his taste, and his prospects of usefulness and of comparative ease were brightened.

"It was fondly hoped," says Lord Neaves, "that in this new position, in the midst of friends and fellow-citizens who loved and appreciated him, and in the bosom of his own affectionate family, his constitution might gain strength, and that he might live to develop more fully, and, perhaps, in some new and original shape, the talents and genius of which he was possessed. But such was not the destiny appointed for him. He was sometimes, perhaps, too careless of consequences, where the call of supposed duty was heard, or where an opening of usefulness was afforded; and in the midst of much ill-health, and many warnings of danger, he continued to exert himself in a manner that would have been more appropriate in one of robuster frame. But his pleasure lay in the exercise of his intellectual faculties, in the advancement of science, and in availing himself of every opportunity to do good or show kindness; and it is probable that the pious resignation with which he long contemplated his precarious condition, and the state of preparation which he constantly endeavoured to maintain against the approach of death, may have led him to fear that event less, and to despise precautions for his own safety which his friends would have wished him to adopt."

His ardent spirit could not rest. He set about making collections for the Museum, visited manufactories, corresponded with foreign countries, and took active steps in getting parties in power to make arrangements for the site and building of the new Museum. The delay in the latter particularly caused him much anxiety and annoyance. It was only about a fortnight before his death that Mr Matheson informed him of the expected realisation of his wishes. He continued to labour in the accumulation of specimens of industrial art in all departments, and the tempo-

rary premises in College Street and Argyle Square were filled with them at the time of his death. These, when deposited in the New Hall, will prove a lasting memorial of his zeal, activity, and taste. The treasures which he amassed will advance technology and commemorate his name, but, alas, the arrangement of them will be committed to other hands. How prophetically does he speak in a lecture on this very Museum, when he says: —"I can but sow the seed; I am honoured to do this much; but 'one soweth and another reapeth,' and I am not so selfish or thoughtless as to wish it otherwise. We must be content to pluck the first fruits, and leave the full harvest to be gathered by those that follow."

In 1858, when Dr Gregory died, many members of the Town Council, as patrons of the University, looked to Wilson to succeed him; and had he come forward, there seems no reason to doubt that he would have been elected. He declined, however, to stand. He was always ready to oblige his friends. When the Professor of Botany gave a popular course, he kindly aided him, by giving in the class-room at the Botanic Garden, lectures on the chemistry of vegetation, which were of a most attractive character; and he also revised the part of the botanical Class-book in which the subject is treated. When Mr John Wilson, the Professor of Agriculture, was prevented from lecturing by ill health, he again gave his willing assistance, along with some of his colleagues, in conducting the course. A similar trait will be afterwards noticed in connection with the session of 1859–60.

Besides occupying these important positions in the University and in the Museum, Wilson was also an active member of many societies, and contributed papers to their Transactions, as will be seen by referring to the list of his publications. He was twice elected a member of Council of the Royal Society of Edinburgh; he was a member of the Council of the Chemical Society of London; a member of the Chemical Committee of the Highland and Agricultural Society, and one of the examiners for the Agricultural Diploma; an honorary member of the Pharmaceutical Society of Great Britain; and he had been twice president of the Royal Scottish Society of Arts, and for some time editor of its "Transactions." Nearly the last paper which he read in public, was that to the Botanical Society, in July last, at the Botanic Garden, "On the Fruits of Cucurbitaceæ and Crescentiaceæ as Models of various Articles of Industrial Use." The paper was fully illustrated by Museum specimens, and has appeared in the "Transactions" of the Society.

