

comprehensiveness could be successfully instituted only through the association of a considerable number of observers; and how, more than a hundred years ago, the Societas Palatina in Mannheim had organised an extended network of stations of observation, at which observations were instituted with instruments of the same construction, according to the same plan, and at the same times, and were collected at the central office, and published in a manner which would be deemed exemplary even if issued at the present time. This work was prosecuted till the French Revolution put a termination to it. In Prussia the suggestion of a meteorological institute was made by Alexander von Humboldt, and was crowned with success only in 1847, when, on Humboldt's proposal, Mahlmann was made the first Director of the Meteorological Institute, which was connected with the Statistical Bureau. In 1849 Dove succeeded Mahlmann as Director of the Institute, and held the post till his death in 1879. Meanwhile, however, the necessity of a complete transformation of the Meteorological Institute came to be recognised. Formerly, simple average values for the different stations were calculated, and for these no special stress was laid on the single observation, in consideration that mistakes balanced one another. Now, however, when it was a question of preparing synoptic maps and of obtaining exact maps of the meteorological conditions prevailing at a determinate time over a large area, the value attached to the single observation was a much higher one, and it was of the greatest importance that all the data should be as free from error as possible. It would accordingly be the first task of the Institute to provide all stations of the second and third order with good instruments, carefully to see they are maintained in good order, and to collect the materials of observation. The network of stations of observation would have to be completed and equally distributed, and there were about 200 stations of the second and third order, besides some thousands of subordinate stations, in contemplation. The subordinate stations should be equipped with rain-gauges, and make observations on precipitation, thunderstorms, and such like. A second problem of the Institute was the exact determination of the course of the meteorological elements for the day, the month, and the year, by uninterruptedly continuous observations not only of the climatic factors—temperature, atmospheric pressure, moisture, &c.—but also of the phenomena of the earth's magnetism and electricity. This work would be done by the Observatory, which was completely separated from the Meteorological Institute. The Observatory, under a special direction, was transferred to Potsdam to the Astro-physical Observatory. Two similar Observatories of the first rank, one in Breslau, perhaps, and one in Bonn—at all events, in University towns wide apart from each other—were in contemplation. While the Observatory prosecuted its observations in the quiet of Potsdam, the Meteorological Institute should have its seat in the midst of Berlin, in the edifice of what was formerly the Building Academy, and continue in connection with the lively intercourse of the capital. Irrespective of the service for weather warnings to be introduced perhaps at a later date, which would require to be in proximity to the head telegraph office, the central position should be readily accessible to the different observers who came from the provinces to the capital. The Institute, moreover, should be easily available for all students of science and experts who were in need of meteorological data: such, for example, as agriculturists, physicians, persons engaged in hydraulic labours, &c. The Meteorological Institute should, finally, have as its main function that of being a teaching institute for the scientific training of meteorologists. Its function in this respect should not be merely confined to lectures at the University, but should especially consist of practical work done, under the guidance of assistants, by students and young observers in the Meteorological Institute, similar to what is carried on in chemical, physical, and other laboratories. With this programme in hand, the new Director hoped very soon to bring the Meteorological Institute to the degree of efficiency attained by similar institutes in neighbouring countries, and particularly by the teaching thus imparted to cultivate a new field fruitful of good results for science.—Dr. Weinstein, with reference to his paper recently read to the Society, made some further communications respecting disturbances of the earth's currents which had occurred on January 9 and March 30. On March 30 the disturbances were so great that in the course of the forenoon telegraphic communication in Germany was stopped. Even with currents of 60 Daniells no signs could be forwarded

by the telegraph wires. The magnetic elements in Wilhelmshaven showed great simultaneous disturbances, and from the direction of these magnetic disturbances it was inferred that the disturbances of the earth's electricity were the primary, the oscillations of the earth's magnetism the secondary.—In connection with these observations of Dr. Weinstein, Prof. Spörer stated that from March 26 to April 4 a very remarkable and numerous group of spots had been observed on the sun. On March 30 Dr. Less had observed squalls, accompanied with remarkable oscillations of temperature and of atmospheric pressure, and Dr. Assmann read several reports on North Light phenomena which had been perceived on March 30 in Eldena, Greiffenhagen, Magdeburg, and Nordhausen.—Dr. Weinstein further communicated that Prof. Förster had entered into an arrangement for having reports of disturbances observed in the earth's current at once forwarded to the Astronomical Observatory that the state of the sun might be simultaneously examined.

BOOKS AND PAMPHLETS RECEIVED

"Journal of the Statistical Society," March (Stanford).—"Earthquakes and other Earth Movements," by John Milne (K. Paul).—"Transactions of the Institution of Engineers and Shipbuilders in Scotland," 1885-86 (Glasgow).—"The Forest Flora of South Australia," part 7, by J. E. Brown (Spiller, Adelaide).—"Jahrbuch der k.k. Geologischen Reichsanstalt," Band xxxvii. Heft 1 (Holder, Wien).—"Archives Italiennes de Biologie," tome vii. fasc. 11 (Loescher).—"Sea-Weeds, Shells, and Fossils," by Peter Gray and B. B. Woodward (Sonnenschein).—"A Treatise on Nautical Astronomy," by J. Merrifield (S. Low).—"Birds of Cumberland," by H. A. Macpherson and W. Duckworth (Thurnam, Carlisle).—"Handbuch der Paläontologie," Abtheil. 1, Band 11, Leif. 5, "Myriopoda, Arachnoidea, und Insecta," by S. H. Scudder (Druck, München).—"Handbuch der Paläontologie," Abtheil. 11, "Paläophytologie," Leif. 4, "Coniferæ und Monocotyle," by Dr. A. Schenk (Druck, München).—"Letters and Journal of W. Stanley Jevons" (Macmillan).—"Solid Geometry," 3rd edition, by P. Frost (Macmillan).—"Recherches sur l'Instabilité des Continents et du Niveau des Mers," by J. Girard (Leroux, Paris).—"Johann Kepler," by C. Anschutz (Prag).—"The Management of Athletics in Public Schools," by G. Fletcher (Lewis).

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