

and others will be ready for publication during the coming autumn.

During July and August, 1899, work will be continued at Put-in-Bay. The party will consist of the writer, as director; Professor H. B. Ward, of the University of Nebraska; Dr. H. S. Jennings, of Dartmouth College; Dr. Julia B. Snow, and Mr. R. H. Pond, besides a number of assistants. The members of the party will continue the work undertaken last summer, and referred to in Dr. Smith's notice, except that Mr. Pond, who takes the place of Mr. Pieters, will undertake an experimental investigation of the nutrition of the larger aquatic plants.

The entire party will work at Put-in-Bay during July. During August it is intended to divide the party. Those engaged in experimental work will remain at Put-in-Bay. The writer and Professor Ward, together with a number of assistants, to act as collectors, will make a tour of the lake for the purpose of making collections, and in order to study the distribution and constitution of the plankton in the different parts of the lake.

The locality at Put-in-Bay affords a variety of conditions and is rich in aquatic fauna and flora. The occurrence of the huge infusorian *Bursaria truncatella* and of *Trochospæra* are of especial interest.

During August it will be possible to offer the facilities of the laboratory to a limited number of investigators. The United States Commission of Fish and Fisheries will furnish all apparatus, glassware and reagents and place the entire resources of the laboratory at the disposal of such investigators without charge. Those who wish to take advantage of this opportunity should communicate with the writer at Ann Arbor, Michigan, before July 1st; at Put-in-Bay, Ohio, after July 1st.

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THE INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.

GEOLOGY AND GEOGRAPHY.

THE schedule of classification of writings relating to Geology and Geography which it is proposed by the International Catalogue Committee to adopt appears, on the whole, to have been well considered, though, as regards its details, it is evidently open to certain criticisms. Thus it will be noted that there is no recognition of any subdivisions of the Archæan. The matter of soils, clearly of much importance, finds no place in the list. It is hardly to be grouped under the heading of Denudation and Deposition. So, too, the matter of shore lines appears to have fairly a share in a scheme where glacial geology is ranked by itself apart. It may also be remarked that the whole field of economic geology is not suggested by any of the headings, and surely deserves recognition in any catalogue. Were this heading adopted it would naturally include a large part of the papers concerning veins and other ore deposits. As it is, these phenomena appear not to have been thought of.

Under the heading of Geography is a schedule of classification on a topographic basis, which is probably intended to serve also for the distribution of a portion at least of the works on geology, though this is not clearly stated. As a whole, the topographical classification which has been adopted commends itself to the reader. In places, however, the meaning is not clear, as in '*K Arctic: Greenland and the area north of the Arctic Circle, or all the coasts of Continental America, Asia and Europe, whichever is farther north*' (the italics are ours). It is possible, by systematic exegesis, to arrive at some conception of what the writer meant, but at first sight it seems to imply a variable *northness* of these several areas. It may also be noted that the category denoted by *ea.*, viz., Asiatic Russia, is much too

large for convenience. In time a great literature will, doubtless, have to be referred to this division. The realm could be subdivided, perhaps, on the base of its drainage.

Under *gb.*, *gd.*, *gd.* and *ge.* the division is troublesome. First, we have Canada as a whole, then the Canadian Dominion west, including Yukon and British Columbia, Mackenzie, Athabaska, Alberta, Saskatchewan and Assiniboia; but *gd.*, the Canadian Dominion east, includes only Newfoundland. In this specification Labrador and the neighboring districts seem to be left out. To add to the confusion comes *ge.*, which takes in the Laurentian Lakes, with no statement as to the limits of the territory included in the category. Following down, we find, after the United States as a whole, a division which includes the northeastern field, *i. e.*, all the States east of the Mississippi down in general to the Ohio and the Potomac, but omitting in the list Maryland and Delaware. The southeastern United States east of the Mississippi does not include a list of States. It may be intended to contain those last mentioned, but under the circumstances the names should be specified.

The subject classification under Geography is, as will be observed, much more detailed than the like grouping under Geology. It appears tolerably complete, but there again the matter of soils and of shores is omitted, though such matters as rocks, minerals and mines, which are less fitly to be regarded as geographic, find a place. It may also be noted that, while under Geology there is a 'seismic' division (including elevation and depression and mountain building), the matter of earthquakes is only mentioned in the geographic classification. We may fairly wonder whether this suggested difference in treatment was actually designed. In the geologic scheme volcanoes are included. They can come in again under

the head of volcanic phenomena under Geography. Again we wonder whether this arrangement is by chance or design.