A growing holiness, sweetness, and patience, had been markedly visible in Dr Wilson of late years. In times of sickness

and dangerous illness, there was ever a serene calmness and cheerfulness, that seemed greatly to aid recovery. His patient endurance of suffering was remarkable. Patience wrought experience, and experience hope—even that hope which maketh not ashamed. He was always ready for his great change. About six months ago, when saying good-bye on a morning visit to a friend, he said, "I am trying to live every day, so that I may be ready to go on an hour's notice." To another he used the remarkable expression, "I am resigned to live." It was the experience of Paul, I would rather depart and be with Christ, which is far better; nevertheless, to abide in the flesh may be more profitable for myself and others, and I am resigned to the Lord's will. A marked feature in his religious character was his consecration of each day's work in all its particulars to God. This was evident in his prayers in the family as well as in his life. With him religion and business were not two things, but one. Religion was business, and business was religion. Hence it seemed but fitting and natural for him to step from the excitement and stir of an opening session into the immediate presence of God, without any special preparation being needed. His loins were already girt and his lamp burning, and he was always ready to follow his Lord and Master.

In September last he attended the meeting of the British Association at Aberdeen, and took an active part in the proceedings. The duties which he then undertook, under symptoms of great debility, were not such as to prepare him for the arduous work of the winter. The news of Professor Kelland's accident having reached him at Aberdeen, he expressed a kind and warm sympathy; and knowing that the occurrence had prevented his colleague from attending the meeting, he sent him an account of the proceedings, with the view of cheering him in his loneliness:—

Elm Cottage, Edinburgh,
Rev. Prof. Kelland. *September* 25, 1859.

My Dear Colleague,—Along with your other friends here, I heard with the greatest sorrow of your accident this day fortnight, and, as usual, rumours made the calamity worse even than it was; and I could learn no particulars till I saw Christison and Forbes at Aberdeen some days later. Knowing what a broken limb and an injured leg are, I can very heartily sympathise with you in your sufferings and confinement, and do not utter idle words when *I wish* you a quick and entire recovery. A sincere wish is a prayer to God, and as such, besides more formal prayer, I offer it to Him, that you may be sustained patiently to bear the weary days and nights which for a season are appointed you, and have a happy issue out of it all. Your serene, hopeful spirit will stand you in good stead now, and you know where to look for sustainment of hope and patience.

I write you mainly to ask if I can do anything for you, and to beg that you will not hesitate to command me to the utmost. It will be a great pleasure to serve you in any way. Meanwhile, I note down a point or two about the British Association at Aberdeen, which may not be uninteresting.

We had a numerous meeting. Great are the attractions of a Prince, and had he remained throughout the week we should certainly have had to hold our meetings *al fresco*, and to *bivouack* in the open air. Wisely, however, he gave but one day to the sections, and the stir moderated thereafter. His address was given in a modest, courteous, gentlemanly way. It was, I believe, entirely his own, and in matter and manner pleased all reasonable people. . . . I did not hear Sir R. Murchison's lecture. The gift of the Brisbane medal at its close greatly delighted him. He related to me in private that he very highly prized it; and it was very satisfactory to find that the younger geologists did not grudge him an honour which they thought he had amply and incontestably won, as the greatest recent contributor to Scottish geology. Dr Robinson's lecture was perhaps scarcely worthy of him, but, as I know from experience, it is an immensely difficult thing to explain in a few words to a popular audience the construction of an electric coil machine. The experiments were in the highest degree successful and beautiful. With Gassiot, the skilful experimental observer, and Ladd, the instrument maker, everything went well, and the magnificence as mere spectacles of some of the phenomena shown, especially those of fluorescence and phosphorescence, was such as to evoke from me, grave and sober though I am, a cry of delight; and I do not doubt that youngsters who saw these things with fresh, unsated eyes, will be roused by them to studies which by and by will enable them to push us old professors from our chairs.

Our Edinburgh men mustered strong—Allman, Balfour, Bennett, Christison, Laycock, Blackie, Shank More, Robertson, Playfair, Forbes, and myself, were present. We only wanted you to make up the dozen, and all lamented your absence. . . . There were few strangers. The continental men believed Aberdeen to be in the *arctic* circle, and were afraid to come. Liebig could not come, because England did not help Austria in the Italian war; but he has since, I regret to see, met with an accident like your own. Agassiz would have come if it had been a week earlier.

