ejusque semissem restituit: Hipparchi solius ab orbe condito vel diis improbos in octava duntaxat gradus parte conatus longissime antegressus: utriusque luminaris cursum exquisite restauravit, pro reliquis eiraticis solidissima *tabularum Rudolphaearum* fundamenta jecit: Mathematicarum rerum peritis inveteratam Aristotelis et asseclarum doctrinam de sublunari cometarum novorumque siderum situ, demonstrationibus invictis exemit: novarum hypothesium autor; in Stagyricis et universa philosophia admirandus; evocatus ab invictissimo Romano imperatore *Rudolpho Secundo*, mira doctrinæ et candoris exempla dedit; ne frustra vixisse videretur, immortalitatem, etiam apud Antipodas scriptorum perennitate sibi comparavit; planeque qualis esse quam haberi maluit, nunc vita functus æternum vivit.

Ejus exuvias uxorisque triennio post defunctæ heredes liberi sacro hoc loco composuerunt. Obiit quarto kalend. Novembris anni Christiani Dionysiaci MDCI ætatis suæ LV.

Non fasces, nec opes, sola artis sceptra perennant." Around the tombstone bearing Tycho's likeness we read: "Anno Domini MDCI die XXIV Octobris obiit illustris et generosus Dominus Tycho Brahe, Dominus in Knudstrup et Præses Uraniburgi et sacræ Cæsareæ Majestatis Consiliarius, Cujus ossa hic requiescunt."

When the visit to Tycho's tomb took place, the Mayor of Prague laid a beautiful wreath upon the tomb which bore the inscription upon ribbons in national colours, "To the great philosopher—the Royal Capital of Prague." Other wreaths bore the inscriptions, "Universitas Hafniensis," "Societas regia scientiarum Danica," "Fra Danske Studenter." There were also wreaths from Prof. Šafařik, the Observatory of Prague, and many others from literary and scientific societies.

The visitors afterwards proceeded to a house on the "Fruit Market," where a memorial tablet of marble was placed stating that Kepler lived there from 1604-1607. In the afternoon the Belvedere of Tycho Brahe was visited and a name "Tycho Street" was given to a new street opposite it. The long row of carriages bearing the numerous visitors then proceeded to a quiet street near the now abandoned Royal Castle, and the house "At the Golden Griffin" was shown, having in front a marble tablet stating that Tycho lived there in 1600 and 1601. Finally, the place was visited where Tycho's last observatory formerly stood and where a new street, bearing the name of Kepler, is now situated.

In this way was celebrated the memory of the great astronomer whose work marks a great epoch in that science, and from whose observations his friend and colleague Kepler calculated his well-known laws.

BOHUSLAV BRAUNER.

CELEBRATIONS IN DENMARK AND SWEDEN.

In Copenhagen the Society of Science celebrated the tercentenary of Tycho Brahe's death in the presence of the King and Royal family and all the members of the Society. The meeting was opened with a short address by the president of the Society, Prof. Jul. Thomsen, who announced that Dr. J. L. E. Dreyer, who was born in Denmark, had had the order of Knight of the Dannebrog conferred upon him by the King. Prof. Fridericia gave a lecture on the personality of Tycho Brahe. He pointed out his scientific enthusiasm and his accurate observations, and showed how towards the close of his life he neglected the mystical side of astrology and regarded astronomy more from the physical point of view. The astronomer's statue in the grounds of the Copenhagen Observatory was decked with wreaths and flowers.

At the University of Lund a bust of Tycho Brahe was unveiled. The Stockholm Academy of Science celebrated the event by a memorial festival in the presence of Prince Eugen and several of the ministers, when speeches were delivered by President Odhner and Prof. Dunér.

STUDIES ON THE ETHNOGRAPHY OF THE NORTH QUEENSLAND ABORIGINES.[1]

ANTHROPOLOGISTS so fully recognised the value of Dr. Walter E. Roth's "Ethnological Studies among the North-West-Central Queensland Aboriginals" that there was considerable satisfaction when the news arrived a year or two ago of his appointment as Northern Protector of Aboriginals in Queensland. We now have the pleasure of receiving two *Bulletins* on North Queensland ethnography, which are the first-fruits of that able investigator's researches in his new sphere, and at the same time we must thank and compliment the Home Secretary's Department in Brisbane for issuing these *Bulletins*, especially as we are promised two or three similar *Bulletins* annually. Dr. Roth expresses his deep indebtedness to the Hon. J. F. G. Foxton for all the kindly encouragement invariably received from him during the prosecution of his scientific labours, and it is due to his wishes, as ministerial head of the Department, that these researches of Dr. Roth's are now being made available to the public. Dr. Roth has anticipated the thanks which anthropologists at home would like to offer to this public-spirited Minister. Publications such as these will do something towards reducing that ignorance of our native races which is largely due to the apathy of our Government as a whole.

