

and Mr. Bonacina is in full agreement with the trend of modern ideas in emphasising the importance for health of frequent contrasts of weather, and especially of temperature and wind. He ends on a practical note by insisting that the open-air study of weather and especially clouds also makes for health by training the powers of observation and inference. Forecasts 'on tap' by wireless are a very good thing, but there are occasions, for example in mountaineering, when much discomfort or even risk might be avoided by the ability to foresee a storm an hour or two ahead.

Meteorology of Southern Rhodesia

THE annual report of the Meteorological Department of the Department of Agriculture of Southern Rhodesia for the year ended June 30, 1934, follows the general lines of previous reports (Salisbury: Department of Agriculture, 1934). In the rainy season of 1933-34, as in that of the preceding season, there was substantially less rain than usual, although the formula used for predicting the season's fall had indicated an excess of rain. During the five years for which this computation has been made, this was the first occasion on which the sign of the departure from the normal was not correctly given by the formula. An Aircraft Weather Service that had been organised for Imperial Airways operated satisfactorily during this year, and it was decided to extend the service to all aircraft. Arrangements were made to transfer the observatories at Salisbury and Bulawayo to the aerodromes, where they will be maintained by a staff of two, who will prepare regular weather reports and forecasts, and make observations of the upper winds. According to the report, the provision of an adequate weather service for aircraft is now regarded as the most important function of the Meteorological Department. The number of tables in the report has been reduced owing to financial stringency; but among those included is an interesting one showing the average Rhodesian rainfall for thirty-six years. In the first season, 1898-99, the fall was based on the records of seven rain-gauges, and in the most recent (1933-34), on three hundred and forty-four.

A Totalising Anemometer

IN the *Hydrographic Review*, 12, No. 1, Dr. J. N. Carruthers describes a suggested totalising anemometer for oceanographers, the records of which he considers likely to be of value in climatology. Although the ordinary Robinson anemometer is a totalising instrument in so far as it registers the number of miles and fractions of a mile of air that have flowed past the anemometer in a given time, it does not distinguish between the different wind directions, and its records can only be used for obtaining the total run in particular directions in the case of the more complicated self-registering form of this instrument that records automatically both the run and the direction, and then only after laborious calculations. In the instrument described by Dr. Carruthers, a wind vane is used which rotates a vertical rod

bearing at its lower end a circular tank divided radially into eight equal compartments, each of which has a draw-off tap. A separate mast carries a 4-cup anemometer which makes and breaks an electric circuit after a certain run of wind past the cups. When the circuit is made, it energises a solenoid and the latter rocks a small pipe which is pivoted on the rim of a tank in which water is maintained at a constant level by means of an ordinary ball valve. This pipe carries a dipper which delivers a definite quantity of water through it into whichever of the eight compartments of the circular tank is beneath at the time. At the end of a period of observation, the total run of air in each of the eight directions is readily obtained by drawing off and measuring the quantity of water in each compartment.

Co-ordination of Scientific Surveys

AT the recent meeting at Norwich of the British Association, Mr. E. Wyllie Fenton made an interesting plea, in a paper read before Section K (Botany), for the extension and co-ordination of the existing Ordnance and Geological Surveys into a wide body to carry out periodic surveys not only of topography, rocks and soils but also of vegetation, agriculture and animal life. Mr. Wyllie Fenton's illustrations of the wider need were mainly botanical, as for example, the invasion of valuable land in Scotland by bracken moving downhill to the better land "like a series of plant glaciers", and the association of this fact with changes in land settlement and agricultural practice. A plea was advanced for a prompter recognition of these significant changes in vegetation and in the results of changes in population, distribution, etc., with the argument that a more scientific utilisation of the land, in housing development, in agriculture and in forestry, etc., would be possible if such a general scientific survey service provided the data. Mr. Fenton recognises, however, the ambitious nature of such a proposal, and suggests that a start might be made by the attachment of a few botanists to the Geological Survey.

Metals in the Chemical Industry

IN his Jubilee Memorial Lecture of the Society of Chemical Industry delivered before the Yorkshire Section at Leeds on November 6, Dr. C. H. Desch took as his subject "Metals in the Chemical Industry". The range of both ferrous and non-ferrous metals available for the purposes of chemical industry has been immensely widened in recent years. Resistance to chemical attack is one of the first considerations, and as no one material is resistant to all chemical agents, a choice must be made in each instance, for which ample data now exist. Corrosion fatigue, caused by the simultaneous action of fluctuating stress and of a chemical agent, is quite different from the sum of the actions of fatigue and corrosion, and is responsible for many unexpected failures. Special conditions arise where high temperatures and pressures are involved. Resistance to 'creep' is required as well as chemical resistance, and internal changes may cause progressive weakening. Not only chemical

composition, but also texture, determine the degree of resistance to all these factors. The qualities of metals required for chemical purposes may be improved by (a) the elimination of impurities, (b) adding other metals in such quantities as to produce substantially new alloys, or (c) adding very small quantities of foreign elements which produce an effect great in proportion to their amount.