We had a Red Lion dinner on the Monday, when Owen presided, and about sixty men from all the sections sat down.[1] We broke up very early, but not before Blackie had astonished them with one of his songs. I welcome these dinners for the opportunity they afford for seeing men you have long known by report, and wish to know

[1] These dinners were commenced at Birmingham by E. Forbes, one of the members of Section D; and the party having met at an inn with the sign of the Red Lion, that name was afterwards given to the party. At each meeting of the British Association since that time a Red Lion dinner has taken place, The mode of cheering the speeches indicates the Leonine character of the party.

better. I was beside De la Rue, who told me all about his sun and Jupiter photographs, and near Grant, the historian of astronomy, who tells me that a new and improved edition of his history will soon appear. Faraday seemed unusually well, but disappeared early. Lloyd and Sir W. Hamilton of Dublin were active throughout.

The Abbé Moigno was in every section, and had papers for nearly all. Some were very curious, others of small importance; but being delivered in very fluent, and, in truth, eloquent French, they were all listened to, though, I fear, by some solely on the *omne ignotum pro magnifico* principle. But I tire you; indeed, I am far too critical. I spent a very happy and instructive week, and came back a lowlier man. These meetings ought to make one humble. I hope they made me so. I only add, that I had a friendly discussion recently with Sir J. Herschel, by letter, as to the statistics of colour-blindness. He shakes his head at my high per-centage; I have in consequence got L.10 from the British Association, and will have to work again on the matter.

In replying to this letter, Professor Kelland accepted Wilson's kind offer of service, and requested him to deliver an introductory lecture to the class of Mathematics. To this request, with his usual kindness, he at once assented, and performed the duty entrusted to him. In this lecture he noticed the bearings of various sciences on the business of life, and gave a comprehensive history of the mode in which science had been prosecuted in the Edinburgh University.

His feeble health at the commencement of the Session 1859 was ill calculated to fit him for the arduous duties he had undertaken, and there seemed to be in his own mind a feeling that he might not survive long.

In the month of October he wrote to Professor Goodsir the following note, in which he evidently alludes to the uncertain tenure of his life:—

Elm Cottage, *October* 21, 1859.

Professor Goodsir.

My Dear Sir,—You did quite right about the Electrical Fishes. I intended to say to Mr Baillie when I saw him again, as I hope to do to-morrow, the dead one was to count as mine, and the living ones go to you.[1] I shall do myself the pleasure of looking in on the survivors some early day.

When at Burntisland this summer, I had several conversations with Mr Kirke, who has formally engaged to procure for me, free of expense, two living Gymnoti next summer. I intend one of them for you, and mention this, that as they cannot arrive till I suppose midsummer, you may, should I be out of the way, claim it. My precarious

[1] He alludes to three specimens of Malapterurus Beninensis which had been brought over alive by the Rev. Zerub Baillie from Calabar, one of which was intended for Dr Wilson, but unfortunately it died soon after its arrival in Edinburgh.

health makes me avoid looking forward to a period comparatively so distant, and I should not like you to miss getting the Gymnotus.

You would perhaps at your leisure suggest what precaution should be taken in transporting the eel. Mr Kirke is sure the Dutch captains might be trusted, but is not so certain of the English ones.—Yours very truly, GEORGE WILSON.

In the last few days of his life his serenity was more obvious than at any previous time. So well was it known that, living or dying, he was the Lord's, that the anxieties of a death-bed season were as much lightened as is possible in this life. His death was more like a child going to sleep than anything else.

Ten days before his death, when calling on a friend who had been laid aside by a severe accident, he said—"I can say from experience it has been good for me to be afflicted." When under severe illness at one time, it was his earnest prayer that God would give him work to do for His own glory and the good of others. How this prayer has been answered has been abundantly testified.

He commenced his lectures in November 1859 with high prospects of success. His introductory lecture was characterised by his usual felicitous illustrations, and the class-room was crowded to the door. He was accompanied on the occasion by his colleague, Professor Balfour. He was delighted at the promised success of the class this season; and his desire to make his subject intelligible even to those who had not attended a preliminary course of chemistry, induced him to take extra work in the way of lecturing, which had a prejudicial influence on his health and strength.

