

Hudson brings forward evidence, which appears to be quite conclusive, that the interpretation of this point as marking the decomposition of the  $\beta$  phase of brass into  $\alpha + \gamma$ , which has been elaborated by Prof. Carpenter in a series of papers, is erroneous, and that the  $\beta$  phase merely undergoes a polymorphic change from  $\beta$  to  $\beta_1$ . A striking method of proof adopted by Mr. Hudson is that of preparing a series of alloys in a single piece of metal by the method of superposition. By superposing molten zinc on a layer of solid copper, the alloys can be formed at a temperature below  $460^\circ \text{C}$ ., and yet a phase which corresponds to  $\beta$  makes its appearance. If what Carpenter has called "apparent  $\beta$ " were really unstable below  $460^\circ \text{C}$ ., it could never be produced synthetically below that temperature.

Equally interesting from another point of view is the paper, and resulting discussion, by Mr. Arnold Philip dealing with the causes of corrosion in condenser tubes. In the recent Report to the Corrosion Committee of the Institute of Metals, Dr. Bengough and Mr. Jones had been led to reject entirely the view that particles of foreign matter, such as coke, which might set up local electrolytic effects, could thereby accelerate local corrosion and produce "pitting." Mr. Philip traverses this conclusion, and suggests that it was reached on insufficient evidence, while he adduces positive evidence to show that particles of coke can cause local pitting. While such divergence of views among those studying these matters is somewhat unfortunate from the point of view of the practical man seeking guidance for his practice, it serves to show the great need which exists for the further exhaustive investigation of such fundamental questions, and at the same time demonstrates the useful work of the Institute of Metals in encouraging such work and providing a meeting ground for full and—fortunately—dispassionate discussion.

Further papers of special scientific interest are those by Mr. S. W. Smith on the surface tension of molten metals, by Mr. Phelps on the effect of hydrogen on the annealing of gold, and by Messrs. Bengough and Hanson on the tensile properties of copper at high temperatures. In a "Note" Prof. Huntington also deals with the tensile properties of metals at high temperatures, but while Bengough and Hanson find in their results strong support for the theory that the crystals of a metal are held together by something of the nature of an amorphous cement, Huntington urges somewhat vague objections to that view.

Another "Note," contributed by Prof. Carpenter, deals with "The Extraction of Native Copper at Calumet, Lake Superior"; while in itself not uninteresting, it is difficult to understand why this note has been included in the Journal of the Institute of Metals, since it deals with a subject outside the scope of its work and coming well within that of the Institution of Mining and Metallurgy. Although unimportant in itself, such a departure from accepted limitations causes confusion when references have to be looked up.

#### RECENT WORK ON INVERTEBRATES.

THE journal of a college of agriculture is about the last kind of periodical in which we should expect to find descriptions of deep-sea cephalopods. Nevertheless, three out of the four articles constituting the contents of the seventh number of vol. iv. of the Journal of the College of Agriculture, Imperial University of Tokyo, are devoted to new and rare species of squids, the remaining communication dealing with the eels of the Japanese, Corean, and Formosan seas. In the first of the three articles on

squids, all of which are very fully illustrated, Mr. C. Ishikawa describes a new species of the genus *Enoplateuthis* from the Japan Sea, while in the second Messrs. Ishikawa and Wakiya treat of a number of fragments of a gigantic species taken from the stomach of a sperm-whale. The latter is identified with *Moroteuthis robusta*, of which it forms the fifth known example; in the third article the last-named writers describe a new species of the same genus under the name of *M. loennbergi*.

In an article, illustrated by one coloured and four black-and-white plates, in the February number of the *Entomologist's Monthly Magazine*, Dr. T. A. Chapman describes the larva of the butterfly *Everes argiades*, with figures, not only of the entire caterpillar, but also magnified representations of the shed skins at various stages of development. In the same issue Dr. D. Sharp continues his account of the beetles of the group *Holophorini*, dealing in this instance with the structure in the genital tube known as the *ædeagus*, which, as exemplified in *Meghelophorus aquaticus*, is described in great detail.

Aberrant modes of reproduction in certain well-known insects, such as the blue oil-beetle, the parasitic genus *Stylops*, and the vine-phylloxera, form the subject of an illustrated article by Mr. W. M. Scheyen in the January number of *Nature*. A continuation is promised.

Writing in the January number of the *Zoologist* of non-sexual reproduction in sea-anemones, as observed at the Millport Marine Biological Station, Mr. R. Elmhirst remarks that although division is usually completed in a few days or weeks, especially among the members of the genus *Anthea*, yet that he has seen instances in which "double" individuals of *Actinoloba* showed no change during a period of several months. He also records a case in which an *Actinia* with two complete discs, mouths, and rings of tentacles retained the same form for close on four years in an aquarium. Possibly, of course, the somewhat unnatural conditions in such an environment may be a factor in these cases.

In *Spolia Zeylanica*, vol. x., part 36, Mr. A. Rutherford mentions that the females of a "glow-worm" (*Dioptoma adamsi*), in addition to the usual terminal light, have a number of other luminous points, apparently arranged in ten transverse rows. Somewhat similarly situated points of light also occur in the smaller males.

In the February number of the *Irish Naturalist* Mr. A. W. Stelfox gives a list of land and fresh-water molluscs from the Dingle Promontory, Kerry. Seventy-four indigenous species are recognised.

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#### MINERAL STATISTICS.<sup>1</sup>

PROBABLY the first point that will strike the student of mineral statistics when he sees the report now before us is the extreme dilatoriness of our Home Office. This report, which covers the mineral statistics of the world up to the end of 1912, was not published until the end of 1914; the Chief Inspector endeavours to excuse this delay by a reference to the lateness of the publication of official foreign statistics, but it is a significant fact that a private firm in the United States of America issued a large volume covering the world's mineral statistics for 1913 in July last, so that our own official production is no fewer than eighteen months behindhand. Statistics of mineral production are practically valueless unless they are published promptly, and all the

<sup>1</sup> "Mines and Quarries. General Report with Statistics for 1912." By the Chief Inspector of Mines. Part iv., Colonial and Foreign Statistics.