THE TEACHING OF EVOLUTION IN NORTH CAROLINA

PERSONS interested in science may be interested to know that Representative Poole introduced the following bill (resolution) for the suppression of the teaching of either the Darwinian or any other evolutionary hypothesis as a fact:

Resolved by the House of Representatives, the Senate concurring, that it is the sense of the General Assembly of North Carolina that it is injurious to the welfare of the people of North Carolina for any official or teacher paid wholly or in part by taxation to teach or permit to be taught as a fact either Darwinism or any other evolutionary hypothesis that links men in blood relationship with any lower form of life.

This bill was referred to the Education Committee which had a hearing and voted to report it unfavorably. A minority report was brought to the floor of the house which was defeated by a vote of 64 to 47.

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SCIENTIFIC BOOKS

The Mental Growth of the Child; A Psychological Outline of Normal Development from Birth to the Sixth Year, Including a System of Developmental Diagnosis, BY ARNOLD GESELL, M.D., Ph.D. Macmillan, 1925, pp. 447.

DR. GESELL has accomplished a pioneer and monumental piece of work. The reviewer feels indeed that "The Mental Growth of the Child" is easily the most important book that has ever been written on the early mental and psychical development of children. Its purpose is primarily to serve as a handbook of clinical diagnosis. The procedure involves a combination of test and observational methods. Developmental norms have been established for motor development, language development, adaptive behavior and personal-social behavior. These norms are frankly tentative and sketchy, but they may be used for the assignment of rough developmental age scores to subjects who have been examined.

For motor development there are (if the reviewer has counted correctly) 34 tests; for language development, 24; for adaptive behavior, 58; for personal-social behavior, 39. Many of these are new and most ingenious. All have been applied to 50 children of each of the following age groups: 4 months, 6 months, 9 months, 12 months, 18 months, 2 years, 3 years and 5 years. The subjects were selected so as to secure as nearly as possible representative groups. The labor involved was enormous and of course required several years for its completion.

Fortunately it was not necessary to give the entire list of 155 tests to each child. For use in clinical diagnosis the 155 tests are divided into ten groups, one for each of the age groups named above. This gives an average of some 15 or 16 tests for any given subject. In actual practice the number will be somewhat greater than this, as some preliminary exploration is necessary to ascertain which of the ten series of tests best applies to a given subject. The time required is 40 to 60 minutes. It will doubtless be a surprise to many to know that four-months infants can withstand an examination so prolonged. That they can do so is due to the simplicity and informality of the tests.

The author does not intend that his method shall be used as a psychometric tool, in the strict sense. Quantitative scores are not given on the separate parts of the examination, but simply an A, B or C to indicate roughly the quality of the performance. The assignment of such qualitative scores is frankly a subjective procedure. Usually the author sums up the results of an examination in terms of a "developmental age," although it is not made clear just how the individual qualitative scores are summed. The author repeatedly insists that it must not be made a matter of simple addition. As a clinician he is very skeptical about the value of numerical scores of the usual sort.

Unquestionably much can be said for this point of view. Even in work with older subjects numerical scores can easily be abused, and in the examination of infants this danger is doubtless a very serious one. The reviewer feels, however, that the position which the author has taken on this point detracts from the value of his methods for both practical and scientific use. If a developmental age score is to be assigned at all, it ought to be the most accurate one that the data at hand make possible. Scores in terms of "A," "B" or "C" are certain to be given widely different meanings by equally competent examiners. Uniformity of procedure in giving the tests is also rendered difficult in some cases by lack of explicitness in the directions. No attempt is made to establish the reliability of the various tests or their exact diagnostic significance (validity). Statistical results are not given; in a majority of cases not even the percentages of children "passing" a given test.