His last illness began from exposure to cold and wet while from home on a business journey. On the morning of Friday, 18th November, he felt pain in his side, but treated it as a pleurodynic attack, and went to lecture as usual. He was, however, much exhausted; but in spite of this he continued to write letters, receive visitors, and make business calls, and he even ventured to give a second lecture in the afternoon. This seemed to prostrate him completely, and he had to apologise to the class for taking a seat in place of standing during the lecture as usual. When he reached home he was scarcely able to get up stairs to bed, from whence he never rose. He was attended by Dr Matthews Duncan and by Professor Bennett; and all that human skill could devise was employed for his recovery.

Dr Duncan writes:—"On Saturday forenoon (19th) I saw him. He complained of a pleuritic stitch in his left side. This never became serious. For at the same time he had pneumonia of that side, and bronchitis of both sides of his chest. The pneumonia and bronchitis gradually choked him; and for more than

a day before he died, it was evident that death would be the result. He knew that he was dying, and evidently wished to be able to converse a little with me, but only said he could not for his difficult breathing."

On Monday morning he dictated the following note to Dr Balfour, being the last of his letters :—

Elm Cottage, *Monday Morning* (21*st Nov.* 1859).

My Dear Balfour,—A sudden and unexpected attack of pleurisy, with accompanying inflammation of part of the lung, came on on Friday, and, as you may suppose, lays me aside from lecturing, much to my distress, at the very beginning of the session.

It would be a very great favour if you could lecture for me this week, beginning on Tuesday. My present topic is the amylaceous group, including starch, gum, sugar, and cellulose, and falls quite in your way. My assistant will see that the carriage goes down every day to bring you up with diagrams and specimens, and four assistants will be at your service every day. I trust you will be able to do me this service ; but if you cannot, please inform the bearer, that I may make other arrangements.

After that, class business and other secular matters did not trouble him, his thoughts being wholly occupied on eternity.

On the morning of Tuesday, 22d November, there appeared to be a slight alleviation of symptoms, but it was a temporary rally. Ere long it was evident that he was sinking. He was peaceful and happy, when he breathed his last at eleven o'clock P.M.

The following are some details of his last moments :—On the evening of his death, he requested his sister to read to him. The twenty-third Psalm was read, and then some verses from other parts of the Bible. "When thou passest through the waters I will be with thee," Isaiah xliii. 2. "Let not your heart be troubled," John xiv. 1. "To him that overcometh, will I grant to sit with Me in My throne," Rev. iii. 21.

Some of the latest scientific news were read to him ; and from his casual remarks, it was evident that his mind was perfectly clear, and every faculty in vigorous exercise. The reading continued from six to nine. His friend Dr Cairns arrived, by telegraphic summons, at 9 o'clock. Previous to this, nothing had been said either by him or by any one to express the consciousness of death being very near.

He received Dr Cairns with a sweet smile, and after the latter had repeated a few texts of Scripture, prayer was offered, in which he fervently joined. He distinctly signified that all was peace within, and was able slowly to articulate the full sentence, "I am in the hands of a good and kind Redeemer. I rejoice in

that any way." The minister then left the room, Dr Wilson saying to him, "Come as often and stay as long as you please." A relation came in for a minute to say goodnight, fully knowing it to be the last. On shaking hands, Wilson said, "Don't vex yourself about me; you have been very kind to me."

His mother came and kissed his hand as her farewell; knowing she could not hear his voice, he lifted up his arm to heaven with very significant gesture.

Dr Cairns once more came into the room for a few minutes. Again he inquired, "Is all peace?" and the answer was as before, "Yes," with a smile. "Shall I pray with you?" he said. "Yes, but short;" conscious evidently that the moments were numbered. For many hours before this he had expressed a strong desire to have "the room darkened and get to rest." *Now* this wish was fulfilled, and he was left alone with a sister. For the last time she bathed his face and hands with vinegar. It evidently was soothing; and after some words of thanks, he said, "I've been an unworthy servant of a worthy and gracious Master." More he tried to say, but only *one* word could be distinguished—"sin."

