

I wonder if the difference of usage is related to the different source of the first immigration in the two parts of the country. New England was peopled from England and by Puritans—my own town was incorporated in 1717, long before the Presbyterian and Methodist immigrations, and still has a large proportion of the old stock. But the middle west had a substratum of Scotch, Scotch-Irish, and other Methodists and Presbyterians, dominating the New England overflow of Puritan stock. No doubt they brought different words, from a different part of Britain.

W. M. T. M. FORBES.

Ithaca, N. Y., U.S.A.,
June 19.

The Electromotive Behaviour of Single Zinc Crystals.

TO NATURE of Jan. 12, 1929, p. 49, Paul A. Anderson communicated some measurements of his on the potentials of single crystals of zinc. The investigation of a possible change of the electrochemical potential with the changing density of zinc atoms on different planes of the crystal was also the aim of an experimental research commenced in October 1928 in the Physicochemical Laboratory of the University of Latvia, in Riga, and is now in progress. The results obtained here do not agree with those of Anderson in so far as no difference could be found in the potentials of different, artificially prepared planes of single crystals of zinc against a neutral zinc sulphate solution. It must be admitted, however, that pyramidal faces were not investigated.

Each experiment consisted of four measurements on four planes ((0001), (10 $\bar{1}$ 0), (11 $\bar{2}$ 0) and poly-crystal), which had undergone exactly the same previous treatment. The four electrodes were submerged to the same depth in the same vessel and measured against a calomel electrode.

In all cases the potential varied with (a) composition of the electrolyte: saturation with hydrogen increased the potential towards the less noble potentials as compared with oxygen saturation, addition of minute traces of acid greatly decreased the potential; (b) previous treatment: mechanical hard treatment, etching with very dilute and dilute acids, anodic treatment. But at the same time the four different planes showed no systematic difference in potential between themselves. This seems to be due to the following reasons:

1. Mechanical treatment (rubbing with emery, polishing, filing) disintegrates the ideal crystallographic planes. The resulting structure is indefinite and shows no differences of potential.

2. Etching with dilute acids after mechanical treatment attacks the surface very unevenly and no definite plane results.

3. The plane of etching does not develop parallel to the original plane when the surface of the crystal is etched anodically or with more concentrated acids strongly enough to show the structure of the crystal. This is particularly marked for the pyramidal faces investigated by Anderson and is not true for the basis plane. The consequence will be that several crystallographic faces will be present and the potential of the least noble face will be obtained.

The same equality of potential on the three different crystallographic planes was obtained for single crystals of zinc-cadmium (up to 0.2 per cent cadmium) alloys in neutral solutions (cf. *Zeitschr. für anorg. und allgem. Chemie*, **180**, 1; 1929).

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No. 3115, Vol. 124]

Preservation of Animal Remains.

IN a belated copy of NATURE, dated Jan. 12, which reached me a short while ago, I read with much interest a review of a recent work written by Prof. Weigelt. In that review, entitled the "Preservation of Animal Remains", Prof. Watson enumerates modes of death which are "likely to affect large numbers of individuals at the same time". To those given the following may perhaps be added.

Geological work on the eastern edge of the Ufipa Highlands, south-east of Lake Tanganyika and a few miles from the western fault line of the Rukwa Trough or Rift Valley, has brought me into conversation with others who have an intimate acquaintance with this country. A member of the Brotherhood of White Fathers, Père Pourvoyeur, recently informed me of the effect of a strong wind from the south-east on Lake Rukwa. As may be seen on any good map, the lake is topographically prolonged in a northerly direction as a very flat plain, obviously a continuation of the area now covered by water, and recently part of the lake bottom. As an eye-witness, Père Pourvoyeur described how a strong wind from the south-east forced the waters of the existing lake over the flats, carrying both fish ('Siluridés') and crocodiles with it. The cessation of this wind and the consequent retreat of the water left very large numbers of fish and reptiles to die.

From the geological point of view, a difficulty is the sufficiently rapid entombment of the bodies before total decomposition had destroyed everything, a difficulty seemingly equally applicable to the instance of Smithers Lake quoted by Prof. Watson. During some geological periods, the rate of sedimentation may have been much more rapid than any known at the present time, except in peculiar circumstances as an abnormality. At Kindope, north of Tendaguru Hill, the skeletons of a herd of reptiles were unearthed in a relatively small space by the German expedition which first worked that celebrated locality in Tanganyika Territory for Deinosaur remains. The enclosing silts are frequently false-bedded on a very small scale; the planes of lamination change direction three or four times in a few inches, suggesting the swirling action of a slowly moving quicksand. At Tendaguru also the occurrence of large isolated bones surrounded by fine-grained sands and silts implies, during the time of deposition, that the sediments had a consistency approaching that of cream. These would constitute cases where large numbers of individuals "have an exceptionally favourable chance of being preserved".

JOHN PARKINSON.

Ufipa Highlands,
Tanganyika Territory,
April 26.

Kinematographic Record of Sunrise on the Moon.

ON the night of May 17-18, 1929, between 1.5 h. and about 5.5 h. Greenwich civil time (18 d.) a moving picture was made here of the lunar crater Copernicus, showing changes in the shadows at sunrise. A Victor kinema camera, using amateur-size film (16 mm.), was employed, attached in the focal plane of the 23-inch refractor (30 feet focal length) of the Princeton University Observatory. A yellow Wratten filter No. 45 was inserted about 15 inches ahead of the film. Exposures were made every 6 seconds, approximately, for about 4 hours, on Agfa negative film. The duration of each exposure was about 3.8 seconds, controlled by the rotating camera shutter (sector opening 200°), which was driven by a belt from a light electric motor carried in the same aluminium frame.