

well described in Paterson's "Travels in Africa" (1789), but otherwise very little known. The present Governor of the Cape, Sir Henry Barkly, has made great exertions to procure plants for Kew, and two have now arrived in this country, the largest being 8 ft. in height, but there is some doubt whether either will eventually survive the voyage.

Aloe dichotoma appears to attain a height of about 30 ft., with a girth of about 12 ft.* Fig. 1 is from a photograph by Mr. Chapman, and is reproduced from the *Gardener's Chronicle*. Young plants of the *Aloe* from Kaffraria, alluded to above by Mrs. Barber, are now in cultivation at Kew. Finding that the name by which it was known belonged to another species, *A. Zeyheri*, and that it was undescribed, I renamed it *Aloe Barberæ*, in honour of Mrs. Barber, who first sent cuttings of it to this country. Fig. 2 (which is also borrowed from the *Gardener's Chronicle*) is a copy of a rough sketch sent to this country by the Rev. R. Baur, a Moravian missionary, at present



FIG. 3.—*Aloe Barberæ*, Dyer, from Natal.

resident in Kaffraria. He speaks of it as growing in the forests to the height of 30 ft., with a girth three feet above the ground of about 16 ft. Its dimensions are therefore about the same as those of *Aloe dichotoma*. In Mr. Baur's sketch the seed-vessels are represented, and he feared that he had made them proportionately too large.

An arborescent *Aloe* also exists in Natal. An account of this from Mr. Baines, the well-known African traveller, with a sketch of the spot where the plants occurred, was sent to Dr. Hooker with a living branch during last year. It was the subject of a communication made to the British Association at Bradford.† The appearance of the branch of the Natal plant was so different from that of the Kaffrarian, that I ven-

tured to characterise it as a new species under the name of *Aloe Bainesii*, on the ground that the leaves were longer, not glaucous, and not so completely crowded into a terminal tuft. The fact of the leaves being crowded into a terminal rosette, or spaced down the stem, is found to afford a character of even sectional value among the species. I was therefore rather astonished to find that when the Natal plant had fairly established itself, its rosette of leaves began to grow out. It is apparently only in old plants that the leaves are crowded into rosettes. I do not now doubt that the Kew plant of the Natal *Aloe* will eventually assume quite the same appearance as plants of the Kaffrarian one, with which I am now disposed to believe it to be identical. The name *A. Bainesii* must therefore be merged as a synonym in *A. Barberæ*. The only remaining discrepancy is with respect to the flowers. Mr. Baines believes that those of his plant were orange or scarlet. Those of the Kaffrarian plant (ample specimens of which I have recently received through the kindness of Sir Henry Barkly) appear, from a sketch made by Lady Barkly, to be rose, passing into flesh-colour.

The sketch of *A. Barberæ* from Natal (Fig. 3) is from a drawing by Mr. Sanderson, of D'Urban.

The stems of these *Aloes* must necessarily increase "exogenously" in diameter. This, no doubt, takes place in the same way as in the well-known Dragon Tree (*Dracæna Draco*).

