

Dr. J. P. van der Stok to the Proceedings of the Royal Academy at Amsterdam, "On the diurnal variation of the wind and the atmospheric pressure and their relation to the variation of the gradient." He criticises the method, adopted in previous investigations, of attempting to determine the variation of the wind from the variation of the gradient of pressure, and, regarding it as too laborious and affected with uncertain errors, attempts to determine the gradient from the observed variation of the wind. It would be interesting to institute a comparison between this method, that of utilising hourly observations of pressure at three stations, adopted by Tsuiji, and the general method based upon the regularity of the semi-diurnal wave of pressure.

Dr. van der Stok finds it convenient to assume that the semi-diurnal variation of the wind has the same phase angle as would be indicated by the theoretical application of the general method, and deduces the value of the coefficient of friction, k , which will ensure agreement between observation and theory in this respect. He then utilises this value of the coefficient to deduce the diurnal variation of the gradient of pressure from the observed diurnal variation of the wind. It seems desirable to consider in this application the difference, emphasised in a recent paper by Sandström, between friction due to motion over the rough surface of the earth and sea and the frictional effect which arises from the difference in direction and velocity between the wind at the surface and that at some distance above it. The results used in the investigation are the hourly observations, presumably estimates and not instrumental records, at de Bilt for five years 1903-1908, and the four-hourly observations at the Terschellingerbank Lightship for 25 years 1884-1908. The values found for k show a general agreement with those found by van Everdingen from the incurvature of the wind at de Bilt, but the value for Terschellingerbank is 50 per cent. larger. The coefficient shows a regular annual variation, with the maximum during autumn and winter, the minimum during spring and summer, an interesting result which ought to be compared with the values for inland stations. The author criticises the results of the analysis at St. Helena, on the ground that the wind-vector turns in a clockwise instead of in a counter-clockwise direction, but a reference to Dines's discussion of these results shows that, except for certain small irregularities in the night, the vector rotates in a counter-clockwise direction throughout the year. The vector of the variation of the horizontal magnetic force at St. Helena rotates in a clockwise direction except in July. E. GOLD.

REPORT OF THE GOVERNMENT CHEMIST.

IN his report upon the work of the Government Laboratory for the year ended March 31, 1911, the principal chemist notes that the laboratory has now been constituted a distinct establishment under the Treasury. This is certainly a more appropriate arrangement than the previous one, under which the control was vested in the revenue authorities, for since the laboratory now serves many other State departments besides the fiscal ones, the control in question had become somewhat of an anachronism.

Last year the total number of samples dealt with was 186,044, as compared with 170,033 in the preceding year. The report describes the nature of these, with explanatory notes and statistics. As usual, they included the most diverse kinds of articles, from "standard" bread to poisoned salmon. From among the items of more or less general interest mentioned in the report we extract the following.

Beer and brewing materials are regularly tested for the presence of arsenic, and 41 out of 638 samples were found to contain arsenic in excess of the prescribed limit. Steps were taken in these cases to prevent the contaminated article being sent into consumption, and to trace the source of the arsenic. Usually this was found in the fuel used for drying the malt.

Two interesting cases of fish-poisoning are noted. In one instance dead trout were found (Kensley Brook, Tamar and Plym District), and analysis of the water showed that the brook had been contaminated with ammonia from a gas works. In the other case dead salmon had been found in the Conway district, and as there are lead mines near it was thought that the fish might have been poisoned by drainage containing lead. On analysis, however, zinc, and not lead, was discovered in the salmon, as also in the river water; this served to indicate the source of the pollution and explain the destruction of the fish.

One curious question referred to the laboratory was whether the composition of a particular clay was such as to distinguish it from the exempted "common clay" of the Finance Act of 1909-10; the report is silent as to the conclusion arrived at. Questions connected with the pigments, paper, and gum used in making postage and other fiscal stamps were also investigated. At the house of a coiner, it is stated, a plate and apparatus were found, all ready for the production of illegal stamps. "His productions were somewhat crude," the principal chemist remarks; "but were sufficiently good to deceive an unobservant person, especially in a poor light."

