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.

PERCIVAL HARTLEY,
Director of Biological Standards,
British Medical Research Council

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.

H. HERBERT HOWE
ARLINGTON, VA.

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.

only the botanists had been mentioned. Later, he does give high praise to the chemists, but he makes no mention whatever of the foresters who shared the same drenching rains and muddy trails with the botanists on the field surveys.

Actually, the first survey party in Colombia whose work is discussed by Dr. Steere was supervised by a forester and included two other foresters in addition to the two botanists and one chemist. If credit were to be given or even implied local B.E.W. (F.E.A.) officials as well as many individuals of the countries surveyed should be included also for their part in the work.

None would deny that Dr. Steere and the other botanists played an extremely important role in the cinchona surveys, and it is understood that any elimination was not done purposely, but rather, unintentionally in developing the interesting botanical notes. However, this supplementary mention of the part played by the forestry profession in the surveys seemed desirable, not to change the botanical discussions, but to clarify to any one not acquainted with the makeup of the missions the greater breadth of the crews who located and moved the cinchona barks.

L. R. HOLDRIDGE

FORESTRY DIVISION,
SOCIÉTÉ HAITIANO-AMÉRICAINE
DE DÉVELOPPEMENT AGRICOLE.
PORT AU PRINCE, HAITI

STARS IN AMERICAN MEN OF SCIENCE

I HAVE read with interest and some amusement the comments of S. S. Visher in the March 16, 1945, issue of SCIENCE on "Comparative University Strength in Scientists Starred in 'American Men of Science' V–VII."

It is my opinion that there is no true philosophical or scientific basis for the system of starring and, therefore, all investigations pyramided on the assumptions of starring are negative and, perhaps, even vicious. They have led, however, to many amusing conclusions, not the least of which is Visher's.

It might be more instructive to analyze the universities which Visher has selected, not only from the point of view of the relation of starred faculty members to the total faculty members, but what constitutes the universities under consideration and also their comparative endowments. For example, we see on Visher's list that Pennsylvania has fourteen starred members out of the teaching staff of 1,322, while Princeton has twenty-six starred members out of a teaching staff of 220 and Harvard has fifty starred members out of a total of 1,775.

Harvard and Pennsylvania have medical and dental schools, which Princeton has not. Harvard and Pennsylvania have law schools and certain other graduate bodies which, so far as I am aware, do not adorn old Nassau. Therefore, I think that Visher's inquiries should be confined to the fields in which men are starred. For according to Visher's analyses the Divinity School of Harvard is a liability rather than an asset when it comes to the proportion of men starred.

Princeton has a larger endowment than Pennsylvania, although apparently it has about one sixth of the faculty of Pennsylvania. Harvard has over four or five times the endowment of Pennsylvania and about 25 per cent. more faculty members. Harvard is usually considered the wealthiest university and yet, I believe, its annual income is no greater than certain state universities, whose appropriations by State Legislatures run into the millions. Neither Harvard nor Princeton receive money, as far as I am aware, from their respective states, and although Pennsylvania is not a state university, it does receive some state aid.

I recommend, therefore, that the next analysis of starred men takes into consideration the comparative wealth of the institution, not only from the point of view of endowment but also from the point of view of annual income from state, students and endowment.

A comparative salary study of professorships and other ranks in relation to starring should afford interesting instruction. I should like to mention that there are certain personality traits in institutions which should be likewise considered. Institutions, like persons, belong to upper, middle and lower classes, and by this is meant psycho-biological classification, not a social one. It is made of such factors as age, wealth, tradition, attitudes, vitality, connections, graduates and the like which constantly change and thus change the classification. It is this psycho-biological classification to which we refer when we say that such and such a place is not what it used to be; we refer to it in such terms as "The Big Three"; fresh-water colleges; or diploma mills, etc. I should also like to observe that some universities like Johns Hopkins or the Massachusetts Institute of Technology are more "national" in personality in contrast to certain other universities which seem to be of a more "local" nature. Such personality traits work an influence in attracting men and minds, in forming opinions; and perhaps even on taxonomists of universities and their faculties.

RICHARD W. FOSTER

EMPLOYMENT AFTER THE WAR

IN Dr. Joseph Mayer's article published in SCIENCE for April 13, it seems to me that two important agencies have been overlooked: (1) An organization to study the needs in goods, qualitatively and quanti-