

represents the procession of the Panathenæa, when maidens of the noblest rank, carrying gifts and accompanied by a great crowd, walked in solemn procession to do homage to Athena, the goddess who was the guardian of Athens.

Athenian funerals differ from ours in that the face of the deceased is exposed, and the corpse, covered with flowers, is borne through the streets preceded by a band of priests singing the funeral service. As the corpse passes, every hat is raised and every one crosses himself or herself repeatedly. We noticed also that, preparatory to Easter, the habit of praying by telling beads was general, well-dressed men having strings of fine amber beads, while in the lower ranks simpler ones were employed.

The absence of women, or at all events the overwhelming number of men seen in the streets of Athens has been ascribed to the women still seeking seclusion as in the days of their Mohammedan rulers, for we must remember that the Greeks were under Ottoman sway from 1456 till 1830, or 374 years. But, as Professor Tucker remarks in his recent most interesting book on *Life in Ancient Athens*—"At Athens, more than anywhere else in Greece, the woman was thrust, both publicly and socially, into the background." Even Plato who, on this subject, was more liberal than most Athenians, expressed the opinion that the special excellence of a woman was "to keep house well, and obey her husband." In modern Athens men and boys do all the trade, for it is not thought proper that a woman should work outside her dwelling.

The general behaviour of the Athenians is superior to that observable in our cities. Drunkenness is not seen. Beggars are not allowed. Politeness is invariable. Rude noisy behaviour is exceedingly rare. The Athenians are still fond of Learning, and the better classes speak English accurately. They are still the active, intellectual race whom St. Paul found willing listeners, if tough disputants. They have erected in marble a magnificent University, Academy of Science, and Public Library, and seem determined to make their glorious city not unworthy of its ancient boast, "Omnium artium inventrices Athenæ."

OBITUARY.

DR. ALEXANDER BUCHAN.

By HUGH ROBERT MILL, D.Sc.

ALEXANDER BUCHAN was born in Kinnesswood, Kinross, on 11th April 1829, and was educated at the Free Church Normal School in Edinburgh, then newly founded as a result of the Disruption of 1843, and afterwards at the University, where he took the degree of M.A. in 1864. From 1848 onwards he followed the profession of a teacher, for which indeed he was naturally gifted, and throughout his life he retained the power of imparting instruction easily and pleasantly. As a schoolmaster he filled appointments at Banchory, Blackford, and lastly at Dunkeld.

But for a weakness in the throat that continued to trouble him through life he might never have relinquished the profession he had chosen.

The first scientific study which attracted the attention of Alexander Buchan appears to have been botany, and especially the study of the native plants of Scotland, though he took part in at least one of the long excursions to the Alps which Professor Balfour led through all the difficulties of continental travel at that period. The field botanist cannot but be interested in the weather, and we may assume that it was in this way that Buchan's thoughts were turned to meteorology.

The Scottish Meteorological Society was founded in 1856, and its early records give full particulars of the qualifications, appointment and withdrawal of successive secretaries; but curiously enough nothing is said in the published minutes of the retirement of Mr. A. H. Burgess, who was in office at the meeting on 3rd September 1860, or the appointment of Mr. A. Buchan, who read a paper as meteorological secretary at the meeting of 11th April 1861. The subject was the cold weather of the previous Christmas, and this, so far as I can ascertain, was Dr. Buchan's first contribution to the literature of meteorology. It is interesting to observe that even at this early period he treated the problem in a distinctly geographical manner, and he called attention to a fact, the importance of which he often referred to afterwards, the remarkable difference in the distribution of low temperatures according to the configuration of the surrounding land surface. The paper concludes: "Thus the highest winter temperature is to be found along the west coast; the lowest in low plains at such a distance from the sea as not to be influenced by it, and in hollows enclosed by hills; and all places elevated above the immediately surrounding neighbourhood are effectually protected from the extremes of temperature."

Throughout his life Dr. Buchan always insisted on the importance of taking the character of the site of a station into account before using its record in drawing any general conclusions as to climate. It is not surprising that he became an original member of the Royal Scottish Geographical Society, and took a constant interest in its welfare.

