

Henry Newton Dickson, M.A., D.Sc. (Oxon.).

By Dr Hugh Robert Mill.

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HENRY NEWTON DICKSON was born in Edinburgh on June 24, 1866, being the younger son of Mr William Dickson, F.R.S.E. After an early education at the Edinburgh Collegiate School under Dr A. H. Bryce, he entered the Arts classes of Edinburgh University in 1882. The time was one of extraordinary progress in research on the air and the oceans, thanks to the labours of Dr Alexander Buchan and Sir John Murray, who had made Edinburgh the world-centre of meteorology and oceanography. Many students were pressed into the service of Professor P. G. Tait in his experiments for the *Challenger* Reports, and so it was that Dickson served his apprenticeship in research by taking part in determining the pressure-corrections of deep-sea thermometers, and the coefficient of compressibility of sea-water in the physical laboratory of the University. He also assisted me on several oceanographical trips in connection with the newly founded Scottish Marine Station, and volunteered as an assistant to Mr R. T. Omond in the High-Level Meteorological Observatory on Ben Nevis. The newly-established Scottish Geographical Society also flourished in the invigorating atmosphere of research in physical geography, which inspired many students of the period to enthusiasm; but his native city offered no scope to Dickson's ambition.

In 1891 he was working on the salinity and temperature of the water in the English Channel at the Marine Biological Association's laboratory at Plymouth. Two years later he moved to Oxford, where he pursued his oceanographical studies in the University Chemical Laboratory. Dickson came more and more into touch with practical work in geography, and in 1899 he became Lecturer on Physical Geography and teacher of Surveying in the School of Geography in the University of Oxford. He also undertook the study of the water-level in the chalk formation, which depends equally on meteorological and geological conditions, and has a great practical bearing on water-supply. He took part in the work of the scientific societies of London, especially the Royal Geographical Society on the Council of which he sat for some time, and the Royal Meteorological Society which he served in many capacities and acted as President in 1911-12. He was diligent in attendance at the meetings of the British

Association, serving successively as Secretary, Recorder, and, in 1913, President of Section E, Geography. At the meeting of the Association at Birmingham in that year he delivered a notable Presidential Address to the Section on "The World's Resources and the Distribution of Mankind," which was the subject of much public interest.

For fourteen years from 1906 he was Professor of Geography in University College, Reading, where he was an inspiring teacher and a strong promoter of the practical application of the various branches of physical geography to agriculture, engineering, and other objects of vital interest in public life.

When the war broke out his services were utilised in organising a department of geographical information in association with the Intelligence Division of the Admiralty. This soon grew to considerable dimensions and involved the production of a series of geographical handbooks on various parts of the world, some of which have since been published. Dickson received the third class of the Order of the British Empire (C.B.E.) in recognition of the value of his labours.

He had already received the degree of M.A. by decree, from the University of Oxford, on joining the School of Geography, and he took the degree of D.Sc. from the same University.

On resigning his professorship, Dickson devoted himself to literary work in London, where for some time he threw his whole energy into the preparation of the supplementary volumes to complete the Twelfth Edition of the *Encyclopædia Britannica*, of which he was principal assistant editor under Mr Hugh Chisholm.

In the autumn of 1921 his health began to give way, and in the following January he underwent a serious operation. He died at his brother's house in Edinburgh on April 2, 1922. He married in 1891 Margaret, daughter of Richard Stephenson of Chapel, Duns, Berwickshire. He is survived by his wife and by a son, Lieutenant T. H. Dickson, R.N., and a daughter.

Dickson was a hard worker, devoting himself with single-minded intensity to whatever he had in hand. In the early days I often had the opportunity of working with him, and always found him acute, conscientious, and painstaking, with a degree of accuracy in computation that is not often attained. He was the best of good company at all times, and was famous in Oxford and London for his quaint dry humour and curiously apposite anecdotes.

Apart from his work in general geography, which was largely educational or literary, Dickson made solid additions to knowledge in the

departments of meteorology and oceanography, to which, in my opinion, less than justice was done by his contemporaries. His first publication was in the *Proceedings of the Royal Society of Edinburgh* for 1885, on observations which he made when working with me at Granton on the measurement of air temperature by means of Dr John Aitken's experimental thermometer screens. Soon afterwards, he discussed the hygrometry of Ben Nevis, and published an interesting collection of the weather folklore of Scottish fishermen, picked up while working for the Fishery Board. In 1901 he read to the British Association meeting at Glasgow a suggestive paper on the possible cause of glacial and interglacial periods by a comparatively slight fall in atmospheric temperature at the poles with no change in the equatorial belt. He showed how the quickening of the planetary atmospheric circulation and the resultant acceleration of oceanic currents might well account for most of the facts.

His two little books on meteorology have an importance quite out of proportion to their size. In his *Elementary Meteorology*, published as a University Extension Manual in 1893, he gave for the first time a system of meteorology in which the physical facts of wind motion were made the basis of the weather map, the arrangement of the isobars being introduced as the result of the winds, rather than as their cause. This little book did much to vivify interest in meteorology. His *Climate and Weather*, published in 1912, showed equal freshness and originality of view-point, and illustrates the importance, in treating climatology, of a wide and deep knowledge of other departments of physiography.

Dickson's chief contributions to science were the results of his oceanographical researches, chief amongst them that carried out at Oxford in conjunction with the Marine Department of the Meteorological Office. For several years he obtained regularly samples of surface water, collected by Atlantic liners at numerous points on their voyages between Europe and America, and a much more extensive series of temperature observations made as part of the ship's routine. He analysed the samples, and constructed an elaborate set of maps of salinity and temperature from which he deduced the movements of the surface waters for each month in a consecutive period of two years, January 1896 to December 1897. The accuracy of the work was of a higher order than had previously been found possible, and the duration was greater than that of any previous attempt to keep continuous track of seasonal changes. The result was to show that the seasonal variations in the surface water were due partly to changes *in situ* and partly to the translational swing of currents at various seasons to the right or left of their normal lines of flow.

From the two years which he studied in detail, Dickson was able to deduce the general order of seasonal displacement of the so-called Gulf Stream and all its associated currents, and so to correct the vague and contradictory speculations which had figured in popular descriptions and even in textbooks for generations. It is to be regretted that the work did not attract more attention at the time, but it remains, richly illustrated by maps produced by Bartholomew, in the *Philosophical Transactions of the Royal Society of London* for 1901 (Series A, vol. cxcvi, pp. 61-203).