

party at ten stations, including nine nearly on a meridian passing through Darjeeling. The northernmost station, Sandakphu, was at a height of 11,766 feet. The results of this and similar future work promise to be of much interest in connection with the theories proposed to account for the observed large deflections of the plumb line in India, and the deductions made as to the density of the material underlying the Himalayas. The observations at some stations had to be taken in a tent exposed to temperature changes, and one of the chief uncertainties was the determination of the proper temperature correction. Considering that the value of gravity at the base station at Dehra Dun—on which all the other Indian values depend—is arrived at by assuming for Kew the value 981'200 C.G.S., it does seem desirable that some British authority should exist possessing both the apparatus and the scientific knowledge necessary to determine the accuracy of such assumptions. In the meantime, practical geodetic science in the British Empire has to turn for guidance and inspiration to Potsdam, Vienna, or Washington.

Part iii. deals with the report by Mr. J. P. Barker on tidal observations and levelling operations. A good many data are given as to tidal constants at various stations, and there is interesting information as to the degree of accuracy of the predicted times and heights of low and high water. At the open coast stations in 1904 the mean error in the predicted times was only nine minutes, and the mean error in the predicted heights was less than 3 per cent. of the range; but in the riverain stations the errors were nearly twice as large, and there seems room for improvement.

Part iv. describes triangulation in Baluchistan, while part v. deals with survey operations of a rapid kind made with the Somaliland Field Force. The officer in charge of the latter, Captain G. A. Beazeley, and his assistant, Captain C. G. Hunter, evidently had a very stirring time.

One of the duties of the tidal officers seems to be the inspection of anemometers at tidal stations. At first sight the following information respecting the anemometer at Port Blair is rather startling (p. 91):—"On November 19, 1904, the velocity of wind registered . . . was 1112 miles, the greatest on record since December 1, 1897, on which day 918 miles was registered." The *day* is rather an unusual unit of time for velocities, and why the limitation? There are other instances where the method of presenting the facts might be improved upon, but fortunately the absence of a good English style does not necessarily imply a corresponding laxity in scientific accuracy. Another criticism that is likely to present itself to many readers is that the season 1904-5 is becoming now a little remote.

C. CHREE.

PROF. CHARLES STEWART, F.R.S.

ON Friday, September 27, Prof. Charles Stewart, conservator of the museum of the Royal College of Surgeons, died at the age of sixty-seven after a few weeks' illness, following some years of failing health.

Prof. Stewart was a native of Plymouth, where both his father and grandfather had been in practice. Following their example, he too entered the medical profession, being educated at St. Bartholomew's Hospital, and taking his M.R.C.S. in 1862. After some few years spent at Plymouth he returned to London, upon obtaining (in 1866) the post of curator of the museum at St. Thomas's Hospital. Later, in 1871, he became lecturer on comparative anatomy at

the same school, and in 1881 joint lecturer with Prof. John Harley on physiology. He also for some years held the professorship of biology and physiology at Bedford College.

During this St. Thomas's period, Prof. Stewart accumulated, by incessant work as a teacher and museum curator, and mainly by direct observation, that vast fund of biological knowledge for which he was so well known, and of which he was so lavish to all who came to him for help in their difficulties. In the comparatively small museum at St. Thomas's, he perfected his natural talent for practical museum work, performing with his own hands all the processes necessary in the preparation and display of anatomical specimens, and gaining a thorough insight into all the minutiae of museum management. At the same time, the variety of his teaching appointments, embracing anatomy, physiology, botany, and pathology, effectually prevented him from becoming narrow or specialised. Thus, when in 1884 the conservatorship of the Royal College of Surgeons' museum fell vacant, through the appointment of Sir William Flower to the control of the British Museum (Natural History), Prof. Stewart was singled out by his practical experience and wide attainments as Flower's natural successor.

