

or 'ramble'". From the wording of the report the reader might suppose that the term 'ramble' is confined to this particular coal, but as a matter of fact it is a generic term for any thin bed of shaly matter that comes down when the underlying coal is worked. Thus in the "Glossary of Terms used in the Coal Trade of Northumberland and Durham", by G. C. Greenwell, the first edition, published in 1849, defines ramble as "A thin stratum of shale, often found lying immediately above the seam of coal. It falls down, and, getting mixed with the coals, causes some trouble to the hewer, in getting it separated and cast back." Seeing that this coal, although described as dirty coal, is stated to have contained in one place as much as 69 per cent of ash, whereas one of the bands of shale contains only 46 per cent, it is obvious that this band might fairly come within Greenwell's definition. Perhaps the most interesting statement in the report is that the authors find "the coking properties of the seam to be weak, but not non-existent"; seeing that Northumbrian coals are generally supposed to be non-coking, this statement is a very important one, and leads to the inference that the Yard Seam shales may be useful for blending with more strongly coking coals in order to produce a good metallurgical coke.

Cormorant Fishing in China

It is sometimes said that since the neolithic age man has made no progress in domesticating wild creatures, except for the improvements made in the breeds of animals domesticated at that time. But the domestication of the cormorant in China belongs to a much more recent period. The story has been worked out in detail by Berthold Laufer of the Field Museum of Natural History, Chicago (*Field Museum Publication* 300, Anthropological Series, vol. 18, 1931). The earliest mention of the use of trained cormorants for fishing refers to Japan and dates from about A.D. 607, when, presumably, such use was unknown in China. Yet the trained cormorants of Japan are scarcely more domesticated than the English cormorants which James I. delighted to watch, and for whom he appointed a 'master of the royal cormorants'. In China the birds are completely domesticated, being bred and reared in captivity, so that they become perfectly submissive to their masters, whose commands they understand, and whom they obey with the readiness and docility of a dog. Characteristic of their domestication is the appearance amongst them of colour varieties, particularly of albinistic and pied individuals. Their eggs are always hatched by domestic fowls and not by the cormorant mother, and the young are fed on special foods until the period of their training for fishing begins, and this lasts for seven or eight months.

Investigations of Isotopes in 1931

In the *Berichte der deutschen chemischen Gesellschaft* for January 1932 will be found a report by Prof. O. Hahn upon the progress made during the year 1931 in the investigation of isotopic forms of the elements. In a footnote it is explained that the German Chemical Society has arranged for the continuation of such reports upon this subject until

such time as an international commission shall have been set up for the purpose. The present report supplements the last biennial report, published in London nearly a year ago in the *Annual Reports of the Chemical Society*. After referring to the new determination by Meeke and Childs of the relative proportions in oxygen of its isotopes, and to the desirability of retaining oxygen for the present as the standard in estimating atomic weights in spite of its complex nature, the author of the report reviews the latest developments obtained by means of the mass-spectrograph and of band spectra. Two useful tables are appended, containing respectively a list of sixty-three elements, which have hitherto been examined, together with their isotopes, and a list of no fewer than thirty-six pairs of isobars of non-radioactive elements.

American Geophysical Union

THE *Transactions of the American Geophysical Union* (published by the National Research Council) at its twelfth annual meeting, on April 30–May 1, 1931, appeared in June. This promptness, due to the able organisation of the secretary, Dr. J. A. Fleming, and to the use of direct reproduction from typescript, much enhances the value of the report. From its 227 pages geophysicists elsewhere can obtain a rapid and comprehensive view of the large amount of work in this field now being done in the United States and, to a certain extent, in Canada and Mexico. The general assembly was mainly devoted to a symposium on time-signals; most of the work of the meeting is done in the seven sectional meetings. In seismology, the papers related chiefly to the development of new or improved instruments; in meteorology, to the work of the International Polar Year; in terrestrial magnetism and electricity, including radio work, the papers were very numerous and covered a wide range of subjects; in oceanography, the reports of many institutions on their past work were the main subject of discussion; hydrology forms a separate section, and had a long and varied programme; and there were a few papers on volcanology.

Apparatus for Absorption Spectrophotometry

MESSRS. Adam Hilger, Ltd., have published an interesting booklet dealing with the outfits they supply for absorption spectrophotometry in the visible and ultra-violet regions. The most important new instrument which is described is a form of ultra-violet spectrophotometer, working on the principle of the variation of the aperture of the beam, for which the name Spekker has been registered. This has been designed primarily for use with Hilger's medium quartz spectrographs, but may be attached to any similar instrument of sufficiently great aperture. Judging by the description of the instrument, and by a specimen set of absorption photographs for benzene in hexane, this should be both highly convenient to use and accurate in the results it yields. A photoelectric outfit is also described, although not very enthusiastically, the opinion being expressed that the use of a photoelectric cell in place of the eye or a photographic record diminishes the likelihood of a number of important sources of error being recognised, so that