

anatomy of the Woman's Medical College of Pennsylvania, will be visiting associate professor of anatomy at the University of Tennessee College of Medicine for the summer quarter.

THE French Press and Information Service reports that for the first time since 1940 weather forecasts are being broadcast in France. As of April 1, a network of ninety-seven observatories of the French National Bureau of Meteorology have resumed activity, while the main office in Paris has inaugurated a train-

ing program for technicians and is planning an efficient system of weather information for postwar intercontinental airlines. In 1940 the staff of the Meteorological Bureau fled to the unoccupied zone, hoping to save their instruments and apparatus from the Germans. Although two observation boats were seized and dismantled, the members of the staff salvaged enough equipment to enable its weathermen to collect and furnish data to the Resistance. In November, 1942, when the Germans occupied the whole of France, they again managed to escape with their instruments.

DISCUSSION

WORLD STANDARD AND UNIT FOR PENICILLIN

IN the inter-war period the permanent commission on biological standardization of the health organization of the League of Nations established a series of biological standards which have been widely adopted for international use. Over thirty in number, the series includes standards for antitoxins, vitamins, arsphenamines, insulin, pituitary extract and the sex hormones. It is universally acknowledged that, by their adoption and use, system and order has been introduced where chaos might easily have ensued, and that the common interests of research worker, large-scale manufacturer, administrator, physician and—most of all—patient have been safeguarded and advanced by this action taken by the commission on behalf of them all.

The rapid development of penicillin, discovered by the British professors Fleming and Florey, whether in regard to production, standardization or clinical application, raised to a position of supreme importance and urgency the necessity of establishing a common standard, and of defining a unit in terms of that standard, and so providing the means of expressing the potency of penicillin preparations in a uniform and generally accepted system of unit notation, in whatever country penicillin may be prepared and used.

All past experience has shown that, given this common standard and unit for a drug or medicament, the results of research, clinical application, production and assay, wherever these are obtained, become easily and readily comparable.

With the outbreak of World War II and consequent cessation of the normal activities of the permanent commission on biological standardization, it seemed at first as if a decision as to the adoption of a uniform standard and unit would either have to be deferred or made by representatives of Britain and the United States alone, as it was difficult for representatives of other countries to meet and confer; and, moreover,

it was only in these countries that the opportunity for extensive studies on the production, standardization and clinical application of penicillin had been provided on any considerable scale. Fortunately, it was found possible to enlist the help of Dr. R. Gautier, officer in charge of the health service of the League of Nations, with the result that a conference was held at the apartments of the Royal Society, in London, in October, 1944, under the auspices of the League's permanent standards commission, and attended by delegates from the United States, France, Canada, Australia and Britain, as well as by a number of technical observers from these countries and from South Africa and India.

Thus, although it was not possible, partly through difficulties of travel and transportation created by the war, and partly through the short notice at which the conference had to be held, to secure the attendance of representatives of many other important countries, yet this conference was as international as the circumstances of the time permitted; and there is no doubt that the decisions reached will secure world-wide recognition and adoption.

The conference was presided over by Sir Henry Dale, president of the Royal Society, who has been a member of the permanent standards commission since its inception; and Sir Percival Hartley, director of the Medical Research Council's department of biological standards and custodian, on behalf of the League of Nations, of the international standards established by its permanent standards commission, was scientific secretary of the conference.

This body of representatives from different countries had to review the evidence submitted with a view to making decisions and reaching agreement regarding the establishment of an international standard and unit for penicillin. The conference recommended that a quantity of pure penicillin sodium salt, provided for the purpose by manufacturers in the United States and Britain, be adopted as international standard; and that it be kept, under conditions ensuring its safety and permanence, at the National Institute for Med-

ical Research, London, from which center it shall be supplied to the directors of national control centers in other countries.

The conference also recommended that an international penicillin working standard, consisting of a calcium salt of penicillin, shall be established and made available for general distribution. This is to be held at the London Institute and distributed to all who may require it in any country in the world.

The conference recommended that the international unit should be defined as the specific penicillin activity contained in 0.6 microgram of the international penicillin standard defined above, and that 2.7 micrograms of the present international penicillin working standard be accepted as containing 1 international unit of penicillin.

These recommendations, recording agreement reached by a representative body of scientific experts reviewing all the available evidence, mark an important stage in the development of this remarkable medicament. It may be noted that the international unit recommended for adoption by the conference is approximately equivalent to the unit originally adopted by Heatley and Florey and commonly known as the "Oxford" unit.

It was also gratifying to find, by a study of the results of assays of the same samples of penicillin carried out in Europe and North America, that practically the same potency values were obtained in all the laboratories; not only does this indicate that reliable and easily applicable methods of assay are available, but the results also show that, in this interim period pending the establishment of an international standard, the temporary standards adopted on both sides of the Atlantic were closely similar.

With the establishment of an international standard the possibility of units of different value being used in different countries, and the inevitable resulting confusion, has ceased to be a matter of anxiety. Henceforth, workers throughout the world will use the same basis of dosage; they will mean exactly the same thing when they speak of a unit of penicillin, and the results obtained in one laboratory or clinic will be comparable with those obtained in other centers, whether in the same or other countries.

The material results of the conference are important, and their effect on many penicillin problems will be immediate and enduring. On more general grounds, too, this meeting of experts was an important occasion. The standards established by the commission have been made available from the department of biological standards to all accessible countries during the war, and, moreover, some new standards have been established and provided, and the work of the commission has been kept going throughout these troubled times.

It is a good augury for the future of international cooperation in scientific and medical research that, even in times like these, a conference with some claims to being international can be assembled; and that by friendly discussion and frank expression of individual views decisions can be reached and agreements freely negotiated to the lasting benefit and the advancement of the best interests of all the peoples of the world.

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AZIMUTHAL EQUIDISTANT MAP

THE article on "An 'Air Age' Map of the World"¹ contains a misconception about map projections. It is stated that "on the azimuthal equidistant map a straight line indicates a Great Circle course." This is true only of great circles passing through the center of the map; all other great circles appear on the map as curves concave toward the center of the map. For example, the locus of points distant 90 degrees from the center of the map is a great circle, but it appears on the map as a circle.

The characteristics of an azimuthal equidistant map are that all great circles passing *through the center of the map* are straight lines; the azimuths of all points with respect to the center are correctly shown; and all distances from the center are correctly shown. It is valuable for planning flights from the point with respect to which it was constructed, but is inferior to many other maps with respect to any other point.

For example, there is actually one projection on which all great circles become straight lines, namely, the gnomonic. To secure this feature, it distorts shapes at even moderate distances from the center.

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BOTANICAL WORK OF THE CINCHONA MISSIONS

THE issue of SCIENCE for February 16 (Vol. 101, No. 2616), just arrived here, includes on page 177 a report on "The Botanical Work of the Cinchona Missions in South America" by Dr. Wm. C. Steere, of the University of Michigan. Although the title indicates clearly that the article is concerned with the botanical aspects of the cinchona missions, the report includes statements which make it easy to infer that the botanists alone were responsible for the success of the missions. Specifically, reference is made to the seventh sentence in the second paragraph, the first sentence in the last paragraph and the last sentence in the third paragraph, which starts out "Consequently, the great volume of cinchona bark resulting from our work," etc. Before that sentence

¹ SCIENCE, 101: 425, 1945.