Although during his twenty-three years of office at the College of Surgeons Prof. Stewart supervised and stimulated the growth of all parts of the museum, he made the object of his special care the improvement and completion of that section of the museum—"the physiological series of comparative anatomy"—in which are embodied John Hunter's philosophical researches into the normal processes of life. For the advancement of this great collection of adaptive modifications, Prof. Stewart laboured consistently almost to the day of his death, adding or planning new specimens, lecturing so long as health allowed, and finally editing, and in part writing, the first few volumes of a full descriptive catalogue.

The year after his appointment as conservator he was elected Hunterian professor of human and comparative anatomy at the college, and annually until 1902 gave series of lectures that reflected the work he was doing in the museum, and served as introductions to the several sections of the "physiological series." At this time he also delivered some "Friday evening" lectures at the Royal Institution, and was Fullerian professor of physiology there from 1894 to 1897. In his own way, Prof. Stewart was inimitable as a lecturer. He had an easy flow of language, delivered with a persuasive eagerness that compelled attention, and illustrated by wonderful free-hand drawings on the blackboard. The combined result was a picture, not easily forgotten, of interwoven word and line animated by a charming personality. Unfortunately, his lectures were delivered from the scantiest notes, so that little remains of his original researches except some few papers in the publications of the Linnean Society and in some microscopical journals which give but a feeble idea of his real powers.

Since 1866 Prof. Stewart had been a Fellow of the Linnean Society; and from 1890-4 held the office of president. He was also deeply interested in the Royal Microscopical Society, being one of its secretaries from 1878-82; and he was an original member, and for some years treasurer, of the Anatomical Society. He also was an ardent supporter of the Marine Biological Association. In 1896 he was elected to the fellowship of the Royal Society, and three years later was honoured by the conferment upon him of the degree of LL.D. *hon. caus.* by the University of Aberdeen.

In brief, Prof. Stewart was professionally a successful teacher, a great lecturer, and a master of all museum arts; personally he was the simplest and

kindest of men, unassuming to a fault, with a cordial detestation of everything false, presumptuous or sordid. His cheery, youthful manner and lively conversation endeared him to many, even of those who had not the privilege of seeing the deep sympathetic nature beneath.

NOTES.

AN extra meeting of the Chemical Society will be held in the theatre of the Royal Institution on Friday, October 18, at 9 p.m., when Prof. Emil Fischer, F.R.S., will deliver the Faraday lecture, entitled "Organic Synthesis and its Relation to Biology."

THE honorary secretary of the Hampstead Scientific Society informs us that, by permission of the London County Council, a meteorological station (in connection with the Meteorological Office and the British Rainfall Organisation, Camden Square) is to be established by the society at the flagstaff on the summit of Hampstead Hill. This being the highest point in the neighbourhood of London, some interesting records should be obtained. A small astronomical observatory is also to be placed at the same spot, which it is hoped may be of educational value to students and senior pupils of London County Council schools.

THE British military airship travelled on Saturday last from Aldershot to London at the rate of about twenty-four miles an hour, and after circling round St. Paul's Cathedral, headed against the wind on the return journey. Owing to the strong wind prevailing, the descent was made in the grounds of the Crystal Palace at Sydenham. The total distance covered was fifty miles, and the mean altitude was 750 feet.

AN exhibition is to be held at the Royal Horticultural Hall, Vincent Square, Westminster, on October 22-26, in connection with the *Model Engineer*, and will include a collection of engineering models of all kinds; electrical, optical, and scientific instruments; technical education apparatus; and lathes, tools, and workshop appliances. Popular scientific lectures and demonstrations will be given each day, and many of the models will be shown at work.

MR. F. WOOD-JONES, Harley Lodge, Enfield, informs us that on November 15, 1905, he set adrift several bottles from the Cocos-Keeling atoll, Indian Ocean ($12^{\circ} 04' 24''$ S., $95^{\circ} 55' 19''$ E.), containing messages requesting that the finder would let him know the place and time of finding. On May 27, 1906, one was picked up on the coast of Brara, Italian Somaliland ($1^{\circ} 06' 08''$ N., $44^{\circ} 01' 52''$ E.), and on July 11, 1907, another turned up at exactly the same spot. These facts point to a constant westward current in this part of the Indian Ocean. For both communications Mr. Wood-Jones is indebted to Captain Resident G. Piazza, of Italian Somaliland.

