

who had the good fortune to be his pupils in the early 'seventies were Sir J. J. H. Teall, Sir Aubrey Strahan, and Profs. Sollas, Marr, and Watts. All regarded him not merely as a tutor whose duty was to exercise strict discipline, but as a personal friend deeply interested in their welfare. He invited confidence, and there were few subjects he was unwilling to discuss. In country walks where he had but one companion even religion was not "taboo," and the most heretical views were listened to and considered with kindly tolerance. At his hospitable table, conversation over the wine did much to broaden our youthful outlook upon life; and on the numerous occasions when we gathered together at an evening reception in his rooms, we were introduced to some of the leading investigators of the day, and learnt that these princes of our science after all were human.

When quite a young man Bonney was captivated by a love of mountains and mountain climbing—he was at one time president of the Alpine Club—and this led him to take a particular interest in their features and structure, as well as in the phenomena of their attendant glaciers. To these subjects he returned again and again in his published writings. His intimate acquaintance with living glaciers proved of great assistance in his treatment of the manifold problems presented by the Great Ice Age, and his knowledge of the Alps served him equally well when he turned his attention to the surviving remnants of the great mountain chains of the past. Thus after a study of the folded complex which is all that remains in Devonshire of the ancient Armorican mountains he concludes "with perfect justice that this great series of folds scarcely yields in importance to the existing chain of the Alps and the gneiss of the Eddy-stone finds its parallel in the gneiss cores of those mountains."¹

Bonney was among the first to recognise the truth of Nicol's views on the age of the so-called "newer" gneiss of the north-west Highlands of Scotland, but notwithstanding his familiarity with the great overthrusts which distinguished the Caledonian chain, he was never able fully to accept the evidence for the existence of those horizontal movements which, even on a grander scale, have affected the Alps. This has led to the rather unfair remark that Bonney was inclined to be sceptical of discoveries which he had not made himself.

Of the many important contributions which Bonney made to our knowledge of the stratified rocks, we may cite as of especial importance, first, his explanation of the Bunter beds of the Midlands, which he regarded as fluviatile deposits derived in large part from the Torridon beds of Scotland, and next, his account of the Pre-Cambrian rocks of Charnwood Forest. Prof. Watts, who afterwards studied this area in detail, was deeply impressed with the accuracy and completeness of Bonney's observations, and once remarked that Bonney had left but little for his successors to discover.

The relation of igneous to sedimentary rocks was a question in which Bonney took great interest at a time when extreme views on metamorphism were in fashion, and he impressed upon his pupils the fallacy of the Huttonian view which imagined the igneous rocks to

turn into the sedimentary and the sedimentary back again into the igneous in a recurring cycle,

Though a great traveller and remarkably active in the field, Bonney was equally at home with the microscope: his petrological studies are numerous and important, and his name will always be associated with such rocks as serpentine, picrite, luxullianite, eclogite, lherzolite, and the matrix of the diamond. Palaeontology he left severely alone; his only incursion into this field was when he investigated the structure of *Eozoon Canadense* and rightly concluded that it was no fossil but merely a kind of rock.

Besides his contributions to the literature of scientific societies, which number some hundreds, Bonney published several books on geological subjects, of which the more important are "The Story of our Planet" (1893), "Charles Lyell and Modern Geology" (1895), "Ice Work" (1896), and "Volcanoes" (1898). He was president of the Geological Society in 1884-6; Boyle lecturer, 1890-92; Rede lecturer, Cambridge, 1892; vice-president of the Royal Society, 1899; president of the British Association, 1910-11.

A scientific career was not enough to exhaust the energies of this many-sided man: he was also a clergyman and frequently officiated in the ministrations of the Church; he was Whitehall preacher 1876-1878, and on several occasions was chosen to deliver the sermon in connexion with annual meetings of the British Association. A selection of his sermons is published in four volumes.

On his retirement from active life Bonney made his home in Cambridge, but did not resign himself to idleness; he still found a pleasure in teaching and acted as a volunteer demonstrator in the petrological department of the Geological School, performing his duties as faithfully and regularly as in a paid post, and this he continued to do until incapacitated by a lingering illness which terminated by euthanasia on December 10, 1923. A memorial service was held in St. John's College and attended by a large concourse of mourners, among whom were many well-known dignitaries and many of his former students.

If, reflecting on this life so manifold in its interests, so industrious in their fulfilment, we venture to ask what is the outstanding feature it most deeply impresses on us: the answer will undoubtedly be its human qualities. When in 1895 a crowd of his former students met in University College, London, to present him with a portrait of himself, this was the feeling that prevailed among them, and found expression in the words of one of those present, who spoke of "the tutor we feared, the master we reverence, and the friend whom we love and respect."

WE regret to announce the following deaths:

Prof. C. K. Clarke, since 1907 professor of psychiatry and dean of the medical faculty from 1907 until 1920 in the University, Toronto, aged sixty-nine.

Prof. G. H. Quincke, For. Mem. R.S., from 1875 until 1907 professor of physics in the University of Heidelberg, aged eighty-nine.

M. J. M. E. Stephan, correspondant of the Paris Academy of Sciences and honorary director of the Observatory of Marseilles, on December 31, aged eighty-six.

¹ Suess, "The Face of the Earth," vol. ii. p. 89. (English translation of "Das Antlitz der Erde.")