The first *Bulletin* consists of an essay by Dr. Roth on "String, and other Forms of Strand: Basketry-, Woven bag- and Net-work." The animal and vegetable products of which strings are made are enumerated, and Mr. F. M. Bailey, the Colonial botanist, has identified the plants from which textiles are made which have been collected by Dr. Roth. The method of making string, including the manufacture of human-hair twine, is fully described and illustrated. Dr. Roth gives in his short direct style accounts of the procedures in which string and other forms of strand are employed. His classification of the processes of construction of basketry, woven bags and network will prove of considerable value to those who have to describe similar textiles from other countries. His explanations are illustrated by nearly a hundred clear diagrams drawn by the author and contained in nineteen plates.

The second *Bulletin* is devoted to the structure of the Koko-Yimidir language, in which Dr. Roth has had the invaluable cooperation of the Revs. G. H. Schwarz and W. Poland, Lutheran missionaries at Cape Bedford Mission Station. This language is spoken from the Annan and Endeavour Rivers to the northern side of Cape Flattery. It is noteworthy that this Koko-Yimidir language is the identical one of which Lieutenant Cook took a vocabulary when visiting the Endeavour River in 1770. A table is given of Cook's words with those in use at the present day; the "kanguroo" of the great voyager is still spoken of as *ganguru*. There are many suggestive notes on the language apart from the interest of the language itself.

We have no doubt that the succeeding numbers will be as valuable as those now to hand, and we shall eagerly await the good things which we are sure Dr. Roth has in store for us.

CHARLES MELDRUM.

DR. CHARLES MELDRUM was born at Kirkmichal, Banffshire, in 1821, and died in Edinburgh in August 1901. He was educated at Aberdeen University, and after graduation as Master of Arts he joined the Bombay Education Department. In 1848 he was appointed professor of mathematics in the Royal College

[1] "North Queensland Ethnography." *Bulletin* No. 1, C.A. 11-1901, price 8*s*.; No. 2, C.A. 22-1901, price 1*s*. (Brisbane: by Authority, Edmund Gregory, Government Printer, William Street, 1901.)

© 1901 Nature Publishing Group

of Mauritius, and soon thereafter turned his attention to meteorology, of which he continued to the end one of its most ardent students. It was chiefly by his influence and exertions that the Meteorological Society of Mauritius was founded in 1851, he being its first secretary. He was appointed Government Meteorological Observer in 1862 and Director of the Royal Alfred Observatory in 1875; and in recognition of the great public services he had rendered to the colony he was made a member of the Government Council of Mauritius. For his services to science, more particularly to meteorology, his own University of Aberdeen conferred on him the honour of LL.D.; in 1874 he was elected a F.R.S.; and in 1886 he was honoured with a C.M.G.

Meldrum was a man of untiring energy and perseverance, and to this was added the keenest perception of the absolute necessity there was to replace theoretical speculation by accurate observations in all attempted solutions of the problems of meteorology. In carrying on this large and irksome work he soon displayed a genius in devising the methods for obtaining the physical data required for the investigations he took in hand. His self-devotion to the work was unsparing and unremitting to the end.

His first notable contribution to science was in the attractive field of practical meteorology, by which signal service was rendered to the forecasting of storms within the tropics. The data collected for the purpose was of a twofold nature. First, he clearly saw the paramount importance of a statement of the hourly variations through the months of the year of the pressure, temperature, wind and cloud, and to arrive at which he early instituted "Term Day Observations" as part of the systematic work of the Observatory. In a year or two, approximate hourly averages were thus obtained, and, from these averages, deviations were at once apparent from the regular normal hourly march of the pressure, temperature, wind and cloud.

In the second place, a unique and rich collection of maps of the cyclones of the Indian Ocean began to be prepared from the Mauritius observations, combined with observations obtained from ships' logs, on which isobars, isotherms, winds and clouds were entered, thus depicting from strict observations the outstanding features of the cyclones and gales of the Indian Ocean. In a valuable paper read to the British Association at Dundee, it was shown that the gales and hurricanes of the Indian Ocean south of the equator were conveniently grouped into three distinct types: (1) trade-wind gales, in which the wind veers little, these occurring chiefly in the winter months of June, July and August, when the S.W. monsoon prevails north of the equator; (2) the extratropical gales, occurring south of lat. 30°, in which the wind veers or shifts, these storms being somewhat analogous to the storms of north-western Europe and are most frequent and violent from May to August; and (3) the tropical hurricanes, or true cyclones, in which the wind always veers. It was to this last class that Meldrum mainly directed his attention.

