rank as the standard tests, and so introduce order into the existing confusion, and make the future results of different workers in this field comparable with one another. The principal difficulty to which the authors address themselves is the selection of materials and conditions which can be described with such scientific precision as to be reproducible from the mere description by any other worker. For example, in a specially difficult test to standardize, that for sensitiveness to faint colors, the authors use aqueous solutions of analin dyes; light passes through the solutions, under definite conditions, to the subject's eye, and his sensitiveness is measured by the strength of the weakest solution in which he detects the color. This seems, on the whole, the most ingenious of the authors' innovations, of which there are many. In addition to determinations of the least noticeable sensations and differences in sensation, the authors suggest a system of tests on memory, association, imagination, judgment, reasoning, attention, etc. They frankly point out the gaps in their system, which they are as yet unable to fill satisfactorily. A chapter is devoted to the general technique of experimentation, the necessity of noting the condition of the subject, and of excluding certain subjects as unsuited to psychological tests, the proper attitude toward working hypotheses and toward the literature of a question, the necessity, in addition to quantitative tests, of less rigorous observation, which should, however, be brought up as nearly as possible to the exact standard of experimentation. An appendix of sixty pages is devoted to the reprinting of tests which can be fully presented in alphabetical or musical notation.

In view of the slack attention to standard conditions that characterizes much work in psychology, this book should do considerable good. As the most serious attempt to present a standard series of tests, it is worthy of attention and a large measure of acceptance. It can not hope, of course, to be definitive, and, indeed, the authors repudiate any such claim. More is to be gained, perhaps, by insistence on the general principle of standard and exactly reproducible conditions, than by the conformity of all workers in the field to any one set of tests.

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SCIENTIFIC JOURNALS AND ARTICLES.

The first number of *Economic Geology,* a semi-quarterly journal devoted to geology as applied to mining and allied industries has been issued under the editorship of John Duer Irving, of Lehigh University. The associate editors are: Waldemar Lindgren, Washington, D. C.; James Furman Kemp, Columbia University; Frederick Leslie Ransome, Washington, D. C.; Heinrich Ries, Cornell University; Marius R. Campbell, Washington, D. C., and Charles Kenneth Leith, University of Wisconsin. The contents of the first number are: 'The Present Standing of Applied Geology,' Frederick Leslie Ransome; 'Secondary Enrichment in Ore-Deposits of Copper,' James Furman Kemp; 'Hypothesis to Account for the Transformation of Vegetable Matter into the Different Varieties of Coal,' Marius R. Campbell; 'Ore-Deposition and Deep Mining,' Waldemar Lindgren; 'Genesis of the Lake Superior Iron Ores,' Charles Kenneth Leith; 'The Chemistry of Ore-Deposition—Precipitation of Copper by Natural Silicates,' Eugene C. Sullivan; Editorial; Discussion; Reviews; Recent Literature on Economic Geology; Scientific Notes and News.

The American Museum Journal for October is termed the Batrachian Number, its major portion being devoted to an illustrated synopsis of the salamanders, toads and frogs that have been found within a radius of fifty miles of New York City. The text is by R. L. Ditmars, illustrations from photographs by Herbert Lang, mainly of animals living in the New York Zoological Park. W. M. Wheeler tells 'How the Queens of the Parasitic and Slave-making Ants establish their Colonies,' and announcements are made of three courses of lectures, for members, pupils and teachers, in October–December. There are, besides, many notes concerning additions to the collections and other features of interest at the museum. The figures of the batrachians are

excellent, the nearly life-size picture of a bull-frog that forms the frontispiece being particularly fine.

THE special feature of the *Zoological Society Bulletin* for October is the announcement of the reception at the park of a young African elephant of the small-eared species, from West Africa known as *Elephas cyclotis*. Few realize that specimens of the African elephant are far more uncommon in this country than mastodons and it is quite probable that this specimen is the first of the species seen in the United States. Other interesting animals on exhibition are the great anteater, echidna, crested screamers and ruffs.

The Museum News (Brooklyn) for October has for its longest article an account of the rearrangement of the insect room at the Children's Museum, to better adapt it to the needs of teachers and children. The collections comprise a very considerable number of the local insects, examples of the largest and smallest insects in various orders, and instances of striking differences between the males and females. These are supplemented by small groups showing life histories, interesting habits, protective coloration and mimicry. There is an extended series of lectures at the Children's Museum for pupils. Various changes are noted at the Central Museum, in the main already announced in SCIENCE. An interesting addition to the collection illustrating variation is a group of eleven ruffs, *Pavoncella pugnax,* in full breeding plumage, showing the striking differences found among these birds.

SOCIETIES AND ACADEMIES.

THE AMERICAN CHEMICAL SOCIETY. NEW YORK SECTION.

THE first regular meeting of the season was held at the Chemists' Club, Friday evening, October 6, 1905. The program of the evening was as follows:

R. H. WILLIAMS and H. C. SHERMAN: *The Detection, Determination and Rate of Disappearance of Formaldehyde in Milk.*

Using a method which permits approximate estimation of any amount of formaldehyde greater than 1:160,000, it was found that even aqueous solutions of formaldehyde of 1:10,000 to 1:40,000 lose strength steadily on standing at room temperature, the loss being due to an actual destruction, and not merely to polymerization, of the formaldehyde; while when added to milk in the same proportion formaldehyde disappears ten to twenty times as rapidly as from water.

The hydrochloric acid and ferric chloride test is capable of showing 1 part of formaldehyde in 250,000 parts of milk. Sourness of the milk does not in itself diminish the delicacy of the reaction, but when milk is preserved by means of formaldehyde the latter will have largely disappeared before the milk becomes sour. Considerable data regarding the time required for the disappearance of the reaction is given.

The gallic acid test, applied to the distillate obtained from the milk after acidulation with sulphuric acid, is much more delicate than the hydrochloric acid and ferric chloride test, and gives more conclusive results with samples which have stood until the formaldehyde has largely disappeared.

J. B. WHITNEY and S. A. TUCKER: *Observations on the Preparation of Metallic Calcium by Electrolysis.*

The method used was that of J. H. Goodwin, and the attempt was made to improve the yield of the metal. The electrolyte was molten calcium chloride. The apparatus used at first was similar to Goodwin's and the results obtained agreed satisfactorily with his. It was found that the proper temperature limits were so difficult to maintain that a new form of kathode was devised, in which the temperature of the iron rod was kept down by water cooling. With this improvement the yield of calcium was increased to sixty per cent.

A modification of the kathode was tried in which the iron kathode was inclosed by an insulated graphite bell, the object being to prevent the oxidation and chlorination of the calcium as formed, but it was not found to work well in operation.

F. H. POUGH,
Secretary.