medical profession has hitherto been, 'We can not get enough.' The greatest amount I have so far ever had to work with has been 30 milligrams. There will be more shipments of radium from Czechoslovakia, but not necessarily to England."

It was explained that the radium will be lent freely for hospital purposes, and rented out to private practitioners. It will also be used for the production and sale of radio-active water in bottles, for use at radio-sanitoria, the production and sale of radio-active fertilizers, and for its by-products, such as polonium. The company expects to derive its first profits from the renting out of the radium emanations contained in capillary tubes, the price for the use of which at present is six guineas for 24 hours. One gram of radium supplies 4,500 of such tubes.

The Czecho-Slovak Legation in London has made public the following in regard to the contract entered into by the Czecho-Slovak Government, as the owners of the Radium State Mines in Jachymov (Joachimsthal), and the Imperial and Foreign Corporation of London:

Under this contract the Radium Corporation of Czecho-Slovakia, a private limited company, has been established, the Czecho-Slovak state and the Imperial and Foreign Corporation holding equal interests. The Radium Corporation will obtain the loan for a period of 15 years of the radium production of the state mines, less a certain portion which is to be reserved for public use, especially for curative and scientific purposes. The radium so lent to the Corporation will remain the property of the Czecho-Slovak state.

The contract does not contain anything relative to the working of the radium mines, which will be, as before, exploited by the Czecho-Slovak state.

BIOLOGY IN SOUTH CHINA

Friends of Charles W. Howard, according to a report in *The Cornell Alumni News*, have lately received an account of the work in biology which he and his associates are doing in the Christian College at Canton, China. The work began in 1917 with a one-year course in introductory botany and zoology, taken by eleven students. By 1920–21 these had increased to 163 in seven courses, including plant physiology, plant pathology, evolution and heredity, economic zoology (entomology and parasitology) sericulture, and bacteriology.

The students taught are of three classes: those in arts and general science; those in agriculture; and those in medicine. All are required to take a course in general biology, which is popular and suited to the needs of those who will not go on. This is followed by a more technical course in botany, zoology and other branches as a foundation for further special work.

It has been the policy of the staff to keep as close as possible to research work and the practical applications of biology, for this is the way to make the students in the highest degree useful to their country. Much is yet to be learned about the insect pests and fungus diseases of crops in China. And Chinese farmers will soon be anxious for this information and ways of fighting their pests.

During the vacation trips the staff have begun a biological survey of the Canton Delta region. About a thousand species of insects have been collected, some of which are of economic importance. A herbarium of South China plants begun in 1916 by students of agriculture has been turned over to the department and is now one of the most important projects under its direction. While the herbarium has already over four thousand specimens, including more than twelve hundred species, only a beginning has been made. Expeditions must be made into the interior, and the whole of south China must be covered. Funds are needed for larger equipment.

Another line of work which has fallen to the department is sericulture. Silk is the largest industry of South China, forming forty per cent. of the export trade. Many things have held back the development of the industry. The filatures did not reel the raw silk in skeins of a size suitable for foreign manufacture. This has now been changed and modern methods have been introduced.

Later the department hopes to effect im-

provements in methods of beekeeping, fish culture, etc. It will strive constantly to meet the demands for the economic application of the branches of science it represents.

COMMITTEE OF THE U. S. DEPARTMENT OF AGRICULTURE ON LAND UTILIZATION

SECRETARY WALLACE has appointed a committee of six scientific men of the Department of Agriculture to consider the entire problem of land utilization, especially with respect to the country's future requirements.

In appointing the committee Secretary Wallace suggested that as the basis of the work to be undertaken careful consideration should be devoted to the country's present crop production, home consumption and foreign demand, relating the land now under cultivation to present and near future demands. It seems to the secretary that this study should be followed by a more careful survey and classification than has yet been made of lands which can be brought under cultivation in the future, and the conditions necessary to make it profitable under the plow.

The suggested survey would include the arid lands of the West suitable for irrigation, swamp lands which can be reclaimed by drainage, and the cut-over timberlands of the various sections. In studying the cut-over lands consideration will be given to their possibilities both for cultivation and for reforestation.

The personnel of the committee of six is as follows:

Dr. L. C. Gray, agricultural economist, Office of Farm Management and Farm Economics, chairman.

C. V. Piper, agrostologist in charge forage crop investigations, Bureau of Plant Industry.

Dr. G. M. Rommel, chief, Animal Husbandry Division, Bureau of Animal Industry.

C. F. Marbut, in charge, soil survey investigations, Bureau of Soils.

E. E. Carter, assistant forester, Forest Service.

S. H. McCory, chief, Division of Agricultural Engineering, Bureau of Public Roads.

At the present time a little less than half the total national area is in farms, and only about one-quarter of the total area is improved land. Many persons, deceived by these facts, assume that there is an unlimited reserve supply of farm land. Such is not the case, however; by far the greater part of the 1,000,000,000 acres not yet in farms probably can never be used for the growing of crops, and plans must be made to use this land for the benefit of the nation.

THE DIRECTOR OF THE MELLON INSTITUTE

ANNOUNCEMENT has been made by the board of trustees of the University of Pittsburgh of the appointment of Edward Ray Weidlein as director of the Mellon Institute of Industrial Research. Mr. Weidlein has been acting director since the recent resignation of Dr. Raymond Foss Bacon, and prior to that time, since 1916, he served as associate director. Dr. Bacon, who left to engage in consulting chemical practise in New York, succeeded Dr. Robert Kennedy Duncan, the first director and formulator of the institute's system of practical cooperation between science and industry, upon the latter's death in 1914.

Mr. Weidlein was a student of Dr. Duncan and later became an industrial fellow of the Mellon Institute. He has been associated intimately with the Industrial Fellowship System since 1909, and since 1916 has been a member of the administrative staff of the institute. He has had much experience in the supervision of industrial research and enjoys a national reputation as a specialist in the systematic investigation of the problems of chemical and physical technology.

Edward Ray Weidlein was born at Augusta, Kansas, on July 14, 1887. He was graduated at the University of Kansas with the degree of bachelor of arts in the year of 1909; in 1910 he received the degree of master of arts. He engaged in a study of camphor, under the direction of the late Dr. Robert Kennedy Duncan, and he carried out a comprehensive study of the ductless glands. From 1912 to 1916 Mr. Weidlein was a senior fellow in the Mellon Institute of Industrial Research, having supervisory charge of the institute's investigations on the metallurgy and hydrometallurgy of copper, and