For the first time intimation was made to him of consciousness that he was dying, in the words, "You're going home, dear." From hearing the word *sin*, that verse was repeated, "If any man sin, we have an advocate with the Father, Jesus Christ the righteous," reminding him how a beloved sister had gone home upon it; also the words, "Complete in Him," were repeated. A very marked change taking place, Dr Cairns again joined the watchers, and, kneeling down, prayed for help to the departing spirit. Each sigh becoming longer, very soon the last seemed to be at hand. Again he kneeled in prayer; and, though seemingly unconscious, the closing eyes opened on hearing his voice. Thus the last sound heard was prayer. Immediately all was over. Again prayer was offered—a thanksgiving that for him the Saviour's prayer had been answered, "Father, I will that they whom Thou hast given Me, be with Me where I am."

"When the summons came he calmly and joyfully obeyed it. His last days were days of great bodily prostration, and the nature of his illness rendered it impossible for him to hold much intercourse by speech with those around him. He was able, however, to give constant indications of the entire serenity with which he awaited the will of his heavenly Father, and to express, confidently and unhesitatingly, the peace with which he rested in the hands of a good and kind Redeemer." [1]

The respect and affection with which he was regarded were

[1] Dr Alexander's Sermon, p. 23.

well shown in the public funeral, which was attended by Professors of the University, the Lord Provost, Magistrates, and Council, the Colleges of Physicians and Surgeons, members of the Royal Society, Royal Scottish Society of Arts, Royal Physical Society, Botanical Society, Philosophical Institution, School of Arts, Merchant Company, Chamber of Commerce. His friends, the Rev. Dr Alexander and the Rev. Dr Cairns, officiated on the occasion. His remains were interred in the Old Calton Burying-ground on 28th November, and his funeral sermon[1] was preached by Dr Alexander, in the Music Hall, to an overwhelming audience, on 4th December—the text being, "Blessed are the dead that die in the Lord," Rev. xiv. 13.

While Wilson's lectures threw a genial light on the facts of science, his writings contributed not less to extend and popularise them. Everything he touched became instinct with life, and was impressed upon the mind of the hearer or reader by associations of the most pleasing and lasting nature. His collected writings will undoubtedly be an important contribution to literature.

Biographical memoirs were among the earliest productions of his pen. In this department of literature he shone with marked lustre. At the request of the Cavendish Society, he wrote the life of the Hon. Henry Cavendish, including extracts from his more scientific papers. It is an admirable biography, "full of life, of picturesque touches, and of realizations of the man and of his times." It contains a critical inquiry into the claims of all the alleged discoverers of the composition of water. On this subject Dr Wilson made a communication in April 1859 to the Royal Society of Edinburgh, in which he completely established Cavendish's claim to the discovery. In the conclusion of the paper he dwells on the brightened moral aspect of the water controversy, and remarks: "From De Luc's 'Idées' all trace of charge against the fair-dealing of Cavendish has vanished. Lavoisier is found making full, if somewhat tardy, amends for any wrong he did the English philosopher; and as De Luc and Lavoisier testify that Cavendish had reached his famous discovery in 1782, the most uncharitable must cease suspecting that he borrowed or stole it from Watt, who had it not to offer any one till 1783." He rejoiced in being thus able to vindicate Cavendish's claims, and at the same time he treats the opponents in that true spirit of love which is kind, and which rejoices not in iniquity, but rejoices in the truth.

His life of John Reid, Professor of Medicine in St Andrews, "is a vivid and memorable presentation to the world of the true lineaments, manner of life, and inmost thought, and heroic sufferings, as well as of the noble scientific achievements of that strong,

[1] The sermon has been published by Messrs A. & C. Black.

truthful, courageous, and altogether admirable man and true discoverer,—a genuine follower of John Hunter." In his account of Reid's physiological discoveries relative to the nervous system, he exhibits in a remarkable manner his power of rendering the abstruse facts of science popular, and of putting them within the reach of ordinary readers. In his delineation, also, of the spiritual life of his friend, he speaks as one who from personal experience could tell of the great things which the Lord had done for his own soul. The work brings out in a clear and striking manner the happy combination of physiological eminence with high Christian attainments.

