THURSDAY, JULY 5, 1883

WILLIAM SPOTTISWOODE

ENGLISH science is still staggering under the blow it received last week in the death of the universally respected President of its leading scientific society. The world is always the poorer for the sudden withdrawal from its many activities of a man *sans peur et sans reproche*, but there is always an inner world where the loss is more keenly felt, and in this case it is the turn of the world of science to mourn one who has made her name so honoured while he has made his own so loved. It is not too much to say that the death of William Spottiswoode is felt as a personal loss by every real student of any department of natural knowledge who ever came within his influence or had the opportunity of knowing anything of the pure and earnest nature of the man. As is but natural, those who have been working along those lines of thought—and they are many—which he had made or almost made his own, will feel the loss most keenly, not merely because the so precious sympathy is gone, but because of the swift insight, valuable criticisms, and happy suggestions as to future work always so freely at the disposal of any one who would consult him either in difficulties or success.

We should however entirely fail in our duty and in our estimate of what he has done for science did we lay too great stress either upon the special work which he did himself or that which he in a greater or less degree influenced in the manner we have just indicated. How much he has personally done we stated some little time ago, little thinking, alas! that what we gave as the results he had achieved and the honours which had followed upon them was anything more than an earnest of what was to follow. It has proved to be the full tale, but it is still one which places him high in the ranks of scientific workers. But, as we have said, high as his place in science would be from this point of view, we doubt whether it is on that that the greatest stress must be laid.

Some men of science of first class working power are so constituted that the less interest they take in the general conduct of affairs connected with science or scientific bodies the better. A man of this kind helps the affairs on very little and he loses his own time. Spottiswoode was exactly the opposite of such a man. In council every word he uttered was pure gold, and when we remember that it is now twenty-two years since he began his council work as Treasurer of the British Association, and that it has never been interrupted till the time of his death, we get an idea of his influence on our national scientific activity. No effort was too great for him, no time spent too long, no margin of time too short, if anything worth doing had to be done; the personal force and the personal example were both there; dullards became enthusiasts if doing was in question, while enthusiasts were checked at times when action was impolitic or premature.

It can easily be imagined that so cultured a man with such qualities as those to which we have referred was a large figure in other than scientific activities; and that both on the ground of his own personal merit, and as representing the Royal Society as its President, he was a marked figure in our English society.

Hence it is that the movement in consequence of which his remains are being buried in Westminster Abbey to-day was one not at all confined to the scientific world, nor was the claim embodied in the memorial to the Dean of Westminster made simply on scientific grounds. As remarked in the *Times*, "no more distinguished body of men, none more thoroughly representative of the community, ever united for a similar object." When we consider that their names were obtained within two days, the quickness of the sympathy and the unanimity of the feeling indicated among the most prominent and gifted sections of our society were certainly remarkable.

The Dean's letter granting the prayer of the memorialists is one again which does such honour to Spottiswoode that we give it in this place :—

"I am deeply sensible of the loss which the country has sustained in the death of the President of the Royal Society. The names appended to the weighty memorial which you have just laid before me are sufficient evidence of the widespread desire that the highest public honours should be paid to the memory of one whose peculiar claims have been urged so forcibly. In addition to that memorial, I have this morning received one expressing the same desire, and bearing the signatures of many hundreds of working men, with whom he was brought in daily intercourse. Although in consideration of the limited space yet remaining for interment within the Abbey I should have myself suggested a monument rather than a grave, yet I cannot but assent, after much anxious consideration, to the wish that your memorial expresses. I recognise in the late Mr. Spottiswoode, not merely a man of special scientific attainments, but one who from his interest in and sympathy with all the many branches and departments of scientific knowledge was peculiarly fitted to represent English science in its widest aspect, and who was at the moment of his death the chosen and the honoured President of the Royal Society. I recognise in him also a man of the very highest and most stainless character—one whose great gifts were only equalled by the purity and attractiveness, and, I may be allowed to add, the devoutness and humility, of his daily life. And, not least of all, I feel that in honouring him we are not only honouring one whose name is dear to men of science and of literature, and of eminence in every sphere of public and of social life, but one whose memory will long be treasured by the working classes, to whose highest interests and welfare he was so deeply devoted."

William Spottiswoode then is buried in Westminster Abbey to-day, by the side of his ancestor, an Archbishop of St. Andrews'; and his remains will be followed to the grave by representatives of the scientific bodies and other interests with which he was connected; nor will sympathy for the widow be wanting to fill up the cup of sadness. English science sorrows, and will long sorrow for the heavy loss, but still she is the richer for Spottiswoode's life and work, not least because his life was so good and so pure, and because, as President of the Royal Society, he has set an example which whoever succeeds him will be proud to follow.

