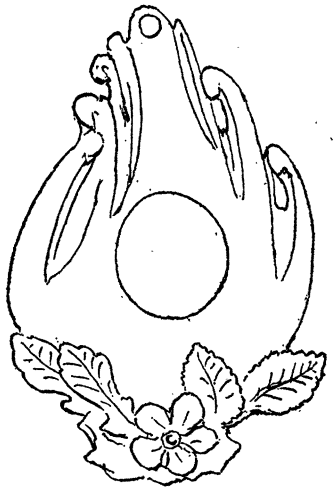
This latter conjecture is the correct one so far as its age is concerned. It is a modern Chinese lamp made in the vicinity of Canton. I give a rough sketch of one given to me in



1854 when I was a boy, for my cabinet of curiosities. It had been brought from Canton and was probably made by the same artisan who carved the lamp figured by Mr. Gann. In the Peabody Museum at Salem are two lamps of identical character and design. As there were probably no Chinese coolies in Yucatan fifty years ago is it not possible that some one buried the object within recent years to support the contention by some that the culture of Middle America was introduced from China!

EDWARD S. MORSE

SALEM, MASS.,
August 27, 1919

QUOTATIONS

INDUSTRIAL FATIGUE AND SCIENTIFIC MANAGEMENT

THE Industrial Fatigue Research Board was appointed at the end of 1917 by the Department of Scientific and Industrial Research to investigate the relations of the hours of labor and other conditions of employment to the production of fatigue having regard both to industrial efficiency and to the preservation of the health of workers. This board has recently issued two reports. One of these, Ethel E. Osborne, M.Sc., on the output of women workers in relation to hours of work in shell-making, arrives at results for which previous investigations have prepared us. The investigations were concerned with the first operation to which the rough forging is subjected; it consists in cutting off the end portion of the forging to reduce it to the required length. It is considered the hardest work in shell-making, must be done rapidly, and entails constant changing of shells. For eighteen months the women doing this in the National Ordnance Factory worked on shifts of twelve hours' duration, with night and day work in alternate weeks. It then became evident that the hours were affecting the women adversely, and the shifts were shortened. Some time previously the machines had been changed to a type which considerably reduced the demands for violent physical exertion. The method in which the investigation was conducted is described at length, but we can only notice the chief general results. Under the earlier scheme the average number of hours worked was 55.85 a week, under the shortened scheme 35.65 a week. On the long hours system the average number of shells each operator turned out in an hour was 8.17; on the shortened shift it was 8.70. Study of the actual fraction of the total working time occupied in the automatic cutting of shells and in their handling respectively—the latter being a period in which speeding up was possible—showed that the work accomplished in 100 minutes of the long hour system was carried out in 80.5 minutes of the short system —a decrease of 19.5 per cent. in time. Taking the average hourly output of shells per hour of actual work as 100, the average hourly output of shells per hour in the factory under the long hour scheme was 85.43, and under the short hour scheme 92.41. The second part of the report is based on a study of actual hourly output; it shows a uniformly low efficiency in the last hour of the long shifts, whereas no such uniformity was to be observed in the case of the short shifts. In some instances there was no falling off at all. A comparison of the records of the same

worker's output for the long and short shifts respectively showed a lower hourly output during the later hours of the long shifts. The investigation afforded no evidence of a detrimental effect of night work in comparison with day work. The second report, by Dr. C. S. Myers, F.R.S., gives an account of a remarkable experiment carried out, with the consent of the workers, by Mr. Vincent Jobson, managing director of the Derwent Foundry Company, Derby. The first step was to analyze the various jobs in order to arrive at the best method, by the elimination of all superfluous movements. This involved the proper arrangement of the tools and materials, the establishment of standard sets of movements for the process, and the training of the men. When the system was not going the number of hours of work was reduced and a special system of payment devised. The result was an enormous increase of output in spite of the reduced hours of work. The increased output, combined with the diminished cost of production, has been beneficial to the firm and largely increased wages of the employees, without causing any increase in fatigue, but rather on the whole, apparently, a decrease.—*British Medical Journal.*

SCIENTIFIC BOOKS

Mortality Statistics of Insured Wage Earners and Their Families. Experience of the Metropolitan Life Insurance Company Industrial Department, 1911 to 1916, in the United States and Canada. By Louis I. Dublin, Ph.D., Statistician, with the collaboration of Edwin W. Kopf and George H. Van Buren. Pp. 397. New York, Metropolitan Life Insurance Company. 1919.

This volume represents a painstaking and well-planned analysis of the 635,449 deaths which have occurred among the industrial policy holders of the Metropolitan Life Insurance Company in the years 1911 to 1916. Because of its great scope and wealth of detail it is of unique value to all who are interested in public health, as well as to physicians in their study of disease. The area covered by the data includes nearly all of the states of the United States and the provinces of Canada. This geographic range is much greater than that of the Registration Area of the United States Bureau of the Census. The report presents a study of the mortality of industrial workers and their families. The data are classified according to color, age and sex. They comprise 54,000,000 years of life, of which 47,000,000 are white and 6,700,000 are black. Thus in addition to a presentation of the mortality experience of industrial workers as a whole, we have here a comparative study of the mortality of whites and blacks of the same economic status. Previous statistical comparisons of white and black mortality compared all whites to all blacks, ignoring their different social status, and the resultant effect of this on disease.

The mortality classification is that of the "International List of Causes of Death." This, while admitting of many imperfections, had to be used in order to render the statistics comparable with those of the Registration Area of the United States Census. The occupational classification follows the "Classified Index to Occupations." U. S. Bureau of the Census, 1910. The material was very carefully compiled, especial attention being given to the avoidance of clerical errors. The diagnoses of death, whenever they were doubtful, were controlled by follow-up letters to the physicians who had certified to the death. This resulted is a greatly increased accuracy of the statistics.

Some of the more important results of this study are worthy of mention. Among whites the mortality of males is much greater than that of females. Among negroes the male mortality is less than the female below the age of 25, with the exception of children from 1 to 4 years of age. After the twenty-fifth year the male mortality exceeds the female mortality, but the excess is moderate compared to that found in whites. Following the presentation of these general considerations, the authors proceed to a detailed analysis of the principal causes of death, giving the rates for the two races in the different age groups and sexes, as well as a comparison of the Metro-