Neolithic Camp in Sussex

DISCOVERIES which will have a bearing of no little importance on the future study of the neolithic age in Britain are reported from Whitehawk Camp, near Brighton. Mr. E. Cecil Curwen, acting on behalf of the Sussex Archaeological Society, with the assistance of Miss Leslie Scott, who has worked at Maiden Castle, Dorchester, has held an archaeological watching brief while the Corporation of Brighton has been engaged in constructing a road across the camp. Whitehawk Camp, which is scheduled under the Ancient Monuments Acts, is one of the largest and best surviving specimens of the neolithic camp of concentric interrupted ditches. In places, the original ramparts still stand seven feet high. The line of the road cuts the line of all four ditches on both sides of the camp, and these are now being cleared down to the bottom and the original chalk. According to a report in *The Times* of November 4, up to the present, the inner ditch has proved rich in neolithic pottery, also yielding great quantities of animal bones, flint flakes, saws, scrapers and a flint axe. Two small pits full of neolithic pottery and animal bones appear to be unconnected with the ditches. Another interesting discovery is a piece of chalk scored with a chess board pattern, similar to a device found on the wall of a pit shaft on Harrow Hill, near Cissbury. Several post-holes on the ramparts appear to have supported palisades, and a similar structure is indicated as forming a side wall to the entrance passage through the outer rampart. These are unique in British neolithic camps. The pottery, which is of modified Windmill Hill type and a type with whipped cord impressions, suggesting Peterborough ware (Neolithic B), should prove an important addition to existing material.

Etruscan Forgery in the British Museum

MEMORIES of an ancient controversy are revived by the action of the Trustees of the British Museum in withdrawing from exhibition in the Department of Greek and Roman Antiquities at Bloomsbury the widely known "Cervetri Sarcophagus". The revived and extended interest in Etruscan antiquity, marked especially by the recent publication of Dr. D. Randall-MacIver's researches in the history and affinities of Etruscan culture, is, no doubt, largely responsible for the removal of a piece of which the antiquity and authenticity can no longer be held to be a matter of question, in view of the more critical examination to which details of design, structure and style can now be submitted in the light of greatly extended knowledge. Doubt as to the genuine character of the sarcophagus, indeed, was raised very soon after its acquisition by the British Museum as part of the

Castellani collection in 1873; and it was pointed out in March of the following year that the inscription on its lid was derived in part from a gold brooch in the Louvre, while another inscription, which had been misread, was indicated later as another possible source. The spurious character of the inscription has been admitted even by some who were prepared to argue for the sarcophagus as a genuine ancient example of Etruscan art. Now, however, the recognition of anachronistic and incongruous details in form and design stamp it as a forgery beyond dispute. There can be little doubt that the story to which reference is made in *The Times* of November 2 embodies the truth which came out in the quarrel between the brothers Pennelli, of whom Enrico, employed at the Louvre, boasted that he had made the sarcophagus, while Pietro had sold it to Castellani, stating that he had excavated it at Cervetri. It is unfortunate that the inquiry demanded by Sir Charles Newton, keeper of the Department at the time, was not pressed home.

The Realm of the Stars

The Realm of the Stars, or *Rise Hvezd*, is the title of a monthly journal edited by Dr. Hubert Slouka and published by the Czechoslovak Astronomical Society, which now has more than a thousand members. One of the objects of the Society and its journal is to encourage a wider appreciation of astronomy among educated Slav peoples, and from the journal it is evident that Czechoslovak astronomers are familiar with modern progress and with the latest instruments in use elsewhere. In the last few issues of the journal there are recent photographs showing the appearance of the moon's surface, some spectrographs taken in Czech observatories and a number of illustrated semi-popular contributions and reports. One issue is mainly devoted to the proceedings of the international astronomical meeting held in Paris during July. Czechoslovak astronomers have interested themselves in such subjects as sunspots, the atmospheres of planets, and celestial bombardment. In the annual report for last year it is stated that 11,797 people and 130 school groups visited the Štefánik Observatory, near Prague. The Society also has observatories and branches in several provincial centres, and noteworthy observations from these groups are reported in *Rise Hvezd*, but being in the Czech language they can appeal only to their own members and, in a limited degree, to colleagues in other Slav countries.

Nature Protection in Poland

A CENSUS of the wild creatures in the famous Polish National Park of Bialowicza gives the present numbers as 4 wolves, 9 lynx, 3 otters, 5 martens, 4 foxes, 5 badgers, 82 wild boars, 29 stags, 72 roebucks and many hares (*Quarterly Information Bulletin concerning the Protection of Nature in Poland*, 5, II; 1935). In the Park, there now exist 17 European bison, including half-bred individuals, and in Poland as a whole there are 21 of pure breed, out of the 70 known to exist in the world. The State Council for the Protection of Nature in Poland has issued three