THE death is reported on September 22 of Prof. W. O. Atwater, of the Wesleyan University, Middletown, Connecticut. He directed from 1875 to 1877 the Connecticut Agricultural Experiment Station, the first institution of the kind in the United States. In 1888 he founded the experiment station of the Federal Department of Agriculture. Of late years he had directed the special investigations of that department into questions of nutrition. He was joint inventor of the Atwater-Rosa calorimeter for experiments on the metabolic changes going on in the human body; and was the author of a large number of articles and reports on physiological and agricultural chemistry. Prof.

Atwater, who was sixty-three years of age, had been practically helpless since he suffered from a stroke of apoplexy two years ago.

NEWS has been received from Dr. Sven Hedin by the Simla correspondent of the *Pioneer Mail*, the communication being dated July 25, from the Mansarowar Lake. Dr. Hedin reports that this last journey from Shigatse to Tok-chen, on the lake, has been richer in results than his previous one from the Aksai Chin to Shigatse, as he has been almost the whole time in inhabited country. His message, of which the following is an extract, appears in the *Pioneer Mail* of September 20:—"The results are 1300 big pages in annotations, 203 sheets of maps, 410 specimens of rock in connection with geological profiles, 700 panoramas, twenty-six astronomical points, the meteorological journal continued three times a day, and passes and camps fixed by boiling-point thermometer; at every river crossing a detailed measurement of the volume of water—the Brahmaputra—has been measured at seven points, and most of the northern tributaries, as well as some of the southern; a collection of plants; a great number of sketches, especially types, the interior of temples, and landscape sceneries. One lake, Amtchok-Tso, has been carefully measured, and an isobathic map made. The height of many peaks has been measured with the theodolite at a couple of places; the height of old beach lines of lakes has been measured."

AN appeal for funds to secure the preservation of the "Sarsen Stones" on the Marlborough Downs known as the "Grey Wethers" has been issued jointly by the National Trust for Places of Historic Interest or Natural Beauty, the Wiltshire Archaeological and Natural History Society, and the Marlborough College Natural History Society. These sarsen stones are, geologically, the hardened and solidified boulders of a stratum of Eocene sand formerly covering the chalk, which in the course of ages has been denuded of the softer portions. The stones vary in size from small boulders to masses of sixty or seventy tons. For many generations these stones, scattered widely over the downs, have been broken up and used for building and other purposes, mainly of a local character. As there is every probability that the work of breaking up the sarsens will be undertaken soon on a greatly extended scale, an attempt is being made to secure the preservation of some characteristic examples of the stones in their natural condition. The sum of about 500*l.* is asked for in order to purchase about twenty acres of land where there are many of the stones. If the money is forthcoming, characteristic examples of a unique geological phenomenon will be secured for the nation. The donations already received or promised amount to 164*l.* Subscriptions to the fund may be sent to Mr. E. Meyrick, F.R.S., Thornhanger, Marlborough, or to Mr. Nigel Bond, secretary, the National Trust, 25 Victoria Street, Westminster, S.W.

To *Spolia Zeylanica* for August Mr. J. Llewellyn Thomas contributes further particulars on hybridising the Ceylon jungle-fowl (*Gallus stanleyi*), a subject on which a note appeared in our columns last year. The new experiments demonstrate that in certain circumstances the hybrids with domesticated fowls are fertile, both *inter se* and with their parents, and under really favourable conditions it is surmised that complete fertility could be established. This being so, Darwin's argument from the infertility of the hybrids that *Gallus stanleyi* cannot be the parent stock of domesticated poultry no longer holds good. The difficulty, however, is to convert this negative evidence