If it is intended by this classification to demark the fields of geology and geography it is clearly open to objection from many points of view. Thus such matters as dunes, coral reefs, minerals, mines, etc., which find mention only under Geography, are, by common understanding, regarded as subjects for treatment under the head of Geology.

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PHYSIOLOGY.

THE Editor of SCIENCE has kindly asked me to comment on the physiological part of the Catalogue of Scientific Literature, prepared by the Royal Society. I should like to call attention to a few points.

1. It seems to me that the space given to *comparative physiology* is not sufficient. Physiology is undergoing the same change that has taken place in morphology. The latter science was originally confined to man and a few of the higher vertebrates, but at present scientific morphology is identical with comparative morphology. The same change is taking place in physiology. It is true that the text-books of physiology have as yet taken no notice of this change, but a catalogue of 'scientific literature' cannot afford to ignore the development of physiology. The catalogue must take into consideration the fact that *the field of comparative physiology is much wider than that of human physiology*, and that, therefore, more space and a more prominent position is necessary for comparative physiology than is allotted to it in the provisional schedule.

2. It seems to me that *physical chemistry* has not received the consideration it deserves. It is hard to tell, for instance, in which part of the catalogue the effects of ions should be mentioned. There is a sub-

division on isotony and other osmotic phenomena of the cell, and there is another subdivision in physiological chemistry on 'semi-permeability and physiological properties of colloids,' but I am at a loss to find where experiments on the osmotic properties of muscles or connective tissues, etc., could be properly catalogued. It seems to me that fuller provision should be made for the whole realm of the application of physical chemistry to physiology.

3. It seems to me, further, that provision should be made for the facts of physiological morphology. By physiological morphology I mean the energetics of the phenomena of organization. Physiology has thus far chiefly been a study of the phenomena of irritability. But there can be no doubt that phenomena of growth, irritability and metabolism are so thoroughly interwoven that neither metabolism nor irritability can be fully understood without taking into consideration the phenomena of growth. For instance, only the active muscle is able to undergo hypertrophia. The resting muscle atrophies. It is evident that contractility and growth are in some way connected. In plants the heliotropic and other curvatures are connected with the phenomena of growth. It is even possible that our inability to explain contractility is due to the fact that we have not yet taken into consideration the phenomena of growth. Furthermore, I do not quite see where in the present catalogue such experiments on physiological morphology as those on heteromorphosis (the experimental substitution of one organ for another) could be mentioned. Physiological morphology includes also the physiological analysis of heredity. The field of physiological morphology is wider and certainly more fundamental than the present physiology of nerves and muscles.

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SCIENTIFIC BOOKS.

Talks to Teachers on Psychology, and to Students on some of Life's Ideals. By WILLIAM JAMES. New York, Henry Holt & Co. 1899.

In his first chapter Professor James discusses the relation of psychology to the teaching art. We have so many statements from non-psychologists concerning what psychology may do for teaching that it is pleasant to hear what a psychologist himself has to say on the subject. In the first place, it is pointed out that sciences do not directly generate arts. The study of logic does not make a thinker, nor that of grammar a correct speaker; so the study, even the mastery, of psychology does not insure success in teaching. A science and its corresponding art can be brought together only by means of a mediator; that is, a mind full of tact and invention for the application of the rules of the science to the practice of the art. Given a skilful mediator, psychology can be of the greatest aid to teaching. This is especially true in this country, where the system is so elastic that it becomes a vast laboratory for educational experiment. To this advantage we have the concomitant circumstance of a body of psychologists anxious to instruct another body of teachers eager to learn.

Incidentally, in this chapter, Professor James attempts to allay the pangs of bad conscience in those teachers who have been made to feel that they must contribute to child psychology or be unworthy their calling. He heartily agrees with Professor Münsterberg that the psychologist's attitude toward mind must be abstract and analytical, whereas the teacher's should be concrete and ethical. Haunted by Emerson's lines—

"When duty whispers lo, thou must,
The youth replies, I can,"

the conscientious teacher is pained that she does not. But Professor James eases this pain by intimating gently that obligation is obviated by inability.

The second chapter contains an abridgement of Professor James's well-known description of the Stream of Consciousness, while the third and fourth chapters are devoted to conduct as the outcome of education.