From 1861 onwards Dr. Buchan was nearly as much the author as the editor of the *Journal* of the Scottish Meteorological Society, the "new series" of which was started in the following year. He spent much time on the discussion of barometrical observations during the early years at the Society, dealing at first with the records for Scotland, but soon passing on to consider the data for the whole world. It was the period of most rapid advance in meteorology, the principles of the synoptic weather chart, of the relation of wind direction to the isobars, and of scientific forecasts of the weather for short periods had just been enunciated, and thanks to the enthusiasm with which Buchan took the matter up in these early years the name of Buys Ballot and the extension of the relation between barometric gradient and wind direction were soon thoroughly familiar in this country.

In 1867 he published his *Handy Book of Meteorology*, a second edition of which appeared in the following year. This book showed so firm a grasp of the principles of the science, and so thorough a

mastery of observational detail, that it became the standard textbook in the language; and in later years many were the appeals made to the author to bring it up to date, but the increasing volume of official work and the burden of various important researches were such that the appeals had to be made in vain. In one way it is perhaps better that the book should remain as a landmark of the meteorological knowledge of forty years ago, for the time has now passed in which it might have been possible to adapt the frame for the picture of that day to the ampler canvas of the present. Following on the larger work an *Introductory Textbook of Meteorology* in 1871 presented no new features.

In 1869 Mr. Buchan read to the Royal Society of Edinburgh the paper by which his reputation as a leader in meteorology was established at once and for ever throughout the world. It dealt with a subject of such difficulty and complexity that only an enthusiast in the marshalling of figures could ever have attempted it with any prospect of success—no less a problem than the charting of the mean distribution of atmospheric pressure and of prevailing winds over the globe. This paper was perhaps the most fruitful, though it was far from being the most laborious piece of work which Dr. Buchan accomplished. A natural result was that on the return of the *Challenger* expedition in 1876 the vast mass of meteorological data accumulated in every part of the world was handed over to Dr. Buchan to report upon. Following the enlightened practice introduced for all the reports of that great expedition, additional data accumulated before and after the expedition were utilised, and so Dr. Buchan was able to prepare as the basis of his *Report on Atmospheric Circulation*, published in 1889, maps of the world representing the mean temperature and also the mean barometric pressure and wind directions for every month as well as for the year. These entirely original maps went far towards forming a meteorological atlas, and when only a few years ago Dr. Buchan, in association with Dr. Herbertson, undertook the editorship of the volume on Meteorology in Bartholomew's great *Physical Atlas* the data compiled for the *Challenger* Report formed one of the most striking advances on the Berghaus Atlas upon which it was based.

Oceanography occupied a considerable share of Dr. Buchan's attention. At an early period he had organised observations of sea temperature in connection with herring fisheries, and in later years he contributed a massive memoir on "Oceanic Circulation" to the *Challenger Reports*.

Climatology, that department of meteorology which is equally a department of geography, always claimed the lion's share of Dr. Buchan's attention. He worked as much with maps as with tables of figures, and it is to his patient labours that we are indebted for most of our knowledge as to the monthly distribution of pressure and temperature over the British Isles.

The relation of climate to disease occupied his attention and was dealt with in several papers written jointly with Sir Arthur Mitchell, one of the founders of the Scottish Meteorological Society.

In 1883 two important enterprises engaged much of the time of

Dr. Buchan; one of these was the establishment of the Scottish Marine Station at Granton by Sir John Murray. It was at this time that I was brought into close relations with Dr. Buchan, and in the instruction I received from him in the art of meteorological observing I first recognised his vast experience and technical skill and experienced that kindly helpfulness which never ceased to the end of his life.

