accompanied him to the special arm chair which had been placed at the front of the room for him. He gave close attention to all that was said and remained until Dr. Mauro's eloquent closure was completed.

At the third session on Friday morning Vice Admiral Godo of the Imperial Japanese Navy presented a paper on "Some Experiences in Scientific Management in Marine Shops." It was an excellent exposition of the practical details of an installation of scientific management in the navy yards of Japan. Route sheets and other forms and mechanisms, together with charts and blackboard sketches, helped those of us who did not understand the Japanese text to get the meaning. It was splendid evidence of the knowledge of scientific management principles that Japanese engineers are acquiring and of the precise use to which they are putting it. A medical doctor, a rather strange figure in this engineering gathering, gave the next two papers—"Proper Duration of Rest Determined from the Course of Change of Oxygen Requirement After the Cessation of Work" and "A Study of the Proper Time of Meals as Determined from the Change of Oxygen Requirement in the Course of Working Hours." Dr. Takahashi's approach to the problems of fatigue is a novel one and his findings will be of interest to all who are seeking additional light on the subject.

Professor Roe presided over the final session of the management section on Monday morning, November 4. The first paper on "An Index Comparison Method for the Diagnostic Examination of the Mental Qualities of Inefficient Personnel, as well as of Traumatic Neurotics, Neurasthenics and Other Mental Diseases" was presented by a Japanese psychologist, Mr. K. Takanime. It constituted an exhaustive analysis of the use of a number of carefully selected physical and mental tests. Unfortunately neither the complete paper nor an abstract was available in English. The paper which followed, by B. Petermann, a German doctor of philosophy, on "Modern Research in General Psychology and Its Consequences for Industrial Psychology," was in strong contrast to the preceding paper based on the old psychology. In introducing it Dr. Petermann criticized the old psychology in general as obsolete, and the previous paper in particular because it was based on the old psychology. It seemed to me rather unfortunate that the results of years of valuable effort should thus seem to be swept aside. Dr. Petermann later endeavored to correct this impression and asserted his interest in integrating the old and the new, rather than in negating the old. His paper constituted an acceptance of the "Gestalt psychology of configuration" and "structuralism," or the "new doctrine of the structure of the psychophysical individuality of man." Because this new psychology has an appreciation of things as *wholes*, of behavior and of total situations, he holds that it will render much greater service to industry than the old psychology. I tried to point out in my discussion the difficulties attached to securing complete agreement in this field and the consequent need to use all the accumulated findings in order to arrive at any results at all.

There was a general feeling at the close that the management section meetings had been decidedly worth while to both the Japanese and the foreign attendants. Almost all that was new in the way of technique came from doctors of philosophy and of medicine rather than from engineers. The emphasis on technological unemployment was the outstanding thing that came out of the meetings. All the contributions of the Japanese seemed to evidence an acceptance of the principles of scientific management and of the "machine age," a belief in research and a fear of technological unemployment. It is regrettable that there was no time to discuss job analysis and job specifications, personality analysis and specifications and their bearing on this question of unemployment, as the Japanese have done some very able work along these lines.

In our lectures Professor Roe and I often had opportunity to discuss the industrial revolution of today with its effects on employment, and also the effects of scientific management techniques. It is our hope, therefore, that those most interested in the management movement in Japan realize that it is the aim of scientific management to prevent rather than increase unemployment.

Various organizations give evidence of the live interest in scientific management in Japan. The largest organized group consists of members of the various engineering societies. They have formed a group very like the management section of the American Society of Mechanical Engineers, except that it is open to other classes of engineers. While this group is co-operating with the others it is keeping the leadership in the hands of the technically trained engineers. On the other hand, the Institute of Industrial Efficiency, organized by Mr. Ueno, emphasizes the human element in the management movement. It has its engineer members but the psychologists, doctors and executives are its leaders. The "Association for the Efficiency Promoting Movement" has a wide appeal through its connection with one of the popular newspapers of Tokyo and through its program of lectures. It was my privilege to meet the leaders in all of these groups. Many are active in more than one, and it is to be hoped that their influence will be toward co-ordination of effort and the elimination of duplication.

The technical schools and universities have not as yet made courses in scientific management a part of their curricula but they are planning such courses and continually invite visitors who have had training and experience to lecture before their classes. The same is true in industry. Everywhere there is evidence of eagerness to learn from the foreigner, both in the attitude toward those from abroad and in the numbers of Japanese—engineers, teachers, executives and students—that are being sent to Europe and America to study foreign methods.

All of us were deluged with invitations to visit plants and schools and to speak before the groups that we met in them. Some of us made from twenty to thirty speeches during our brief visit. I was interested in seeing as many types of activity and in getting as complete a picture of as many types of individuals as possible. In working toward this end I visited a steel mill, a ship yard, a tabi (Japanese sock) factory, a match factory, a thermometer factory, a silk conditioning plant, a cloisonne works, department stores, banks, schools, and talked with many representative Japanese. In some of the plants I found equipment and methods equal to the best that we have here, though frequently I found confirmation of Dr. Schlessinger's criticisms. Suggestions and criticisms were eagerly asked for. There was one instance—a suggestion that Mr. Taylor's and Mr. Gilbreth's methods be made the basis of a study of shoveling—of immediate acceptance and a promise to install a brass tablet acknowledging the suggestion. In the department stores, banks and transportation offices, the special qualities of the Japanese are being used with great effectiveness.

Especially where hand processes are common—as in the cloisonne and wood carving establishments—one was impressed with the beautiful dexterity of these people. As an expert in motion study I longed for the time to study its secret. One has a feeling that this quality, evident in all they do, together with their love of beauty and willingness to work and learn, will carry them far in their program of industrial progress. They are, after all, extremely young industrially and have many serious handicaps to overcome. Problems of diet, heating and clothing, the caste system as it affects industry, are still matters of serious concern to them. But they are making rapid progress in their efforts to copy the achievements of the great world powers. They are learning to evaluate and measure and the kind of example that we give them will become of more and more importance.

The Scientific Management Discussions

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THIS IS in answer to the request of the Editor for "an article . . . constituting a report of scientific management discussions . . . as seen through Japanese eyes." It is hoped that it will serve only as a supplement to other reports that will be made.

The two papers presented on the first day, October 30, may be regarded as introductory discussions on scientific management. The first, "Scientific Industrial Management," prepared by Mr. L. P. Alford and read by Professor Roe, summarized the tendencies and characteristics pertinent to scientific management in the United States of America. In the second paper, read by Professor Kiribuchi, Mr. Van Derventer summarized "The Development and Trends in Standardized Quality Production." You will note that he used the term "standardized quality production" in place of "mass production." He enumerated many related principles, such as the principle of interchangeability, modern inspection and control, the use of limit gauges, the application of jigs and fixtures to minimize required skill, simplification, decentralization of productive equipment, integration and co-ordination through mechanical handling, and emphasized the important place of scientific quality production among them all. As to the problems of "overcapacity" and "unemployment," which are the inevitable results of scientific quality production, he