In his little treatise on "The Five Gateways of Knowledge," Wilson treats of the organs of the senses, in their intellectual and æsthetical relations, as "the loopholes through which the spirit gazes out upon the world, and the world gazes in upon the spirit, —porches which the longing, unsatisfied soul would often gladly make wider, that beautiful material nature might come into it more fully and freely; and fenced doors, which the sated and dissatisfied spirit would, if it had the power, often shut and bar altogether." The work "is a prose poem, a hymn of the finest utterance and fancy—the white light of science diffracted through the crystalline prism of his mind into the coloured glasses of the spectrum—truth dressed in the iridescent hues of the rainbow, and not the less, but all the more, true."

His volume on Colour-Blindness, or that affection of the eye which renders it insensible to certain colours, is a most complete one. He exhausts the subject, and brings together a collection of most valuable and interesting facts relative to the prevalence of chromato-pseudopsis, and to its bearing on the æsthetic and economic arts in which colours are employed. It is a highly popular and readable production, written in his usual easy, flowing, and simple style, and partaking of the healthy, happy tone of the author's mind. His remarks on the colour-blindness on the part of signal-men at railway stations and on shipboard, called the attention of the Royal Scottish Society of Arts specially to the subject, and induced them to place a sum of money at Dr Wilson's disposal, for the purpose of carrying on his investigations. His merits in this department of research have been already fully noticed in the *North British Review*.

Wilson's last paper, on "Paper, Pens, and Ink," in the first number of *Macmillan's Magazine*, displays both the brightness and vivacity of his mind; and the concluding paragraph appears now in a peculiar light, when we consider the immortality of the writer. We quote them with pleasure:—

"When Paper, Pen, and Ink have made the tour of the world, and have carried everywhere the acknowledgment of brotherhood between

people and people, and man and man, and the Song of Bethlehem, fulfilled to the full, has enlightened every intellect and softened every heart, their great mission will be ended. And let us not complain that our writing materials are one and all so frail and perishable, for God Himself has been content to write His will on the frailest things. Even His choicest graphic media are temporal and perishable. The stars of heaven are in our eyes the emblems of eternity, and they are the letters in God's alphabet of the universe, and we have counted them everlasting. Great astronomers of old have told us that the sidereal system could not stop, but must for ever go on printing in light its cyclical record of the firmament. But in our own day, and amongst ourselves, has arisen a philosopher (Professor William Thomson) to show us, as a result simply of physical forces working as we observe them do, that the lettered firmament of heaven will one day see all its scattered stars fall, like the ruined type-setting of a printer, into one mingled mass. Already the most distant stars, like the outermost sentinels of a flock of birds, have heard the signal of sunset and return, and have begun to gather closer together, and turn their faces homewards. Millions of years must elapse before that home is reached and the end comes, but that end is sure. God alone is eternal, and they who, through His gift, are partakers of His immortality.

"It is wonderful to find a patient mechanical philosopher, looking only to what his mathematics can educe from the phenomena of physical science, using words which, without exaggeration, are exactly equivalent to these:—'Thou, Lord, in the beginning hast laid the foundation of the earth, and the heavens are the work of Thy hands: they shall perish, but Thou remainest; and they all shall wax old as doth a garment, and as a vesture shalt Thou fold them up, and they shall be changed; but Thou art the same, and Thy years shall not fail.'

"If God's Paper, Pen, and Ink are thus perishable, shall we complain that ours do not endure? It is the writer that shall be immortal, not the writing."

It was not merely in scientific matters that George Wilson shone. His appearance in public, whether as a speaker or a writer, was of a varied and diversified character. He was always ready to aid in any philanthropic scheme; and he gladly embraced any opportunity of advancing the cause of the Gospel. Not long ago he advocated the cause of the Bible in India; and in connection with the Medical Missionary Society, he pointed out to students the relation which science bears to religion. In all his prelections there was a high-toned religious feeling, founded on a true Christian faith,—a faith which animated him through the trials of life, and supported him in the hour of death.