In connection with dangerous trades a number of pottery glazes were examined. They included a series of forty-eight taken from works where lead-poisoning had occurred, and it is a significant fact that except in two or three cases, practically the whole of the lead in these samples was "soluble" lead. Large proportions of lead were also found in dust collected from various factories, other than potteries.

Space allows mention of only one more of the many interesting matters to be found in the report. A question arose respecting the authenticity of a portion of an "Account Book of Revels" of the years 1604-5, preserved in the Public Record Office. This document is a manuscript containing details of expenses incurred in producing certain plays, including *Othello*, respecting the production of which at so early a date there has been much controversy. Suspicion had been cast upon the manuscript, the suggestion being that the entries in question had been made about forty years ago, just before the book had passed into the custody of the Record Office. "After a searching microscopical and chemical examination of the ink and paper in different parts of the document," the principal chemist was able to report that in the character of the ink, the depth to which it had penetrated, or the degree of fading, there was no evidence whatever of any difference between the impugned writing and that in other parts of the document. C. S.

PRINCE BONAPARTE'S AIDS TO SCIENTIFIC WORK.

THE announcement of the gift of 250,000 francs to the Paris Academy of Sciences by Prince Roland Bonaparte has already been made in these columns. The issue of the *Comptes rendus* of the Academy for November 27 includes a copy of the letter from Prince Bonaparte to the president of the Academy, M. Armand Gautier, announcing his intention, and also the remarks of the president after reading this letter to the meeting of the Academy. A free translation of both is subjoined.

In accordance with a feeling expressed many times, I have arrived at the conclusion that it is not by the institution of new prizes with the conditions of award fixed beforehand that the cause of scientific progress can be served most effectively. Undoubtedly it is an excellent thing to reward good work, but it is of greater importance to encourage the growth of original investigation by removing those obstacles which are apt to paralyse the peace of mind of men engaged in research work, of which the principal is generally the question of ways and means.

Impelled by this idea, I created in 1908 the Fonds Bonaparte. Anxious to continue this work, I am placing at the disposal of the academy a further sum of 250,000 francs, not as a capital sum, but in the form of five annuities, intended to be used at once in the spirit I have indicated; that is to say, putting aside all idea of recompense for work accomplished already, whatever its merit may be, my wish is that this sum may be used to stimulate discoveries by rendering easier the researches of workers in science who, having already given proof of their ability to undertake original work, and not belonging to our academy, lack sufficient resources to undertake or to follow out their investigations.

I therefore ask the academy to allocate in 1912, 1913, 1914, 1915, and 1916 these new annuities in the same manner that it has already, in previous years, dealt with the earlier annuities of the Fonds Bonaparte.

Devoted as I am to all scientific studies, I shall be happy, and my object will be gained, if I can in this way help to increase the amount of positive knowledge.

The president said:—

I do not think I need ask the academy to give its approval to this further liberality that Prince Roland Bonaparte offers us to-day. The academy accepts the gift with gratitude.

Not satisfied with continuing to help, as he has done for the last four years, young men of science who might have been stopped in their researches by material difficulties, our colleague doubles the amount which he places at their disposal by making it 50,000 francs a year for five more years. The number and value of the researches which his gifts have made possible during the four years which are almost at an end lead us to hope that the results will be still better for the new period which begins in 1912.

With its president, the academy and French science thank Prince Roland Bonaparte very heartily for his generosity and invaluable initiative.

NOTES.