The second enterprise was the foundation of the observatory on the summit of Ben Nevis, and subsequently of a second observatory at Fort William. For the remainder of his life the meteorology of Ben Nevis unquestionably held the first place in Dr. Buchan's scientific work. He took his share in the efforts to awaken public interest and secure the necessary funds to start the observatories, and to carry them on, and he put forth more energy than was perhaps prudent from the point of view of health in the effort to persuade an indifferent Government to place the work on a permanent basis. This is not the place to revive the memory of old controversy or to rake up old grievances, but without stirring the ashes of the old fires it may be said that, although the departmental committee appointed by the Government at the instance of Dr. Buchan and his colleagues failed to provide for the continuation of the work he had so much at heart, it did at least make recommendations of a kind which opened the way for great improvements in the conditions of meteorological work and in the useful co-operation of the various meteorological agencies in the United Kingdom. The publication of the hourly observations at the two observatories and the discussion of the data filled his later years, and though comparatively little remained to be done, Dr. Buchan died before the completion of the last volume.

While Dr. Buchan was particularly associated throughout his long and active life with the scientific activity of Scotland, and of Edinburgh in particular, he was also well known in London, where he had a place on several important representative bodies. For many years he was the representative of the Royal Society of Edinburgh on the committee, nominated for the most part by the Royal Society of London, for the administration of the Government grant of £4000 per annum for scientific research. In 1887 he was appointed a member of the Meteorological Council, the body which, on the responsibility of the Royal Society of London, directed the Meteorological Office and administered the sum set apart by Parliament for the meteorological service of the country. Dr. Buchan also frequently attended the meetings of international committees, and was personally acquainted with all the leading continental authorities in his own department.

When the Symons Memorial gold medal was founded, the Royal Meteorological Society made the first award to Dr. Buchan as the most eminent British meteorologist.

Dr. Buchan received the honorary degree of LL.D. from the University of Glasgow in 1887. He was elected a Fellow of the Royal Society of Edinburgh in 1869, a member of its council two years later, and he received in turn the Makdougall Brisbane and the Gunning prizes of the Society. In 1878 he became curator of the library—a post which, with the permanent membership of the Council, he held until within a year or

two of his death. In my mind, and in the minds of many who frequented the meetings of the Royal Society of Edinburgh in the eighties and nineties of last century, the old rooms on the Mound will always remain most intimately associated with three notable figures—Professor P. G. Tait, for so many years the general secretary, Dr. Alexander Buchan, and Mr. James Gordon, the picturesque librarian. In connection with the Royal Society Club, Dr. Buchan shone in a sphere with which many to whom he was familiar in the streets and in his office never associated him, the purveyor of intellectual gaiety of the old Scottish type. As a host Dr. Buchan was always charming, and his breakfasts on the occasion of such meetings as those of the British Association are not to be forgotten by any one who had the privilege of taking part in them. Mrs. Buchan amply seconded his hospitality, and the guest who came even for an hour could not fail to recognise a domestic life of singular harmony. Nor can we close these notes without a tribute to the memory of Miss Jessie Hill Buchan, the faithful niece and invaluable assistant who worked for so many years in the office with her uncle; and it is sad to remember that both wife and niece passed away before himself. He is survived by Dr. Hill Buchan, his only son.

In private life Dr. Buchan was full of surprises to those who expect to find a student of science a man of one idea. He took a deep interest in church matters and was an elder in Free St. George's. He revelled in poetry, especially in the old Scottish ballads, from which on suitable occasions he could produce singularly apt quotations. He was a firm and generous friend, and all his qualities were such as to enshrine him in the memory of those who knew him in the full vigour of his strenuous years as something grand and heroic cast in the mould of Browning's "Grammarians":—

"Here—here's his place, where meteors shoot, clouds form,
 Lightnings are loosened,
 Stars come and go! Let joy break with the storm,
 Peace let the dew send!
 Lofty designs must close in like effects:
 Loftily lying.
 Leave him—still loftier than the world suspects,
 Living and dying."

GEOGRAPHICAL NOTES.

AFRICA.

The Variations of Lake Chad.—An article in *La Géographie* for March 15 gives some results of military reconnaissances undertaken during 1906 by the troops of the Lake Chad region, and among other points gives some notes obtained from the natives in regard to the variations of level in Lake Chad. The Buddumas and Kanembus agree in giving a period of about twenty years as the limit of the ordinary