INSTRUCTION AND RESEARCH IN
APPLIED MATHEMATICS[1]

The history of mathematics reveals a continuous interplay of ideas between the mathematician and the experimental or practical scientist. In the last half-century this interplay has decreased, to the detriment, it may be believed, of both parties. The war caused a lively cooperation, but unless this continues under peace-time conditions, the prospect for the future is serious and warrants earnest consideration.

The widening gap between the mathematician and other scientists may be traced to several causes. The most obvious of these is the great activity in all branches of science, which has necessitated a high degree of specialization in each branch, and consequently less opportunity for roaming interests. However, side by side with the expansion of science, increased understanding of basic theory acts as a simplifying compensation. Such simplification is achieved largely through mathematical methods, of increasing depth and generality, and it would be indeed unfortunate if mathematicians should not be in a position to contribute towards this simplification.

As our educational system is at present organized, there are relatively few opportunities for a student of mathematics, undergraduate or graduate, to become acquainted with the mathematical structures of the theories underlying other sciences. His needs in this connection are not identical with those of students pursuing other branches of science as their major interest; many practical details, of importance to them, are not essential for his purpose, and he can go further and faster by concentration on the mathematical aspects of the subject. It is suggested that the study of some branches of other sciences from the mathematical standpoint (and that is a meaning commonly attached to the words "applied mathematics") should be regarded, wherever feasible, as an essential part of the training of mathematics majors, undergraduate or graduate. Apart from the general advantage to science which we might hope to see as a result of this procedure, it seems only fair to offer a young mathematician the opportunity of pursuing a career in applied mathematics if his natural inclinations are so directed. Unless he has the opportunity of viewing the field of applied mathematics from the mathematical standpoint, it is unlikely that he will be attracted to it if his interests are basically those of a mathematician.