

It is true that progress was made in certain directions during the "millenary period of stagnation," for example, the improvements in mathematics due to the Arabs. Yet the main fact in the re-birth of science in the sixteenth century is the discovery of the work of the Greeks, especially in geometry, astronomy, and geography. Descartes goes back to Pappus, Copernicus to Aristarchus, Toscanelli to Ptolemy. There is no question that in the general spirit with which the medieval mind regarded Nature there was retrogression, and that the Greek mind did come to life again at the Renaissance, partly in its broader quality of rational inquiry, partly in the actual works of Greek thinkers.

F. S. MARVIN.

German Book Prices.

IN reference to Prof. Browning's letter in NATURE of December 23 (vol. 110, p. 845), I should like to point out an added difficulty in India and Burma. Not only are exorbitant prices charged for German books, but to the majority of our students such books are useless owing to their ignorance of the language. The Indian or Burmese student already has to learn English in order to study chemistry, and to ask him to learn German as well is too great a handicap and should be unnecessary.

The appearance of certain recent works on inorganic chemistry shows that British chemists are capable of compiling exhaustive treatises, and a dictionary of organic chemistry in English would be invaluable. The Society of Dyers and Colourists is preparing a colour index, and the combined strength of the Chemical Society and Institute of Chemistry should be able to produce a work on organic chemistry which would enable Indian or Burmese students to carry out research in organic chemistry without constant reference to German works.

D. H. PEACOCK.

University College, Rangoon,
February 2.

Single Crystals of Aluminium and other Metals.

THE brilliant account given by Mr. G. I. Taylor at the Royal Society (February 22) of the deformation of single crystals of aluminium leads me to direct attention to work done in this laboratory ten years ago by Mr. B. B. Baker and Dr. E. N. da C. Andrade. Mr. Baker showed that sodium and also potassium cylinders when stretched contracted laterally so as to lead to an approximately elliptical section, and when they broke they did so at a chisel edge. The surfaces are marked with a double set of slip lines. A photograph of the appearance is shown in the Proceedings of the Physical Society of London for 1913.

Dr. Andrade, who was experimenting at the same time on the traction of metals, showed that similar results were obtainable with tin and lead, and also with frozen mercury (*Phil. Mag.* 1914). He concludes that they are due to large uniform crystals of a size comparable with the diameter of the rod. From the regularity of behaviour over a length of several centimetres it may be concluded that both were dealing with single crystals several centimetres long in the case of each of these materials—at any rate in the same sense as that in which the crystals of aluminium are spoken of as being single.

The crystals of sodium are still in my possession, having been carefully preserved in anhydrous paraffin. They show the characteristics, even the fine surface

markings, practically as well as when they were drawn.

ALFRED W. PORTER.

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London, February 26.

Paradoxical Rainfall Data.

AT Blue Hill careful measurements of rainfall have been made for thirty-seven years. There is no break in the record and the amounts are checked by more than one gauge. Data for the entire period 1886–1922 are given in Blue Hill Meteorological Observations. The average monthly values are:

January . . .	101.1 mm.	July . . .	104.1 mm.
February . . .	101.0 "	August . . .	100.8 "
March . . .	109.2 "	September . . .	103.1 "
April . . .	94.1 "	October . . .	96.4 "
May . . .	94.0 "	November . . .	97.7 "
June . . .	86.3 "	December . . .	97.9 "
Year . . .			1185.7 mm.
Month . . .			98.8 mm.

The driest month is June and the wettest is March. Yet the driest month in the whole period was March 1915, when the total rainfall was only 1 mm. What is equally remarkable, the wettest month was June 1922, when 274 mm. fell. It is difficult to explain these rainfalls on any theory of probability. The June rainfall was not due to abnormally heavy showers.

ALEXANDER M'ADIE.

Harvard University,
Blue Hill Observatory,
Readville, Mass., February 19.

Atmospherics.

MANY who have "listened in" must have been much interested by the peculiar sounds the telephone generally emits, in addition to those produced by the waves from the broadcasting station. Although atmospherics are produced by the electric discharges during thunderstorms, many would appear to have a very different origin.

In the discussion of a paper on "The Study of Radio-telegraphic Atmospherics in Relation to Meteorology," by C. J. P. Cave and R. A. Watson Watt (*Journal of Meteorological Society*, January 1923, pp. 35-42), Mr. L. F. Richardson asked Mr. Watson Watt "if he could explain the origin of the peculiar atmospherics which were experienced at Eskdalemuir on the telephone, which was connected with an overhead wire in a lonely valley. In addition to the ordinary clicks there was a 'swishing' sound. The frequency of the vibration diminished as the swish went on. This property was characteristic of the sound of a shell passing high overhead. Mr. Richardson had the idea, perhaps a mad one, that the swish might be produced by a meteorite."

Many of the atmospherics I have heard have had this character, and it may be suggested that the idea that they are produced by very small meteorites is not quite such a mad view as would at first appear.

In the higher atmosphere, there may be a very considerable electric potential gradient, and if a meteorite, entering it, ionised a path in it, an electric discharge might occur along this ionised path sufficiently strong to give off electric waves. There is indeed reason to suppose that the direction from which the waves come is influenced by variations in the sun's position (R. A. Watson Watt, *Proc. Roy. Soc.*, vol. 102, 1923, p. 460).

R. M. DEEBLY.

Tintagil, Kew Gardens Road,
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