

JOHN MICHELL

AMONG the men of science in England during the latter half of the eighteenth century there was one specially remarkable for the wide range of his genius and the originality of his methods of research. As Rector of a quiet country parish in Yorkshire, he lived remote from the centre of the intellectual life of his day, but in that retreat he had time and opportunity for reflection and experiment. Moreover, as he was able to visit London each year, he could keep in touch, not only by correspondence but by personal contact, with the leaders of enquiry. Though much esteemed and respected by his contemporaries, he has perhaps hardly received from subsequent generations the recognition to which the merit of his work justly entitles him. It is true that some

historians who have recorded the progress of the sciences to which he devoted his attention have alluded more or less fully to his published papers. But it is not until a review is made of his contributions to each of the sciences of geology, physics and astronomy that an adequate conception can be formed of the place that is due to him in the history of English science.

Recent researches among the archives of the Royal Society and of its dining Club brought the name of this modest investigator so frequently before me as to rouse my interest in his career. I was induced to search for any personal details regarding him that might still be recoverable, and to peruse such of his writings as I had not previously read. As the result of this enquiry I have thought it to be my duty to bring his life and his solid achievements in science more prominently to notice. Hence the origin of the present Memoir.

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JOHN MICHELL, the friend of Henry Cavendish and Joseph Priestley, has left no record of his life beyond his published writings. A few of his letters have survived. Several of them addressed to Sir William Herschel have been found among that philosopher's manuscripts, and are quoted in the collected edition of his *Papers*. A long and hitherto unpublished letter from Michell to Cavendish has been preserved among the papers of that great man, and is inserted in the present Memoir¹.

It is not quite certain where and when Michell was born. Probably his native place was Nottingham, and the year of his birth 1724. Of his parentage nothing appears to be known. The earliest accounts of him which have been recovered are preserved in the registers of Queens' College, Cambridge, where a full

¹ This letter was known to Dr George Wilson, Cavendish's biographer, and is referred to by him in the *Life* (*postea*, p. 47).

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record has been kept of his College life, from the time of his admission as Pensioner on 17th June 1742, until, after taking his degrees and filling many offices during a residence of twenty-one years, he quitted Cambridge for a rectory in the country¹. He is entered in these records as from Nottingham.

The year after his reception into Queens' he was elected Bible-Clerk and held this office for two years. Again for three years, from 1747 to 1749 he filled the same post². He did not take his Bachelor's degree until 1748. His name appears as fourth wrangler in the list for 1748-9, which was the second competition after the institution of the wranglership. On 30th March 1749 he was chosen Fellow

¹ The present President of Queens' College, the Rev. T. C. Fitzpatrick, has been so good as to collect for me all the details of College life that are here given.

² The duty of this officer appears to have been to read the Bible in hall, for which a remuneration of one shilling a week was allowed, afterwards slightly increased.

of his College. Thereafter for some fifteen years he continued to fill various lectureships and other offices at Queens'. He was Tutor of the College from 1751 to 1763; Praelector in Arithmetic in 1751; Censor in Theology in 1752-4; Praelector in Geometry in 1753; Praelector in Greek in 1755 and 1759; Senior Bursar in 1756-8; Praelector in Hebrew in 1759 and 1762; Censor in Philosophy and Examiner in 1760. He took his degree of Master of Arts in 1752 and Bachelor of Divinity in 1761. He was nominated Rector of St Botolph's, Cambridge, on 28th March 1760, and held this living until June 1763, when he left Cambridge on being collated to a rectory in the country.

The registers of Queens' College furnish information as to the modest payments made in the eighteenth century to the officials by whom the work of the College was performed. In Michell's case we learn that the largest sum paid to him as

Bible-Clerk was £5. 3s. 10d. for the year 1748. Again in 1753 his stipend as Fellow amounted to £9, that of his theological Censorship to £8, and that of his examinership to £2.

Besides these College duties he held from time to time some University appointments. In July 1754 he was elected to the office of Moderator for the following year. In 1755 he was appointed Taxator¹ and on 24th June 1762 Scrutator for the following year. But the most important office conferred upon him was the Woodwardian Professorship of Geology, to which, near the end of the year 1762, he was appointed by Colonel King, the last surviving executor of John Woodward

¹ The Master of St John's informs me that "the Taxators were appointed by the Colleges according to the cycle for Proctors. They regulated the markets, examined the assize of bread, the lawfulness of weights and measures, and called all abuses and defects into the court of the Commissary. The Scrutators seem to have been assistants to the Proctors. The Proctors read the Graces and took the votes in the Regent House; the Scrutators did the like in the Non-Regent House."

who by his will dated in 1727 founded the Chair. Michell did not hold the office for quite two years, having to vacate it on his marriage in 1764. There appears to be no evidence that during his short tenure of the office he ever gave geological lectures¹. But the intimate acquaintance with geological phenomena shown in his essay on Earthquakes, communicated to the Royal Society in the spring of 1760, proves that he was well qualified to lecture on a subject which he had pursued with zeal in the field. It is difficult to believe that he did not impart to his undergraduate friends some of the knowledge which he had gained in many traverses across the southern counties, if indeed he did not take them with him in some of his rambles.

A brief description of Michell's personal appearance in his College days, penned by a contemporary diarist and preserved among the manuscripts of the

¹ *Life of Adam Sedgwick*, vol. 1, p. 192.

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British Museum, may be quoted here. “John Michell, BD is a little short Man, of a black Complexion, and fat ; but having no Acquaintance with him, can say little of him. I think he had the Care of St Botolph’s Church, while he continued Fellow of Queens’ College, where he was esteemed a very ingenious Man, and an excellent Philosopher. He has published some Things in that way, on the Magnet and Electricity¹.”

Although his time was evidently much engaged in the various official duties that devolved upon him in Cambridge, there is proof that he had already launched upon his career of physical research and experimentation within the walls of his College. In 1750, the year after he obtained his Fellowship and when he was some six-and-twenty years of age, he published at Cambridge a little volume on Artificial Magnets to which further reference will

¹ Cole MSS. xxxiii, 156 (Add. MSS. Mus. Brit., 5834).

be made on a later page. As he was fond of constructing his own apparatus, his rooms at Queens' with all his implements and machinery would sometimes wear the look of a workshop, and were no doubt the theme of much amused wonderment among both Fellows and undergraduates.

But these mechanical operations and experiments indoors were only a part of the scientific occupations with which he employed his leisure. As above stated, there can be no doubt that he was in the habit of making what would now be called geological excursions, in which he interested himself in noting the distribution and sequence of the rock-formations in the southern counties of England. It was only by such practical field-work that he could gain the remarkably accurate conception of the structure of the stratified portion of the earth's crust embodied in his Earthquake paper of 1760. This epoch-making essay was read to the Royal Society in sections at five successive

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evening meetings. The active College Preceptor and Bursar was now introduced into the centre of the scientific life of the time, where he was warmly welcomed. Immediately after the reading of the first portion of his paper some of the Fellows of the Society drew up and signed a certificate in favour of his election into the Society. Within a fortnight, and before the reading of his paper was ended, the certificate was in the hands of the Council. It ran as follows:

The Rev. Mr John Michell M.A. Fellow of Queens' College, Cambridge, who has recommended himself to the Publick by his Experiments in Magnetism, and has lately communicated to this Society a Dissertation upon Earthquakes, being very desirous of the honour of becoming a member of the Royal Society, We, whose names are underwritten, recommend him as a gentleman extremely well qualify'd for that honour.

LONDON, *March* 6, 1760

The first names on the list of signatures are those of the Secretary of the