A strict and extended inquiry was carried on respecting the relations between the course pursued by individual cyclones and their changing intensity, and the deviations from the normal values of pressure, wind, &c., observed at the Observatory. The inquiry resulted in showing unmistakably (1) that the direction in which the cyclone was from Mauritius could be readily known from the wind; (2) that its distance from Mauritius could be known from the amount of fall of the barometer and the rate of the fall, taken in connection with the variations in humidity, wind and cloud; and (3) that its progressive motion could be known chiefly from the veerings of the wind. These novel conclusions were soon put to practical use in sending to the daily Press prognostics of cyclones which were attended with complete success. This great result was all the greater inasmuch as it showed that what was done at an isolated station in the ocean might equally be done with success at sea.

In 1874 he submitted another important paper to the British Association at Belfast, "The Cyclone and Rainfall Periodicities in connection with the Sun-spot Periodicity," and in several subsequent years he returned to the same subject. He was one of the earliest workers in this attractive department of science, and his contributions, more particularly as regards the rainfall drawn from all climates, were alike remarkable for the enormous labour involved in their preparation and the lucid clearness with which they established and presented the intimate connection subsisting between the sun-spots and the cyclone and rainfall periodicities.

The Observatory of Mauritius stands second to no other Observatory in the world for the excellence of the physical data it has supplied towards the investigation of these periodicities. As regards the prime elements of climate its records afford the requisite data for the last four complete sun-spot periods from 1855 to 1888, and also the annual number of cyclones in the Indian Ocean from 1847 to 1900, or fifty-four years in all. The following table gives a comparison of the periodicities of the rainfall, pressure, temperature and cyclones. The figures for the rainfall, pressure and temperature are given as differences from their annual averages, the differences being "bloxammed" in the usual way.

Year of sunspot period.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	Average.
Sunspots, 1855-1888	10	5	18	49	90	90	84	63	45	29	20	
Rainfall, inches	−1·3	1·2	−0·4	0·4	−1·2	2·5	3·9	5·5	−1·3	−3·5	−5·5	46·9
Pressure, 1000th of an inch	1	1	3	7	11	−1	−7	−10	−4	−2	3	30·069
Temperature, degrees	0·1	−0·1	−0·3	−0·5	−0·3	0·0	0·2	0·3	0·4	0·3	0·2	73·6
Indian Ocean cyclones, 1847-1900 ...	5	3	5	8	12	10	10	10	8	7	5	8

The result shows an intimate connection between the prime elements of meteorology and the sun-spot variation.

In 1866 Dr. Meldrum visited England, one of the chief objects in view being to obtain a complete set of magnetical and meteorological registering instruments suitable for a first-class observatory. These were received in course, and by the end of 1874 were installed, and at work, in the new Royal Alfred Observatory, of which he was appointed the first director. The results have been published in the Annual Reports since, and in the Report for 1899 Mr. Claxton has begun to give the larger results of the work of this Observatory, beginning with the diurnal variation of the atmospheric pressure deduced from twenty-five years' observations (1875-99), and of some of the other chief elements of climate for shorter terms of years. These results are simply of inestimable value, not only to men of science, but also to navigators.

Some time ago there was added to the regular routine of the Observatory the taking of photographs of the sun when the weather permitted. The number of photographs taken in 1900 was 377; they have been

© 1901 Nature Publishing Group

transmitted to Sir Norman Lockyer, director of the Solar Physics Observatory, South Kensington.

In consideration of the valuable work so minutely and ably carried on at this Observatory in the departments of meteorology, general physics and magnetism, the publication *in extenso* of these daily and hourly observations becomes a question of national importance, in view, especially, of the large results now in course of evolution.

ALEXANDER BUCHAN.

NOTES.

THE presidential address delivered by Mr. Charles Hawksley at the Institution of Civil Engineers on Tuesday was very comprehensive in its scope. Being the first inaugural address delivered at the Institution since the commencement of the new century, the opportunity was taken of giving a retrospect of advances made in the past century in the more prominent branches of civil engineering. At the commencement of the nineteenth century engineering works were comparatively few in number. Railways, steamships, electric telegraphs, telephones, the use of electricity for lighting and motive-power, were all unknown. Lighting by means of coal-gas had only just been introduced, and even the steam-engine was then in a primitive stage. Looking backward, and comparing the condition of things a hundred years ago with the present state, the changes which science and invention have brought about certainly appear remarkable. But it is advisable not to rest satisfied with a complacent view of the progress made. There is a prospect as well as a retrospect, and it is essential to push forward into the new fields of work before they are occupied by other nations. This is the lesson which must be impressed upon the minds of the British people, and used to give their political leaders a sense of responsibility for national welfare in the future. Engineers are not usually inclined to accept the view that action is necessary if we are not to be beaten in the industrial war which is now going on, but Mr. Hawksley acknowledges that "British engineers and manufacturers cannot hope to possess in the twentieth century that practical monopoly which they enjoyed during a considerable part of the nineteenth century." The conditions have changed, and unless our engineers and manufacturers adapt themselves to the new environment they will be superseded by men of other nations more in touch with the times. Mr. Hawksley mentioned in his address the serious difficulties and disadvantages under which British manufacturers are placed by the lack in this country of acknowledged standards. A committee formed to consider the subject in June last decided unanimously that it was desirable to issue standard sections and standard specifications, and the Institution of Civil Engineers has taken the work in hand. Four committees dealing with different branches of industry have been formed and are now at work standardising the various sections used in engineering practice.