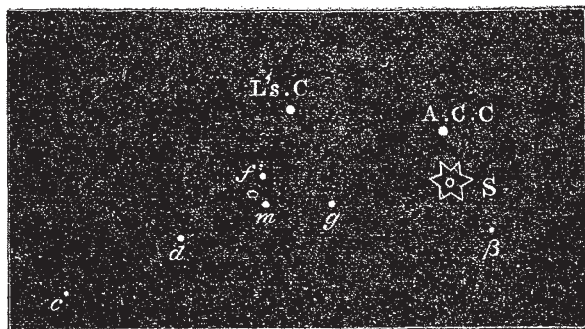
W. T. THISELTON DYER

TRANSACTIONS AND PROCEEDINGS OF THE ROYAL SOCIETY OF VICTORIA

WE have received the Proceedings of the Royal Society of Victoria for the years 1870, 1871, and 1872, the issue of which has been delayed by the withdrawal of the Government grant in 1868, but through the liberality of the present Government we are glad to hear that the financial state of the Society enables the present report to be printed. We have read with great pleasure the addresses of the president, Mr. Ellery, showing that scientific knowledge is gaining ground fast in Victoria. Mr. Ellery tells us of the work at the Observatory, and that the positions of 38,305 stars have been established up to 1870. In 1868 the great reflector of 4 ft. diameter was mounted, and Mr. Ellery says that although his hopes were not fully realised, the telescope, if it does not excel, equals every other of its size. Mr. Le Sueur appears to have attacked η Argus and its surrounding nebula as early as possible, and in February 1870 he informs the Society that the spectrum of η is crossed by bright lines corresponding to *CDEF* and one beyond *F*, probably *Hy*: the principal line of nitrogen was also seen. He therefore concludes that hydrogen, nitrogen, sodium, and magnesium are indicated. No dark lines seem to have been seen with certainty, although they were suspected. Mr. Le Sueur says: "We seem driven to the conclusion that the star consists of a solid nucleus, a gaseous envelope cooler than the nucleus producing the dark lines, and a second envelope hotter than the nucleus accounting for the bright ones." We hope we shall not be quite driven to this conclusion of a solid nucleus, which seems highly improbable. A large influx of hot hydrogen or nitrogen from the nebula or other source might be sufficient to reverse the dark lines, and as this would heat the original photosphere more intensely its absorption would be reduced, accounting for the reduction in intensity of the black lines. In January 1874 we find that Mr. Macgeorge examined this star and found no bright lines, and further, that a distinct nebulosity surrounded the star, which in December 1869 appeared, according to Le Sueur, on a black background. Mr. Macgeorge furnishes several drawings of the nebula surrounding η which show a vast change in the shape of the mass. In 1838 η was involved in dense nebula, while

* By an unfortunate misprint in the *Gardener's Chronicle* (copied by Flückiger and Hanbury, *loc. cit.*), 30 ft. is given as the greatest girth.
† See *Journal of Botany*, 1873, p. 348. The sketch is reproduced in the *Gardener's Chronicle*, *loc. cit.*

in 1869 it was seen on a bare sky. The further drawings by Mr. Ellery and Mr. Le Sueur are scarcely recognisable as being made from the same nebula, so vast appears the changes; in one instance the difference between two drawings shows a motion of the gas, if motion it be, of 6,000,000,000 miles a month. We have known comets' tails or jets to have a motion comparable to this—so perhaps some similar cause is acting here. Mr. L. Sueur appears to have carefully examined the spectrum of Jupiter with the Melbourne reflector, but with no very decisive results, the absorption-lines appearing constant across the slits, which leads him to infer that the light from the different parts of the visible surfaces had passed through not widely unequal thicknesses of atmosphere, or that the least thickness was sufficient to produce a maximum absorption. Mr. Ellery has been trying paper paraffined, instead of waxed, for photographing the continuous records of magnetic and other phenomena, thereby shortening the sensitising and developing by more than an hour; but he has found that by using plain paper some four hours are saved. The process he uses is a slight modification of Crooke's. A large number of enhydros or water-stones were found at Beechworth in 1864. On the granite rock near Beechworth