How beautifully, in his paper on "The Sacredness of Medicine as a Profession," does he point out the benevolent, moral, and Christian character of medicine:—

"We should all be medical missionaries," he says, "whether we practise among the rich or the poor, the wise or the ignorant; among nominal Christians or undoubted Pagans. Therefore I adjure you to remember that the head of our profession is CHRIST. He left all men an example that they should follow His steps; but he left it specially to us. It is well that the statues of Hippocrates and Æsculapius should stand outside of our College of Physicians, but the living image of our Saviour should be enshrined in our hearts. The symbol of our vocation is the serpent; but it should be thought of not merely as a classical emblem, but as recalling the words of Him who said, "Be wise as serpents, and harmless as doves." May none of us be ashamed to call Him Lord! May we all confess Him before men, that He may confess us before the angels in heaven!"

In his paper on the Character of God, as inferred from the study of Human Anatomy, Physiology, and Pathology, or in other words, as learned from the study of physical life and death, he inquires how far the study of Biology displays the wisdom, power, and benevolence of the Creator; and he concludes thus:—

"The image of the earthly will be fully understood only when it has changed into the image of the heavenly; and the chapter on morphology, which we shall read for the first time in the immortal law, will be found to supply the key to all that was inexplicable in the morphology and teleology of this mortal state. Christ calls us to be partakers of this blessed change. For us He died, rose, and revived. For us He ever liveth to make intercession; and when Christ who is our life shall appear, then shall we also appear with Him in glory. If it seem to you a long postponement of the complex question we have been discussing, to adjourn its solution till the Resurrection, let me remind you that there can be no solution sooner. All the progress which human science may make, will not enable our successors to dispose of the dark problems we have failed to solve; and after death, unless they are made clear to us by Him who is light, and in whom is no darkness at all, they will remain for ever unsolved. We must be content, then, and should be thankful to wait."

His character is thus summed up by one of his most valued friends:—

"His great quality was in making men love ascertained and recorded truth, scientific truth especially; he made his reader and hearer *enjoy facts*. He illuminated the Book of Nature as they did the Missals of old. His nature was so thoroughly composite, so in full harmony with itself, that no one faculty could or cared to act without calling in all the others to join in full chorus. To take an illustration from his own science, his faculties interpenetrated and interfused themselves into each other, as the gases do, by a law of their nature. Thus it was that everybody understood and liked, and were impressed by him; he touched them at every point. Knowledge was to him no barren, cold essence; it was alive and bright with the colours of the sky and earth,

and all over with light and stars. His flowers—and his mind was full of flowers—were from seeds, and were sown by himself. They were neither taken from other gardens and stuck in rootless, as children do; nor much less were they of the nature of gum-flowers, made with hands, wretched, and dry, and scentless.

"Truth of science was to him a body, full of loveliness, perfection, and strength, in which dwelt the unspeakable Eternal. This, which was the dominant idea of his mind—the goodliness, and not less the godliness of all science—made his whole life, his every action, every letter he wrote, every lecture he delivered, his last expiring breath, instinct with the one constant idea, that all truth, all goodness, all science, all beauty, all gladness, are but the expression of the mind, and will, and heart of the Great Supreme. And this, in his case, was not mysticism, neither was it merely a belief in revealed religion—though no man cherished and believed in his Bible more firmly and cordially than he—it was the assured belief, on purely scientific grounds, that God is, indeed, and in very truth, all in all. To George Wilson, to all such men—and it is the great lesson of his life—the heavens are for ever telling His glory, the firmament is for ever showing forth His handiwork, day unto day—every day—is for ever uttering speech, and night unto night is showing knowledge concerning Him. When he considered these heavens, as he lay awake, weary, and in pain, they were to him the work of His fingers. The moon, walking in brightness, and lying in white glory on his bed—the stars—were by Him ordained. He was a singularly happy and happy-making man. No one since his boyhood could have suffered more from pain, and languor, and the misery of an unable body. Yet he was not only cheerful, he was gay, full of all sorts of *fun*—genuine fun—and his jokes and queer turns of thought were often worthy of Cowper or of Charles Lamb. We wish we had them worthily collected. Being, from his state of health and his knowledge of medicine, necessarily 'mindful of death,' having the possibility of his dying any day or any hour, always before him, and 'that undiscovered country' lying in his view, he must—taking, as he did, the right notion of the nature of things—have had a peculiar intensity of pleasure in the every-day beauties of existence—

> "'The common sun, the air, the skies,
> To him were opening Paradise.'

