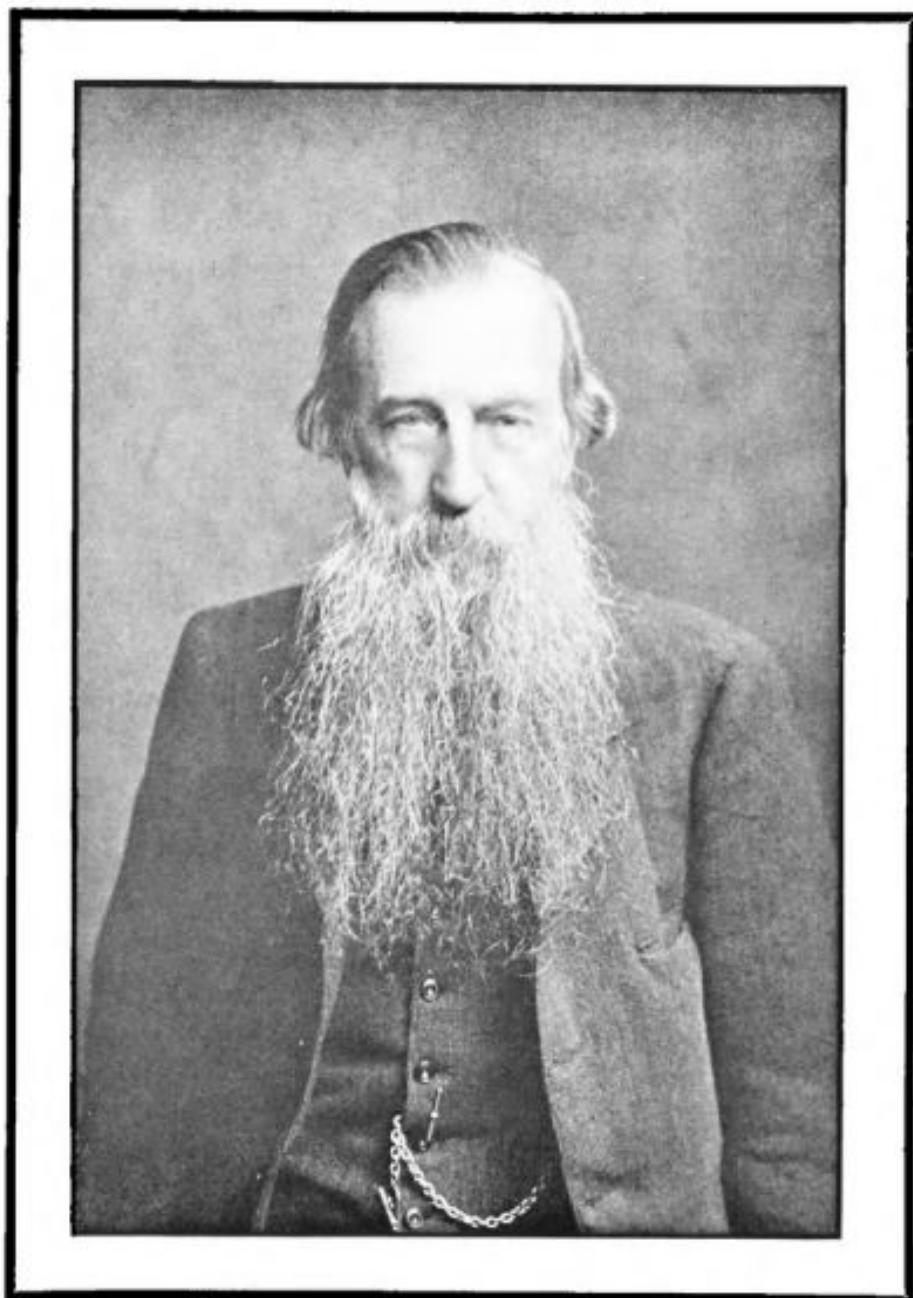


Frontispiece.]

[*Symons's Meteorological Magazine.*]



ALEXANDER BUCHAN, M.A., LL.D., F.R.S.,

Born 11th April, 1829—Died 13th May, 1907.

Photograph by Mr. John Thomson.

SYMONS'S

METEOROLOGICAL

MAGAZINE.

Edited by HUGH ROBERT MILL, D.Sc., LL.D.

VOLUME THE FORTY-SECOND.

1907.

LONDON:
EDWARD STANFORD, 12, 13, 14, LONG ACRE, W.C.

—
1908.

Symons's Meteorological Magazine.

No. 498.

JULY, 1907.

VOL. XLII.

Alexander Buchan.

KINNESSWOOD, 11TH APRIL, 1829—EDINBURGH, 13TH MAY, 1907.

THE death of the leading British meteorologist deprives our science of one of the few survivors of the great formative period of modern meteorology, and takes from the workers in that subject an honoured master and a trusty friend. We, ourselves, owe much to the example and teaching of Dr. Buchan in observing and discussing the records of meteorological instruments, and more to the constant inspiration of his example and his kindly encouragement.

Alexander Buchan was born in Kinnesswood, Kinross, on 11th April, 1829, and was educated at the Free Church Normal School, in Edinburgh, 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 Scottish Meteorological Society was founded in 1856, but though its early records give full particulars of the qualifications, appointment and withdrawal of several successive secretaries, curiously enough nothing is said in the published minutes of the appointment of Mr. A. Buchan, who read his first paper as Meteorological Secretary at the meeting of 11th April, 1861. The subject was "The cold weather of the previous Christmas." 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.