is a Silurian outlier of sandstone, intersected with veins of blue quartz, and in the widening of these veins the stones appear. They lie in nests lined with scales of chalcedony and fine clay. Mr. Dunn describes the enhydros as consisting of chalcedony, irregular in form, bounded by true planes varying in colour, from yellow and opaque to quite colourless and transparent, and their size from 5 in. diameter to the size of a split pea. The contents of the stones appear from analysis by Mr. Foord to consist of water slightly mineralised with chloride and sulphate of sodium, magnesium, calcium, and a soluble form of silicic acid. Mr. Macgeorge has been at work observing the small stars near Sirius. We copy his diagram of these stars, all of which require large optical means to render them visible: the position of Alvan Clarke's comet in January 1865 is given as $77^{\circ} 63'$, and that of Lassell's companion $163^{\circ} 89'$. We are glad to see papers on the colonial timber trees, discussing the suitability of certain trees to the climate. Amongst our English trees that thrive there, are the oak, elm, ash, walnut, willow; the larch, pines, and poplars, however, seem unsuited. The red and blue gums and the blackwood seem to be amongst the most useful indigenous trees. The poisoning of water and air in Melbourne has also been occupying the attention of the Society, and Mr. Gibbons furnishes the report with several well-executed micro-photographs of the water from sewage, and drinking water from the Yan-Zean reservoir, in which forms of life appear in abundance. Numerous other papers of interest appear in the report, and we must congratulate the Society on so good a show of research.

G. M. S.

NOTES

THE Anniversary Meeting of the Royal Society was held on Monday last; the list of the new Council we have already given. Owing to the absence of the President from domestic affliction, the chair was occupied by the Secretary, Mr. Spottiswoode. At the dinner in the evening three members of the Government were present—Lords Carnarvon and Salisbury, and Mr. W. Hunt. Lord Carnarvon in his speech gave out "no uncertain sound" as to what he deemed the duty of Government in the matter of endowment of scientific research; he virtually agreed to all the principles which we have so long and so strenuously advocated. We may therefore hope that the money to be devoted to the new Arctic Expedition is only a first instalment of what the Government think is due by the country to the promotion of directly unremunerative research.

THE command of the Arctic Expedition will be offered to one of those officers who acquired a thorough knowledge, in former expeditions, of sledge travelling, and of the true system of bringing men healthy and cheerful through an arctic winter. Thus it is intended that the present undertaking should start with the advantage of all the practical knowledge and all the experience which was accumulated in the searches for Franklin. It will also be composed of the pick of our educated young officers, and will so combine matured experience with dash and vigour. An important position will, we have no doubt, be offered to Commander A. H. Markham, whose qualifications for the post have already been well tested.

THE Oxford Professor of Geology, Mr. Prestwich, will deliver his inaugural lecture at the Museum on Friday, December 11, at 2 P.M.

THE Cambridge Board of Medical Studies have reported to the Vice-Chancellor that they have been engaged during the present term in revising the regulations for proceedings in medicine, and are desirous of recommending some changes. The Board are of opinion that it is expedient for the University to establish examinations and grant certificates of competency in so much of state medicine as is comprised in the functions of the officers of health. The certificate given to successful candidates should testify only to their competent knowledge of what is required for the duties of an officer of health. The Board recommend the following for the subjects of examination:—

1. Physics and Chemistry. The principles of chemistry and methods of analysis, with especial reference to analyses (microscopical as well as chemical) of air and water; the Laws of Heat, and the principles of Pneumatics, Hydrostatics, and Hydraulics, with special reference to ventilation, water supply, drainage, construction of dwellings, and sanitary engineering in general.
2. Laws relating to Public Health.
3. Sanitary Statistics.
4. Origin, Propagation, Pathology, and Prevention of Epidemic and Infectious Diseases; effects of overcrowding, vitiated air, impure water, and bad or insufficient food; unhealthy occupations, and the diseases to which they give rise; water supply, and disposal of sewage and refuse; nuisances injurious to health; distribution of diseases within the United Kingdom, and effects of soil, season, and climate. The Vice-Chancellor has convened a meeting of general members of the Senate for to-day, in the Arts School, for the discussion of the report.

It will be proposed in a Convocation to be held at Oxford on the 9th of December, that a sum not exceeding 100*l.* be placed at the disposal of Dr. Rolleston, Prof. H. J. S. Smith, and the Rev. Hereford B. George, M.A., of New College, for the purpose of purchasing archæological objects relating to Prehistoric periods, to be placed in the University Museum.

THE following telegram is dated Aden, Nov. 28:—"Letters have been received from Lieut. Cameron to the 16th of May.