To the reviewer it seems that in steering so clear of psychometric technique, the author has sacrificed much of the value of his data. For example, the

child's drawing of a man is rated only as A or B, although Dr. Goodenough has recently demonstrated[1] that by the use of a refined scoring technique this test, used with unselected children of four or five years, can be made to yield a correlation of .70 with Stanford Binet mental ages. Something like this may be true of many of the other tests.

Probably the greatest technological weakness of medical diagnosis is the play it gives to the subjectivity of judgment. Dr. Gesell's methods will be, or at least should be, widely used by physicians; it is unfortunate that his treatment of the subject does not set the medical practitioner a better example of objectivity. Detailed standardization and statistical evaluation will of course be carried out by others, and the danger is that it will be done by investigators who lack the extraordinarily rich clinical experience which Dr. Gesell has had.

But the reviewer has already devoted too much space to what he regards as a defect. If defect it be—and one may admit that the question is debatable—it is heavily overshadowed by the merits of the work as a whole. The author has staked out new territory of great promise in one of the richest of the border-line fields between psychology and medicine. His treatment is original and suggestive in highest degree. The clinical comparisons between typical subjects of adjacent age groups are little short of dramatic. The fifteen or more brief chapters devoted to the larger aspects of early mental diagnosis are admirable in substance and form. The reviewer predicts that the book will bring about a renaissance of interest in observational and experimental work with young children. It ought to have a wide distribution not only among physicians and psychologists, but also among parents and teachers. Its delightful literary style, its freedom from technical jargon and its wealth of illustrations (there are 227 figures) make it a book for every intelligent person who is not too stupid or too unimaginative to take an interest in this most dramatic and fascinating of all the "ages of man."

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Antics of the Ants and *Ingenious Insects.* Two volumes bound in one. By ALFRED MARK SALYER, Glendale, California. New York, Laplante and Dunklin.

THIS superbly printed volume may be described as a rollicking book of science. Following quotations from leading entomologists, it is adorned by humorous cartoons, and conclusions of students of insects are expanded into verse, often reminiscent of Mother Goose and at other times rising almost to seriousness.

While the wisdom of the ants and their genius for cooperation is highly extolled, our author quizzically warns us against other insects, with whom "a desperate war" must be waged, in which "man's civilization, his very life, are at stake," and the victorious insect "hosts will be swarming throughout the smouldering ruins of his last handiwork."

DAVID STARR JORDAN
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The Romance of the Holes in Bread. A Plea for Recognition of the Scientific Laboratory as the Testing Place for Truth. By I. K. RUSSELL, member American Chemical Society; Author of "Hidden Heroes of the Rockies," and "Frontier Tales of the Townsend House." Easton, Pennsylvania, The Chemical Publishing Company.

A MODEST but thoroughly wholesome bit of popular science is Isaac Russell's "Romance of the Holes in Bread." Beginning with the common and apparently commonplace process of bread-baking, Mr. Russell takes up the nature and functions of the yeast-plant, and from it the general qualities of bacteria, incidentally at the same time describing the obstacles encountered by men who in earlier ages realized that we know nothing whatever of the universe, save that which through the ages we have found out, not thought out, to be true.

All this leads to a record of the life and work of Louis Pasteur, greatest of Frenchmen and one of the noblest figures of all time. Phases of the work of Pasteur and of his disciples are indicated graphically in chapter headings: "Finding the source of plagues"; "From ferments to sanitation"; "Bake oven to bandages"; "From poultry to vaccination"; "The conquest of hydrophobia"; "Back to the bakery."

DAVID STARR JORDAN

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A FIELD TRIP AID

DURING the writer's observation of birds and nests he has found the contrivance described and sketched below to be an invaluable addition to the equipment (see Fig. 1).

This small bit of apparatus consists of an ordinary circular pocket mirror two and one half inches in diameter, around which is twisted about twenty inches of eighteen gauge copper wire. The wire is put on in such a manner that by bending it at a right angle to the plane of the mirror and by bending the lower loop backward parallel to the mirror, an ordinary

[1] In a doctor's dissertation not yet published.