WE notice with deep regret the announcement of the death, on Sunday, December 10, at ninety-four years of age, of Sir Joseph D. Hooker, O.M., F.R.S. In the scientific world he occupied a place in the front rank, and his name and work will be permanently prominent in the history of scientific progress in modern times. Thirty-four years ago, on October 25, 1877, an appreciative article on his services to science was contributed to our columns by Prof. Asa Gray in the eleventh article of our series of Scientific Worthies. We need only refer to that article now as an indication of the high esteem in which Sir Joseph's unusual gifts and energies have long been held by those most competent to estimate their value. We hope in our next issue to supplement this article with another, and here only remark that his botanical knowledge was unrivalled, and his work has won the gratitude of the whole civilised world. The announcement was made on Tuesday that the Dean of Westminster had, with the full concurrence of the Chapter, offered to the family to permit the interment of Sir Joseph Hooker's ashes in the Abbey, on the condition that his remains were previously cremated. It would have been appropriate for his remains to rest in the north aisle of Westminster Abbey among those of Newton, Sir John Herschel, Darwin, and Kelvin, and near the memorials of Adams, Stokes, and Joule. The family has, however, felt obliged to decline the offer of burial in the

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Abbey, as it was Sir Joseph's express wish that he should be buried by the side of his father at Kew. The funeral will therefore take place at Kew Parish Church to-morrow (Friday) at two o'clock. It is specially requested that no flowers be sent.

THE list of honours conferred by the King on the occasion of his Majesty's visit to India, and in commemoration of the Coronation, is published in a supplement to *The London Gazette* of December 8. Among the names in the list are those of several people concerned with scientific work. We notice the following in a long list of appointments and promotions:—*K.C.S.I.*: Surgeon-General C. P. Lukis, Director-General, Indian Medical Service. *C.S.I.*: Colonel S. G. Burrard, F.R.S., Officiating Surveyor-General of India; Mr. F. B. Bryant, Inspector-General of Forests to the Government of India; Dr. G. T. Walker, F.R.S., Director-General of Indian Observatories; Prof. J. C. Bose, Presidency College, Calcutta. *K.C.I.E.*: Mr. Eardley-Wilmot, lately Inspector-General of Forests to the Government of India. *C.I.E.*: Major Leonard Rogers, professor of pathology, Medical College, Calcutta, and bacteriologist to the Government of India; Mr. H. H. Hayden, Director of the Geological Survey of India. *Knights Bachelor*: Mr. R. P. Ashton, president of the Mining and Geological Institute, Calcutta; Lieut.-Colonel C. H. Bedford, Chemical Examiner, Bengal.

THE Nobel prizes were distributed by the King of Sweden on December 10. Three of the prize-winners—Mme. Curie (chemistry), Prof. W. Wien (physics), and Prof. A. Gullstrand (medicine)—were present personally to receive their prizes.

WE regret to announce the death, on December 11, after a very short illness, of Mr. William Thynne Lynn. The son of a physician in Westminster Hospital, he was born at Chelsea in 1835. He was for a short time assistant in the Cambridge Observatory, and was assistant at the Royal Observatory, Greenwich, from 1856 to 1880, when he retired from official duties. He was elected a fellow of the Royal Astronomical Society in 1862, and contributed several papers to the *Monthly Notices*. In 1900 he became a member of the British Astronomical Association, was the author of many papers in its *Journal*, and was a member of the council at the time of his death. He was associated with Prof. D. P. Todd in the authorship of "Stars and Telescopes," and, among other works, wrote the popular little treatises "Celestial Motions," "Remarkable Comets," and "Remarkable Eclipses," each of which ran through several editions. He was a constant contributor to *The Athenaeum*, *Observatory*, and other journals, principally on subjects connected with the history of astronomy and the calendar, and occasionally contributed to our pages. His knowledge of astronomy generally, and especially of its history, was unusually extensive. On subjects connected with chronology he was also extremely well informed, and was always ready to place his knowledge at the service of others.

WE regret to learn of the death of Mr. H. Snowden Ward, which took place in New York about a week ago, after an exceedingly short illness. Mr. Snowden Ward was a journalist and publisher who was well known in this country as being energetically interested in all branches of photography, but especially in the progress of methods of photomechanical reproduction, and, later, in the advance of pictorial photography. His endeavour to get the word photograph, when used as a substantive, replaced by "photogram," which he maintained was more correct, was always kept to the front by the name of his monthly