It was the custom for the Council of the Scottish Meteorological Society at that time, and for many years afterwards, to select a certain subject for investigation and report by the Meteorological Secretary, whose studies were thus guided by a body of learned and sagacious men of science and affairs. Guided in this way 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 1862. 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, in part to the early interest of Mr. D. Milne Home, of Milne Graden, in the Dutch weather forecasting experiments, and in part to the enthusiasm with which Buchan took the matter up in those 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 appeals were made to the author to bring it up to date. The increasing volume of official work and the burden of various important researches was such that the appeals had to be made in vain. Following on the larger work an "Introductory Textbook of Meteorology" was issued in 1871.

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 the difficult and baffling problem of charting the mean distribution of atmospheric pressure and 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. He 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 were prepared in pairs for each month, one map showing the whole world on a projection modified from Mercator's, the other showing the northern hemisphere down to about latitude 30° N., on a much larger scale. His last work on terrestrial meteorology was the editorship of the volume on Meteorology in Bartholomew's great "Physical Atlas," in which he was aided by Dr. A. J. Herbertson.

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 the first discussion of the monthly distribution of pressure and temperature over the British Isles. The subject frequently attracted

him in later years, and there are several valuable papers dealing with it in his "Journal."

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 the attention of Dr. Buchan and the other leading men interested in the study of natural phenomena in Edinburgh; one of these was the establishment of the Scottish Marine Station at Granton; and the other 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. Many references have been made in this Magazine to the unsuccessful struggle to secure public money for the maintenance of the Ben Nevis observatories, and we do not propose to dwell on it now. Dr. Buchan's old friend and colleague on Ben Nevis, Mr. R. T. Omond, has kindly sent a valuable note on the subject.

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. He became a Fellow of the Royal Society in 1898. Dr. Buchan frequently attended the meetings of international committees, and was on terms of personal friendship with all the leading continental meteorologists.

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 a member of the Council of the Royal Society of Edinburgh for nearly forty years, and he received in turn the Makdougall Brisbane and the Gunning prizes of the Society. In connection with the Edinburgh 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,

as 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. The first Meteorological Breakfast at the British Association was given by Mr. D. Milne Home in 1871, and the function was continued by Mr. Symons for several years. When we revived the Meteorological Breakfast at Glasgow in 1901 we were fortunate in securing Dr. Buchan as chairman, and on that occasion he gave a short speech full of the memories of the great exponents of meteorology who had graced those meetings in the past.

We cannot 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.

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, and his knowledge of literature was remarkable when one remembers the laborious and engrossing nature of his never-ceasing work.



DR. ALEXANDER BUCHAN AND THE BEN NEVIS OBSERVATORIES.

By R. T. OMOND.

WHEN the Meteorological Observatory on Ben Nevis was established as a permanent station with resident observers in 1883, Dr. Buchan drew up the scheme of observations, which was adhered to throughout the whole time the Observatory was in existence as a scientific institution. With characteristic thoroughness he insisted on the necessity of a complete hourly record of the chief meteorological elements—such as pressure, temperature, wind, rainfall, etc.—even though it were necessary to get these by “eye” readings when self-recording instruments would not work. As the ever growing record of these observations came in, he dealt with them in the same systematic and masterly manner which in former years he had shown in his great discussions of the atmospheric pressures and temperatures of the world.

The foundation of this work was his comparison of the barometric pressure on the summit of Ben Nevis with that at sea level, first for general average values and then for individual hourly readings from day to day. This was quite a new method of treating high level observations, and has not I believe been carried out elsewhere except to some extent in respect to the high level stations in India. It is a

method which can only be used for fixed mountain stations; the barometric traces got from kites and balloons are useless for such a discussion because with them the exact height above sea level of the instrument recording the pressure is not known. He showed the intimate connection between pressure and temperature at the high and low level stations and how this varied with the weather conditions at the two places. Some of the results of his investigations are given in the appendices to the volumes of Ben Nevis observations in the Transactions of the Royal Society of Edinburgh, but these papers were only introductory; Dr. Buchan hoped to be able to develop this line of research further, but it was not so to be, and the future investigation of the Ben Nevis record must be carried on by others building on the foundations laid by Dr. Buchan.

THE TEMPERATURE OF JUNE, 1907.

It is possibly some small compensation for enduring so inclement a period as the past spring and early summer, that the meteorologist should experience the mild excitement afforded by the comparison of his observations with those of previous years, and entertain the reasonable expectation of being able to establish a new "record" to carry down into the future.

During the month of June the British Isles came under the influence of a series of shallow depressions advancing from the Atlantic in a north-easterly direction, and following one another in rapid succession. Except in the north of Scotland there was, in consequence, an unusual tendency towards westerly and south-westerly winds, which were constantly accompanied by cloudy skies and frequent rain. The temperature for the month was below the average everywhere in the United Kingdom, falling short on the whole by about $2^{\circ}\text{.}5$. The deficiency increased fairly uniformly from east to west in Great Britain, exceeding 3° in the western half of Scotland, the whole of Wales, and many parts of the west of England. The most serious deficiencies occurred in the western Highlands and in the south of Wales, where the mean temperature was probably more than 4° in defect over considerable areas. Only in the extreme east of Great Britain and north of Scotland did the temperature rise to within 2° of the average, and several coast stations in Yorkshire and East Anglia approached to within 1° of the normal.

In Ireland the general temperature was about 3° below the average; the inland stations were comparatively less cold than the coast stations. At Killarney only was the deficiency less than 2° .

The map which is reproduced herewith shows by the increasingly dark shading the increasingly low temperatures in June, expressed by the number of degrees below the average for each locality.

During the first week practically no instances of shade maxima exceeding 70° were reported in the British Isles, and at a large