

foreground among subjects of importance in general education, and more and more courses in the purely scientific statement of the subject are followed up by those in its applications.

The text-book before us covers the latter field. It aims to carry a student through the various useful minerals and rocks; to instruct him in their modes of occurrence, the principles governing their accumulation and the statistics of their production. The non-metallics are first discussed, beginning with coal. Then follow in order, in Part I., petroleum and related hydrocarbons; structural materials; salines; fertilizers; abrasives; various minor minerals, and finally underground water. The author has freely used maps and pictures and summarizes literature at the close of each chapter. In the matter of clays and their applications he is especially at home from long experience with this particular line of investigation.

Part II. is devoted to the metalliferous deposits. An introductory chapter on the geological principles involved and the scheme of classification to be employed leads up to a systematic description of the ores of iron, copper, lead, zinc, gold, silver and the lesser metals. Again maps are freely used and with geological sections and pictures convey excellent ideas of occurrence and distribution. Statistics add the proper sense of perspective and of relative magnitudes.

The author writes with obvious knowledge and command of his subject. Successive years of presentation to classes and the two previous editions of the work have aided in bringing it to a high grade of excellence. The publishers have cooperated with maps and illustrations, with the result that a concise and very useful manual has resulted.

J. F. KEMP

PSYCHOLOGY IN RUSSIA

At the eighth annual meeting of experimental psychologists, held at Cornell University, April 17-19, 1911, Professor G. Tschelpanow, of the University of Moscow, described the status of psychology in Russia at the

present time. He has been commissioned by his government to study psychological laboratories abroad, in order to perfect plans for the erection and equipment of a psychological laboratory building, the first and most complete of its kind—and to be established at Moscow, in the heart of Russia! This laboratory is the gift of Mr. S. I. Shtchukin, of that city, who has contributed 100,000 Rubel (\$50,000) for the building and 20,000 Rubel for its equipment. He is already well known as a benefactor and protector of the modern school of painters, and has a large private museum of modern pictures which is often visited by English and French artists. The new laboratory is also endowed with a library of 3,000 volumes, worth 10,000 Rubel, presented as a memorial by the family of a young instructor of the University of Moscow, who met with an untimely death.

Professor Tschelpanow addressed the audience in German, but he kindly permitted me to translate the notes I had taken and to publish them, in spite of their sketchy, unfinished form, as I considered his remarks of general interest to scientists at large. He said in part:

"Experimental psychology in Russia is still in its beginning; although the first interest for it was aroused as much as twenty years ago. Its progress has been impeded partly by the uncertainty of political conditions, partly by the close affiliation of psychology with philology only, and not with natural sciences, and partly also by the fact that Russian universities have only collegiate rank, so that most of their advanced students still have to go to Germany for their research work.

"Among the older psychological laboratories, that at Odessa has become most widely known through the work of N. Lange. For some time he had but scanty space and only a few pieces of demonstrational apparatus at his disposal. At Kiew the laboratory consists of two rooms which contain demonstrational and other instruments. Moscow is in this respect the most fortunate place of all, because four years ago its laboratory was

started with four rooms and an initial endowment of 3,000 Rubel. It now has thirty students in experimental psychology, some of whom are undertaking independent work. Among the problems already attacked are: the study of reaction-types, Reuther's method of recognition, work on memory-types with the Binet method improved by controlled time-exposure, and the correlation of the three psycho-physical methods in regard to estimation of spatial extent. In the teaching of experimental psychology the Russian professors depend very largely upon translations of American text-books, especially those of Sanford and Titchener.

"In recent years applied psychology has become very popular and influential, through the work of Netschajeff and his cooperators, who have established about fifty psychological institutes at various *gymnasiums* and secondary schools where psychological instruction has been introduced. The method of making mental diagnosis has, however, reached a crucial point in Russia, inasmuch as strong opposition has set in toward a newly developed practise of outlining and analyzing mental abnormalities by reference to characteristic curves, especially when employed by comparatively inexperienced teachers. Objective or physiological psychology is represented chiefly by the well-known work of Bechterew and Pawlow, while interest in theoretical psychology still predominates."

After the meeting, Professor Tschelpanow showed and explained the architect's plans for the new laboratory, which is to be a three-story building. The basement will contain the heating plant, a workshop, a sound-proof room, space for animal psychology, large electric motors, and the apartments of the janitor and the mechanician. On the first floor, an auditorium with a seating capacity of three to four hundred persons and a room for demonstrational apparatus are provided for; furthermore, the director's office, the library, a room for collections of mental products, and a general writing room, are to be located here. The plan of the second floor makes allowance for a small lecture-room, for offices of the assist-

ants, and for about twelve rooms in which the introductory courses for qualitative and quantitative experiments will be conducted. The third floor, finally, is to be given up entirely to research, and for this purpose it will be divided into twenty smaller rooms. A special feature on this floor is a large switchboard for the distribution of electric power. The building will be situated on university grounds, surrounded on all but one side by other university buildings, but removed as far as possible from public traffic. From all indications it promises to be an ideal home for the pursuit of psychological investigations, and it is to be hoped that the generous gift of Mr. Shtchukin will prove a fruitful example to other countries.

L. R. GEISSLER

CORNELL UNIVERSITY

THE TIME GIVEN BY UNIVERSITY STUDENTS TO STUDY AND RECITATION

IN connection with some committee work in Indiana University the writer was appointed chairman of a sub-committee to ascertain the time given by the students to their work.

It is thought that a brief summary of the results might be of general interest. Blank cards were handed to the students of all classes on Monday, February 14, 1910. The students were instructed to fill in the cards for all their courses. Each student was to fill out one card only, that is, if the student had an eight o'clock recitation, say, he filled out the card for all his courses. If he then went to another class, nine o'clock, say, he returned his card blank.

The cards called for the department, the number of course, the number of hours credit, the number of hours spent per week by the student in recitation or laboratory, and the number of hours spent per week by the student in home or library study. The card had blank spaces so that as many as seven courses could be filled in, if necessary. The total time spent by the students per week on a course was added and then divided by the number of credit hours, thus giving the time spent by the