

THURSDAY, JANUARY 27, 1876

GEORGE POULETT SCROPE, F.R.S.

YET another of the old lights of Geology gone from us!—one that shone out brightly more than half a century ago, and has kept its place and done its work even up to the last. At the ripe age of almost fourscore years, and with his faculties and sympathies still fresh and active, Mr. Scrope has passed away. Living his last years in the quiet retirement of his pretty country-house, he may be said to have taken some time ago his farewell of the scenes of his early scientific friendships. But that he kept up his interest in all his old pursuits was shown by his occasional letters on geological matters, which continued to appear until only a few weeks ago. The friends with whom he corresponded and who saw him from time to time in his retreat will not soon forget the eagerness with which he listened to every new fact in his favourite studies, and the friendly and large-hearted liberality with which he stimulated and assisted younger labourers in his own domain.

As far back as the winter of 1817-18 Mr. Scrope's attention was drawn to geological pursuits by the accident of his residence at that time in Italy when Vesuvius was in a state of constant eruption. Having leisure to indulge his taste, he gave himself up to the task of watching the progress of the Neapolitan volcano. He was led to extend his observations to the relics of older volcanic vents in the same neighbourhood, and in the following year spent some time among the Lipari Islands and in Sicily. Having now learnt a great deal both of existing and extinct volcanoes, he explored the old volcanic tracts lying to the north of Naples and west of the Appennines, and returned to England with a far larger experience of volcanic phenomena than any of his contemporaries possessed.

In this way he came to recognise how important a part has been taken by volcanic action in the past, as well as in the present, history of the earth. He was therefore naturally surprised to find views of a totally opposite kind not only in vogue, but advocated with a force and persistence which refused to consider volcanoes as anything more than modern and abnormal interferences with the settled order of nature, and as of no more real significance than subterranean coal-seams somehow set on fire. These dogmas of the Wernerian school had gained such an ascendancy that many staunch adherents of that school—men like G. B. Greenough, the founder of the Geological Society—seemed to regard volcanoes with a kind of personal dislike, and violently opposed any attempt to elevate them into important geological agents. Mr. Scrope, on his return to England, spent some time at Cambridge; and finding his views supported and encouraged there, among others by Sedgwick, he determined to give himself up to the study of a district of extinct volcanoes, where the phenomena to be observed bore close relation to those of the basalts and similar rocks of Britain and Germany, and where, nevertheless, manifest relics of true volcanic cones and craters existed. He selected for this purpose the marvellously interesting tract of Auvergne in Central France, and established himself there in the summer of 1821. \* A campaign of six months

made him thoroughly familiar with the volcanic geology of that region, and enabled him to bring home such a series of pictorial sketches and diagrams as could not, he felt, but carry conviction home to even the sturdiest Wernerian, that the basalt plateaux of Auvergne, instead of being portions of the universal precipitate of a primeval ocean, were in truth only fragments of lava-flows erupted at different times and at different levels in the gradual erosion of the valleys. He prepared a narrative of his researches, and an atlas of most admirable views and sections. But expensive geological works had not yet readily found either publishers or purchasers. He had, therefore, to keep his manuscript beside him for several years.

Meanwhile, however, [the eagerness of his] volcanic quest had by no means abated. Passing from his labours in France once more into Italy, his enthusiasm for volcanoes blazed out with renewed ardour in the autumn of 1822, when he had the good fortune to be an eye-witness of the great eruption of Vesuvius, which took place in the October of that year. His views of the general principles of volcanic geology had gradually broadened under the influence of the ample experience which he had now gained. He felt himself not only at liberty, but even called upon to put these views clearly before the world as a contribution to sound knowledge and a step towards the demolition of the pernicious errors still prevalent on the subject. Accordingly, after his return to this country in 1823, he prepared, and in 1825 published, a small volume, "Considerations on Volcanoes." It shared the fate of most books which are far in advance of their time; that is, it was regarded as crude, extravagant, and theoretical, and gradually suffered to pass out of mind. And yet, turning back to that early volume, and contrasting its earnest and observant pages with other writings of the same date on similar subjects, it is impossible not to admire the keen powers of observation and the happy faculty of generalisation which its author manifests. Even though some of the speculations are confessedly immature, others have stood well the test of time, and form now part of the familiar knowledge of every geologist. Above all, it must never be forgotten that in this volume, published before Lyell had written one of his works, the broad principle is laid down that the method of explaining the past geological history of the earth by reference to supposed violent and extraordinary catastrophes or general revolutions stops all true inquiry, and effectually bars the advance of science by involving it in obscurity and confusion. Mr. Scrope boldly maintained that instead of such vague guesses as to the possible causes and nature of the ancient changes of the earth, "the only legitimate path of geological inquiry" lay in "examining the laws of nature which are actually in force," and that until existing operations, with all possible variations and every conceivable allowance of time, have been proved to be wholly inadequate to explain the past, "it would be the height of absurdity to have recourse to any gratuitous and unexamined hypothesis." How truly does this passage express the philosophical stand-point of modern geology; and yet how rash and "theoretical" it must have appeared to the first readers of the "Considerations on Volcanoes." Mr. Scrope used not unnaturally to think that his earlier writings had not been without their influence in giving

tone to the "Principles" of his friend and fellow-labourer Lyell.