They were to him all the more exquisite, all the more altogether lovely, these Pentlands, and pleasant rides and places—these rural solitudes and pleasant villages and farms, and the countenances of his friends, and the clear, pure, radiant face of science, and of nature, were to him all the more to be desired, and blessed, and thankful for, that he knew that at any time the pallid king might give that expected knock and summon him away."—*Article in Scotsman.*

He ever walked on earth as a pilgrim and a stranger looking for a better country, that is, an heavenly. He contemplated all nature in the light of God's Word. His was not the vague idea

of a great First Cause, but an enlightened and believing perception of the truth, that all things were created by Christ and for Him; that He is before all things, and that by Him all things exist.

> "When round Thy wondrous works below
> My searching rapturous glance I throw,
> Tracing out wisdom, power, and love,
> In earth or sky, in stream or grove;
> Let not my heart within me burn,
> Except in all I Thee discern."

The wondrous works of God were sought out by him, and he had pleasure therein. He rejoiced in them as the evidences of a Father's love; and he ever looked forward, with joyful expectation, to the time when, amidst the beatific hosts who sing the praises of the Lamb, he would see more and more of the wonderful works of Him who sitteth upon the throne.

In bringing this sketch to a close, we cannot help remarking how mysterious are the ways of God, in removing from among us one so well fitted to advance the cause of truth. He has been taken away in the midst of his usefulness, and his sun has gone down while it is yet day. We must bow in humble submission to the will of Him who doeth all things well, and in infinite wisdom and love. A stone was wanted for the temple in heaven, and he has been taken in the due appointed time to fill the place prepared by Him who said, "If I go and prepare a place for you, I will come again, and receive you unto Myself, that where I am there ye may be also." Wilson's kind and social manner, his mellifluous and graceful eloquence, his graphic illustrations, and his holy Christian deportment, will long be remembered by all who came into contact with him; and his name will be handed down to future generations, associated with all that is noble in science and literature, and, at the same time, holy in life and conversation.

"The effort of his life," Dr Cairns remarks, "was to render science at once more human and more divine. His heart was strung throughout in sympathy with the touching prayers of the *Novum Organon*, that all science may become a healing art; and his last public office was regarded by him with special affection, as ministering to industrial progress and happiness. He sought, however, not less to link science with religion; and that not so much with the cold and comparatively unsatisfactory results of natural theology, as with the warmth and life of the Christian faith. No scientific writer of our day has so habitually and lovingly quoted the Bible, from his essay on Dalton, whom he represents as proving that God literally 'weighs the mountains in scales, and the hills in a balance,' down to his last paper, which closes with remarking the identity of Professor Thomson's astronomical proof of the evanescence of the heavens with the

words of the 102d Psalm. He hoped to live to write a 'Religio Chemici,' corresponding to Sir Thomas Browne's 'Religio Medici,' and embracing amongst other topics of discussion the doctrine of the resurrection." [1]

On this subject he read a communication to the Edinburgh Medical Missionary Society, in which he partially developed his Chemico-Physiological views on this weighty topic, and displayed much originality of thought as well as beauty of conception. We may, it is to be hoped, look for some extracts from this paper in the extended biography which is ere long to be published.

"To have moved," adds Dr Cairns, "amidst the altitudes and solitudes of science with a humble and loving heart; to have spoken out words on the sacredness of medicine as a profession and scientific life in general, more lofty than have almost been heard even from the pulpit, and to have illustrated them in practice; to have enforced the subjection of all knowledge to one Name, the highest in earth and heaven; to have conquered by faith in a life-long struggle with pain and suffering; and to have wrought out the work of the day placidly and devoutly till the night came;—these, in any, and especially in the leaders of science, are processes and results greater than can be described in the transactions of any society, or preserved in any museum."

[1] *Macmillan's Magazine* for January 1860.

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