It must not be forgotten that the Presidency of the Royal Society is the highest honour which it is in the power of the Fellows of that Society to bestow. How worthily and how well it was bestowed in the case of Spottiswoode is patent to all. A great responsibility,

therefore, now rests upon them, for he upon whom their choice falls will not be merely the representative of English science in London, he will represent it on the Continent and in America; the choice must bear the criticism of scientific men in other lands. EDITOR

SIR EDWARD SABINE

SPOTTISWOODE, round whose grave in Westminster Abbey so many men, great in so many ways, have stood to-day, is not the only President of the Royal Society, and not the only man of science whose loss we have to deplore. While one, however, was cut off in the full tide of his life, and while there seemed to be a rich promise of many years of valuable work in store, the other had far outlived his working powers, and by many years exceeded those of his activity.

A reference to the life-work of Sabine will clearly show how justly his high position and reputation were accorded to him, how nobly he has worked in the cause of science, and how imperishable a record of his life remains in the existence of a whole branch of scientific research, the foundation of which was mainly due to his untiring industry.

Coming of an old family said to be of Italian origin, which early settled in Normandy, and removed thence to our own country, Edward Sabine was born in Dublin on October 14, 1788, being the son of Mr. Joseph Sabine of Tewin. He received his early education at the Royal Military Colleges of Marlow and Woolwich, obtaining a commission as second lieutenant when but fifteen years of age, and receiving his captaincy eleven years later.

Very early in life indeed, his interest became centred in physical science, and especially in magnetism, the study of which he pursued with indefatigable zeal and marked success. The result of his work in this and other fields is to be found in the many papers which issued from his pen. In 1818, six years before Spottiswoode was born, he was elected a member of the Royal Society, and in the same year was appointed astronomer to the expedition under the command of Sir John Ross which left England in search of the North-west Passage. The careful observations which he made whilst with the expedition were of great value. His published papers begin from this date, commencing with a contribution to the *Transactions of the Linnean Society*, on the birds of Greenland, the result of observations made during the voyage; they range from that date down to the year 1872, thus extending over a period of no less than fifty-four years.

During this long period of active work he contributed to the *Transactions* and *Proceedings* of various societies and contemporary magazines upwards of one hundred papers, some of great length and many of considerable value and importance. Although a large number of these deals with the subject of terrestrial magnetism, many other branches of science are included in them, the voluminous nature of his published works being not less remarkable than the wide fields of study over which they range.

A considerable number are to be found in the *Philosophical Transactions*, to which he contributed upwards of forty. To the *Proceedings of the Royal Society* he made numerous contributions during his long association with it; in the *Quarterly Journal of Science* he published twelve papers, in the *Reports of the British Association* we find ten, to the *Philosophical Magazine* he made eight contributions, the remainder of his published works being scattered among the *Edinburgh Journal of Science*, *Journal of the Geographical Society*, the *Proceedings* of one or two foreign societies, and the pages of foreign scientific magazines.

As we have already said, his scientific contributions date from his voyage to the Arctic regions with Sir John Ross in 1818. Next year he again went to the Arctic regions, this time with an expedition under the command of Sir Edward Parry. As the result of his observations there, he made two communications to the Royal Society, published in the *Philosophical Transactions*, dealing, the one with the irregularities observed in the direction of the compass needle consequent upon the attraction of the iron of the ships, the other with the variations of the magnetic needle, and the intensity of the magnetic force during the voyage, and calling attention for the first time to the extreme importance of founding a widely extended series of observations of those strange magnetical disturbances, the origin of which is still mysterious. With this object in view he left England two years later on a long voyage in H.M.S. *Pheasant*, making numerous observations and bringing many new facts to light. At the same time at several equatorial stations on the coasts of Africa and America he made observations with regard to the swinging of the pendulum, with the object of determining the true figure of the earth, publishing the results in the *Philosophical Transactions*. When on the American coast during this voyage he took up amongst other subjects the question of deep-sea temperatures, and in the *Philosophical Transactions* for 1823, he at that early period published a paper on the temperature at great depths in the Caribbean Sea, whilst in the same year his busy pen was giving an account of the barometrical measurement of the height of the Sugarloaf Mountain at Sierra Leone, and the Pico Ruivo in the Island of Madeira. Three years later he published in the *Quarterly Journal of Science* an account of the ocean currents met by H.M.S. *Pheasant* during the voyage from Sierra Leone to Bahia, and thence to New York, in which he records that the Amazon stream was crossed at a distance of 300 miles from the mouth of the river. In this year (1823) he proceeded on another voyage, going this time in H.M.S. *Griper* to Norway, Greenland, and Spitzbergen, to continue his magnetical observations, and to extend the series of pendulum experiments. Whilst at the latter place he again took up the question of barometrical measurement of heights, publishing in the *Philosophical Transactions* for 1824 a comparison of that method of measurement with the trigonometrical determinations. Then in the *Edinburgh Journal of Science* in 1825 he dealt with the presence of the Gulf Stream on the coasts of Europe as determined by his observations in the year 1822, and proceeded to discuss the question of depression over the region occupied by the Stream.

In 1826 an account of his magnetical observations at Spitzbergen appeared in *Poggendorff's Annalen*.

Continuing his pendulum swingings in 1827, he set about determining by direct observation the difference in