Two years after the "Considerations" appeared, Mr. Scrope published his great monograph on the volcanic districts of Central France—a work which placed him in a high rank as an accurate and philosophical observer, and one which did more, perhaps, than any other of its day, to destroy the Wernerian prejudice against volcanoes, and to establish the true volcanic origin of basalt rocks of every age. In another respect it marked an epoch in geological literature, inasmuch as it brought forward clear and detailed proofs of the gradual excavation of valleys by the action of the rivers still flowing in them—a doctrine taught indeed by Hutton, but for which there were still needed those very proofs which Mr. Scrope's memoir so admirably supplied.

After this early promise of an active and brilliant scientific career, Mr. Scrope's energies passed over into another and wholly different mode of life. He entered Parliament, and continued an active member for some thirty-four years. So thoroughly did he give himself up to political questions, that for fully a quarter of a century he seems to have retired from science altogether. About twenty years ago (1856), finding that the old notion of Humboldt and Von Buch about volcanic craters being merely big tumours or blisters pushed out by the expansion of the subterranean vapours, was still sufficiently in vogue to call forth an active opposition from Lyell, Mr. Scrope, who had long before exposed the untenability of this dogma, returned to his first love, and produced a paper upon "Craters and the Nature and Liquidity of Lavas." Other papers of a similar kind followed. In 1858 he brought out a second and revised edition of his memoir on the Auvergne volcanic region, and in 1862 he published a second—much altered and improved—edition of his general work on volcanoes. Since then he has communicated from time to time numerous brief letters and notices on his favourite subjects, showing how fully he retained his firm grasp of all that related to volcanic geology, and how young and fresh he could keep his powers.

This brief notice of his labours may fitly end with a tribute to that courtesy and kindness which ever marked his relations with other men. A more leal-hearted friend could not be. How gladly would he say a kind word when a kind word would be of service! How ready, too, to help with more than words!

The founders of English geology have been truly a noble band—generous, helpful, and enthusiastic; but few of them will be more sincerely mourned than George Poulett Scrope.

A. G.

#### SOMERSET HOUSE AND THE PUBLIC ANALYSTS

EVER since the proposal was first made that disputed cases under the Sale of Food and Drugs Act should be referred to the analysts of the Board of Inland Revenue as adjudicators, there has been a strong feeling in the minds of most persons competent to form an opinion on the subject, that should such a course be ultimately adopted, the probable results would be great dissatisfaction on all sides. It was foreseen that the gentlemen

most meritoriously engaged at Somerset House in testing the strength of alcoholic liquors, in examining the genuineness or otherwise of tobacco, tea, and excisable articles generally, and such like pursuits, would have great cause for complaint if work out of their ordinary department were thrust upon them, in the performance of which, even if no discredit should accrue to them by mistakes almost unavoidable in inexperienced hands, a considerable amount of professional odium would be probably incurred. It was clearly evident that the Public Analysts would be unjustly dealt with by the establishment of a system whereby the reports of men, frequently well known in the scientific world, and of great skill and experience in the special work requisite, would be liable to be superseded by those furnished by Government *employés* of far less professional and scientific standing, and specially qualified to a much lower extent. Finally, it was anticipated that a considerable injury to the public at large would be imminent, from the high probability that such an arrangement would lead to results not at all in harmony with the object of the Act. The checks on adulteration, it was feared, would be greatly diminished, partly through the bringing into more or less discredit the analysts appointed under the Act, and thus rendering their existence a far less effectual moral deterrent; and partly through the probable resignation of the higher class of analysts, and hence through the deprivation of the public of the special skill and experience acquired by these gentlemen.

That these dismal forebodings were not wholly groundless is shown by a recent case in the Southwark Police Court, the first, it may be mentioned, in which the Inland Revenue analysts have been appealed to under the new Act. On the 14th of last month, a large cheesemonger in the Borough appeared to answer a summons charging him with selling as butter a substance alleged to contain no butter, but to be a mixture of foreign fats not injurious to health. The proof of the purchase of the substance, and of the delivery of a sample to Dr. Muter, Public Analyst for the district, and the certificate of Dr. Muter to the above effect, were then given. The defendant demurring to the certificate, the case was adjourned in order that the third portion of the sample might be forwarded to Somerset House for examination by the Inland Revenue officers. On the 18th inst. the case came on for further hearing, and a certificate from Mr. Bell, of the Inland Revenue, was put in, stating that in his opinion the substance in question was genuine butter. This certificate was objected to by the presiding magistrate (Mr. Partridge) as being "extremely vague and unsatisfactory," inasmuch as it did not indicate that any analysis at all had been made, but only a cursory inspection. Mr. Bell thereupon gave an explanation of his certificate, stating that he had found the sample to contain water, 9.83; salt, 3.70; casein, 0.93; and fat, 85.54 per cent; that the fat yielded over 88 per cent. of fatty acids, and possessed the same specific gravity as butter fat, whence he concluded that there was no evidence of adulteration. In answer to questions, however, Mr. Bell admitted that although he had previously examined sundry specimens of genuine butter, and had seen some samples of "Bosh," he had never tested any specimen of the various artificial butters sold under the