DISCUSSION

SAFEGUARDING TYPE SPECIMENS

WITH two serious wars actually in progress in the world and constant threats of others, it is surprising that no general organized efforts have been made to safeguard the irreplaceable type specimens on which botanical nomenclature rests. This is a serious reflection on the breadth of vision of those engaged in systematic botany.

The importance of type specimens in taxonomy is now recognized by all competent systematists. Yet the care of these specimens is entrusted to any herbarium, large or small, in whose possession they happen to be. This is bad enough in the United States, where many institutions are not fully equipped for proper care of valuable material, but it is a crime against botanical science in those countries of the world where wars are being fought or constantly threatened.

With no intention of belittling the valiant efforts of those who have hidden the Spanish herbaria in cellars or of the British institutions which, during the world war, transported valuable specimens to country districts, and which were prepared to do the same during the recent crisis, it seems appropriate to ask why such uncertain measures must be necessary. Material is inevitably damaged during emergency packing and transportation, and in some institutions the task might seem so great as not to be attempted.

Scientists have no right to criticize the common people for having an apathetic attitude toward such important questions as national policies or to hold governments to account for the state of world politics, when their own inertia and provincialism stand in the way of solution of a problem as simple as that under discussion. The safeguarding of the specimens on which scientific language is based is an infinitely easier task than keeping nations out of war.

In the November issue of the *Journal of Botany, British and Foreign,* the writer has presented as a basis for discussion a plan for the preservation of all botanical types. It seems unnecessary here to more than summarize the features of this plan and to call the attention of American botanists to it. Most of those interested doubtless have access to the *Journal of Botany.*

It is suggested that a central herbarium be established for the housing of all types and historically important specimens, in a locality selected as most unlikely to see any future war activity, remote from any possible military objective. Here type specimens could be deposited by all herbaria as gifts, permanent loans or, where loans are forbidden, by establishment in the central repository of an actual branch of the herbarium concerned. Administration would be in the hands of a director and board of regents appointed by the International Congress of Botanists. Loans of specimens would be made freely to accredited institutions. Financing would, at first, necessarily be by assistance of various research foundations and botanical institutions. Gradually an endowment could be built up, and service to the botanical public be expanded. The main immediate objective would be to get all type specimens into a safe, yet accessible place.

Who knows what has become of the young Chinese herbaria, as yet, fortunately, without many types? Who can not imagine what might have happened if the recent European trouble had burst into war? Prague, Berlin, Vienna, Paris and London would certainly have been bombed. The belief has recently been expressed that no nation would waste a bomb on a museum, that any damage would be due to accidents. However, reports have been coming from reliable sources that many important Chinese educational institutions have been systematically destroyed. And the university at Madrid was used as a fortress. Military men should not be the only ones to learn lessons from these "rehearsals."

Types and other historic specimens can no longer be regarded as private property of individuals or institutions, but must be treated as a legacy, entrusted to us by the botanists of the past for the benefit of botanical science, present and future.

Certainly these considerations are important enough to merit discussion. It is to be hoped, too, that nationalism, institutional jealousy and the desire for institutional prestige may, for once, be entirely absent from the discussions. Local discussion is urged on this problem during the next year and a half, with a view to definite action at the congress at Stockholm in 1940.

F. R. FOSBERG

BOTANY DEPARTMENT,
UNIVERSITY OF PENNSYLVANIA

AN UNCOMMON METHOD FOR THE DETERMINATION OF "g"

AMONG the numerous possibilities of determining the gravitational acceleration g, one has found little or no attention. To the writer's knowledge none of the regular physics practica makes use of the conical pendulum for the determination of g, although this constitutes a very instructive experiment with a simple underlying theory.

For the conical pendulum, moving around a vertical axis, an equilibrium exists between the centrifugal force and the gravitational force. It is

$$(1)\quad mg = ml\omega^2\cos\alpha$$

where m is the mass of the pendulum, l its length, α the angle which the suspension forms with the axis, and $\omega = 2\pi n$, with n as the number of revolutions per second with which the pendulum rotates. One can substitute