The new requirements for the Ch.M. are more severe than is usual for university masterships, and a more appropriate award would be the degree of Doctor of Surgery.

A common policy for the higher medical degrees is desirable in the interest both of candidates and of the medical faculties. A conference of representatives of all the medical faculties on requirements for their higher degrees would be helpful.

I am indebted to many university officials for information and to Professor S. L. Baker for reading the manuscript.

PUBLIC HEALTH ENGINEERING

BY

R. F. GUYMER, M.A., M.D., D.P.H., D.I.H.

Rockefeller Tutor in Public Health Engineering, London School of Hygiene and Tropical Medicine

"Who would not give a trifle to prevent
What he would give a thousand worlds to cure?"

YOUNG.

Instruction in public health engineering is now being given at the London School of Hygiene and Tropical Medicine and the Civil Engineering Department of the City and Guilds College, with the help of the Imperial College of Science. The training courses are intended for postgraduate engineers, and last for one academic year. An advisory committee supervises the courses, and instruction is given by members of the academic staff of the London School of Hygiene and Tropical Medicine and of the Imperial College.

The term "public health engineering" will convey little to many persons in this country at the present time. In America it is often used as a synonym for sanitary engineering, but in Britain this term is used in a much more restricted sense and is confined usually to the domestic aspects of water supply and sewage disposal. Therefore the title "public health engineering" has been adopted for the new courses as giving the best indication of the wide range of activities of engineers concerned with the protection of public health and the prevention of disease.

"Environmental sanitation" is another term which has been used to define the work of the doctor, the engineer, and others in this field. A committee of the World Health Organization gave the following definition: "The control of all those factors in man's physical environment which exercise or may exercise a deleterious effect on his physical development, health, and survival." "Environmental" in this connexion must often be interpreted very widely—in terms of whole countries or regions and not merely of houses, villages, or cities.

The study and practice of preventive medicine and the promotion and maintenance of good health in any population are dependent upon the investigation and appreciation of *all* conditions bearing upon man in *all* his activities. Such terms as "social medicine," "environmental hygiene," and "human oecology" have become familiar. The realization is growing that the control of such environmental factors and the improvement of conditions adverse to good health in communities should be in the hands of teams of workers comprising doctors, engineers, architects, and others interested.

Aims of the Course

The teaching of public health engineering is best organized as a joint venture between university schools of public health and engineering schools. It is realized that the members of a health team should consist not only of doctors and engineers but also of other persons whose work affects the environmental conditions of communities. The course provides training in this team work, and the contributions of members of such a team to the attainment of the final objective will be all the more valuable if each member has a basic knowledge of the work of other members.

To give an example: the promotion of health, safety, and welfare among the workers in an industrial plant is not dependent upon any one individual person or department in that plant. The successful promotion depends upon effective co-operation between the medical officer, the works engineer, the personnel director, the welfare officer, and the safety officer. Another well-known example of the effectiveness of such team work has been seen in the work of the Tennessee Valley Authority. An excellent description of this project has been given by David Lilienthal in his book *T.V.A.*

The London course is intended to establish intimate contact between engineers and doctors, and to enable them to appreciate each other's outlook and to approach their common problems with a unified aim. During its planning and early stages many eminent engineers and medical men gave information and encouragement. It is hoped that in the future the course and others like it will play an important part in intensifying public consciousness of problems associated with the maintenance of health and in raising environmental standards not only in this country but also in other parts of the world.

Subjects Studied

The relevant studies fall naturally into three groups:

(a) The basic sciences of mathematics, physics, chemistry, mechanics, hydraulics, bacteriology, entomology, and parasitology. Since the course is of postgraduate standard, a sufficient knowledge of the physical sciences is assumed, and attention will be given to the special applications of these in the field of sanitation, and to the biological sciences, which will be new to most students. Adequate time must be devoted to the latter subjects, since considerable mental adjustment is required in approaching the study of living things, as contrasted with constructional materials, and this cannot be hurried.

(b) The different fields of application, such as water supply, sewage disposal, housing, industrial hygiene, and insect and rodent control.

(c) The general public health background, against which these studies may be seen in a true perspective. This involves instruction in the organization of public health services, and the epidemiological study of the spread and control of disease in general. This work, which will be undertaken at the London School of Hygiene and Tropical Medicine, will bring the engineers in contact with doctors studying for the Diploma in Public Health, and should foster a useful interchange of ideas and outlooks.

A national league has been formed in Sweden for the campaign against cancer. The new association will have low membership fees, and aims at covering a large proportion of the population. Its main objective will be to support scientific research into cancer, which annually causes the death of 12,000 people in Sweden.