THE death is announced of Prof. Ralph Tate, F.L.S., F.G.S., professor of natural science in the University of Adelaide, South Australia. Tate was a naturalist of the old school, with a good knowledge of botany, field zoology and geology. His earliest researches were carried out in the neighbourhood of Belfast, and he published papers on the Lias and Cretaceous rocks in the *Quarterly Journal* of the Geological Society. In 1864 he was appointed museum assistant to that Society, a position which he occupied for about four years. During this period and up to the year 1876 he devoted his attention mainly to the Mollusca and especially to the Gasteropoda of the Lias. In conjunction with Prof. J. F. Blake, the well-known "Yorkshire Lias" was published in 1876. In that year Tate left England for the University of Adelaide, and henceforth his labours were devoted to the geology and natural history of Australia. In 1893 he was elected president of the Australian Association for the Advancement of Science. His later contributions to science dealt chiefly with the Tertiary Mollusca of Australia.

DR. A. H. BENNETT, only son of the late Prof. John Hughes Bennett, of Edinburgh, and author of several works relating to diseases of the nervous system, died on Friday last at the age of fifty-three.

AT the ordinary quarterly comitia of the Royal College of Physicians, held last week, it was resolved to send delegates to the congress on medicine to be held at Cairo in December 1902, and also to the International Congress in Medicine, to be held in Madrid in April 1903. A proposal from Mrs. FitzPatrick to found a lectureship in the college, accompanied by a draft for 2000*l.*, was accepted, and it was resolved to send the following expression of thanks on vellum and sealed with the College seal:—"The President and Fellows of the Royal College of Physicians of London, in comitia assembled, tender their cordial thanks to Mrs. FitzPatrick for her munificent gift of 2000*l.* for the purpose of endowing a lectureship on the history of medicine in memory of her late husband, Dr. Thomas Fitz-Patrick, a member of the college; they gratefully accept the same and undertake faithfully to administer the trust she has committed to them."

IT is stated by the Berlin correspondent of the *Times* that Prof. Paul Ehrlich, of Frankfurt-on-the-Main, has been enabled to devote himself to a special study of the disease of cancer in consequence of a bequest of the interest for three years of a sum of 500,000 marks dedicated to this purpose by a Frankfurt banker, the late Herr Theodor Stern. Other sums contributed by private individuals will bring up the amount to be devoted to this special investigation of cancer by Dr. Ehrlich to 40,000 marks, or 2000*l.* a year. In Berlin there exists a special committee for the investigation of cancer, which studies pathological accounts of cases and collects statistics and medical literature on this subject. Prof. von Leyden is at the head of the committee, and Prof. von Kirchner, of the medical department of the Ministry of Public Instruction, is one of its members.

MR. NORTHCOTE THOMAS has been appointed organising secretary to the Society for Psychical Research.

THE biennial dinner of the Physical Society of London will be held at the Hotel Cecil on Friday, November 15.

THE Christmas course of six lectures to young people, at the Royal Institution, will this year be delivered by Prof. J. A. Fleming, F.R.S. The subject will be "Waves and Ripples in Water, Air and Æther," and the first lecture will be delivered on Saturday, December 28.

THE new session of the Institution of Electrical Engineers will be opened on Thursday, November 21, when the premiums awarded for papers read or published during the session 1900–1901 will be presented, and the president, Mr. W. Langdon, will deliver his inaugural address.

THE Siberia-Oriental Section of the Russian Imperial Geographical Society will celebrate the fiftieth anniversary of its foundation on November 17/30.

THE scientific committee of the Aëro Club of Paris has decided to award the Deutsch prize of 100,000f. to M. Santos Dumont.

AN illustrated public lecture on Jamaica was delivered at the Imperial Institute on Monday by Mr. Herbert Thomas, who had resided continuously for the last twenty-five years in the island. In describing the principal products of the island, Mr.

© 1901 Nature Publishing Group