low wage rates, the application of scientific management may be confronted with obstacles and may not seem to be a matter of vital importance either socially or economically. The great problem for the present may appear to be one of distribution to a greater market. Partly, and perhaps largely, this market may be found abroad, but as the demand or desire for a higher standard of living among the great masses of your own people develops, as it has in the United States, particularly during the past decade, I venture to predict that a tremendous market will be found right here in Japan.

In America it is today almost impossible for owners to rent houses or apartments without modern heating, modern plumbing and other conveniences. The vacuum cleaner has displaced the broom; the workman is so well dressed that it is difficult to distinguish between him and his employer; the radio and the automobile are regarded as necessities.

In Japan the motor car is crowding out the "rickshaw" just as it has crowded horse-drawn vehicles off the streets in America. But a few years ago the small fishing boats in San Francisco were propelled by sail, today they are all equipped with motors. and a similar change is, I understand, taking place in your own vast fishing fleets. On the canals of Tokyo one sees barges, laden with sand, stone and other commodities, being propelled by men with oars or poles. I venture to predict that they will sooner or later be equipped with motors, or towed by motor tugboats. Simple movements such as these have a far-reaching significance, for they not only create new business in themselves but lead to other improvements. As one thing is brought up to a higher level it creates a desire or necessity for bringing other things up to the same plane.

In America we may have gone too far in our quest of enjoyment, of convenience, of comfort and emancipation from physical effort. We may have sacrificed too much to the automobile, the radio, the movie and other doubtful forms of enjoyment. We may have gone too far in the adoption of labor-saving machinery in the factory, the office and the home. We may have gained time only to waste it. My point may be illustrated by citing instances such as I have seen in offices in America of a clerk walking across the room to add on a machine a column of three figures or an executive calling in a stenographer to dictate a ten-word memorandum to a person seated in the room next to him.

I trust you may not consider me reactionary in warning you against the too ready assumption that a change from existing methods or equipment to something newer or different must invariably prove to be advantageous. Particularly if the full possibilities of the old may not have been developed. In our Bible it is said, "Prove all things, hold fast that which is good." This Mr. Taylor preached.

Getting back to my subject, emphasis at present lies upon the problem of distribution—marketing or finding an outlet for the potential producing power of Japanese industry. In part this is dependent upon three things:

1. Increased earnings or higher wages for Japanese labor, coupled with an increased consuming power growing out of a desire for more and better things;

2. Lower costs—essential to the development of both domestic and export trade; and particularly—

3. *Higher quality.*

Good-will abroad, such as is the outgrowth of close individual friendship, mutual confidence, understanding and esteem, is most essential to the development of export trade. In America there is a great market for many products which Japan is well adapted to supply. It may well be that Japanese branch factories or affiliated companies can advantageously supply the Japanese and Oriental market with many products typically American, and that in co-operation and affiliation, rather than in imitation and competition, with the American manufacturers of such products, may lie success. Certain American companies have started to manufacture in Germany not only for sale in Europe but in South America and the Orient as well. Why not in Japan?

During the past year I was rather shocked to learn that a well-known Japanese company was putting on the market an imitation of an article, manufactured by a company with which I was associated, for which patents had been applied in Japan. Why might not they or some other company have arranged with the American company in question to produce the genuine article, availing themselves of its experience and aid? In a plant recently visited I saw machines which had every appearance of having been built by a company with which I was at one time connected—they proved, however, to be imitations. Here again mutually advantageous arrangements might have been made for a Japanese company to serve as an Oriental manufacturing branch of the American company and to produce for a considerable part of the foreign market. Isolated cases of this sort have been responsible for a more or less prevalent misconception of Japanese character and business ethics.

I mention these two instances not because of any personal feeling of resentment but rather to call to your attention an unsound policy and mistaken practice that should be avoided and discouraged in favor of a course of action better calculated to promote good-will and mutually advantageous relations with American industry. The Ford and General Motors plants in Japan are, in a way, examples of what I have in mind.

At any rate I am confident that adequate markets may and will be found, and as this is accomplished, the emphasis will be transferred to the problems of production.

It is not too soon to anticipate and prepare for this, and as to the manner of procedure I offer the following suggestions:

1. Send to the United States carefully selected young mechanical engineers—who speak English—to study scientific management in plants where it is properly developed and practiced. Some of these young men should specialize in certain features of the system. This would be resuming where the chain was broken during the war. It was with great pleasure that last summer I assisted a young Japanese engineer, who came to America with letters from two of my best friends in Japan, to spend an ample period of time in a plant operated under scientific management and to supplement the practical experience so acquired by attending what I believe to be the university best qualified to teach scientfic management. I earnestly trust that there may be more.

2. Establish in Japan several developments of scientific management, in a representative variety of industries, which may serve as models and which may be utilized as was the Tabor Manufacturing Company, and in lesser degree other American companies, as laboratories and training schools. It would be desirable if in connection with such development there could be one or more properly qualified American engineers collaborating with the best available talent that can be found throughout Japan.

Something of this sort was contemplated by the Department of Commerce and Agriculture and was discussed with me by Mr. Nishi, your Commercial Attaché in New York in 1921 or 1922. Nothing, however, came of it; I believe through failure of the Diet to appropriate the necessary funds for the undertaking and because of the earthquake and fire of 1923.

Needless to say, your friends in the United States will be only too glad to assist so far as we may be able in the furthering of the means I have suggested for the promotion of scientific management in Japan—or along any other lines.

In closing I should like to say a word to the younger men of the scientific management movement. While we use the term scientific management to designate the managerial practices of Dr. Taylor and the principles growing out of them, in many respects and in varying degree it is the ideal rather than the attained application that is scientific. Our approach to the problems of organization and management may truly be scientific, as is also the case with respect to the study and analysis of work and various other elements that make up the system through which the principles are applied.

Most of the work of a really scientific character was done by Taylor and his earlier associates; much more still remains to be done in connection with such things as time study or the analysis of work, selection and training of workers, the art of working, the materials used in various industries, and so on.

It is to the younger men that we must look for a resumption of such scientific development as, for example, that typified by Taylor's studies of the transmission of power by leather belting and the care and maintenance essential to its most economical and efficient use; and the great work of Taylor, Barth and Gantt described in Taylor's treatise "On the Art of Cutting Metals." Even in the latter much remains to be done.

Taylor stated that it should be the aim and ambition of every young engineer to add something to the knowledge of his profession. Men often do their best work during the earlier half of their careers—to be sure, with the concurrence, encouragement and guidance of older men, which is es-