

A ROLE FOR THE HISTORY OF MATHEMATICS

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Professor Jones commented that *more attention to the history of mathematics is needed to assure mathematics itself of a proper position*. Some understanding of the nature and role of mathematics should be as much a part of a liberal education as contact with the humanities and sciences. From a more self-ish viewpoint, the study and career decisions of bright and eager students will be partially based on these same sorts of understandings, as will also the support of granting agencies. It is therefore important that teachers of mathematics at all levels have and present a breadth of view of the subject which includes its historical as well as its logical foundations. To achieve the breadth of view needed to explain the value of mathematical thinking, such teachers should have conscious historical training of a kind not available in most institutions today.

That the mathematical community has recently felt the importance of semi-popular exposition is evidenced by two recent books: *The Spirit and the Uses of the Mathematical Sciences* sponsored by C.B.M.S. in 1969 and *The Mathematical Sciences* sponsored by COSRIMS in the same year. Saunders Mac Lane's recently proposed "Mini-Study" (*Newsletter of C.B.M.S.* 9(3), (May 1974), pp. 1-2, reprinted in HM 2, 59-61) is, in part a proposal for a historical study.

To provide the materials for this historical training, there must be continuing cooperation between "mathematicians" and "historians of mathematics", and to be effective in making mathematicians and others aware of how mathematics actually developed, a *dichotomy and/or antagonism between "mathematicians" and "historians of mathematics" must be avoided*. This is a complex problem because there are at least three groups who must cooperate: *mathematicians*, who themselves have significant internal differences as to their philosophies and views of their own subject and its foundations (e.g., "pure" vs. "applied" vs. "logicians", etc.); *historians who developed within mathematics*; and *historians of mathematics whose original roots are in the history of science*.

To stimulate this cooperation, it would help if mathematicians interested in the history of their subject participated more actively in the History of Science Society, and if historians of mathematics belonged to at least one mathematical organization.

Finally, *the nature and role of "historiographic" questions need to be clarified and better understood*, particularly

within the mathematical community. It should be clear that the first and most essential historical task is to get the mathematical facts, trace their development, and seek relationships between them, the problems of their time, and the nature, background, and interests of the persons involved. Mathematicians are too prone to accept uncritically the folklore that has grown up in their subject. They have also tended, while stressing the importance of patterns and generalizations in their own subject, to be at best disinterested in, and at worst scornful of the search for patterns in the *history* of mathematics. I believe that a better understanding of mathematics and a broader view of its role can be had by seeking the answers to what some may call "historiographic" questions involving patterns of the evolution of mathematical ideas. It is unlikely that Kuhn's theory of revolutions in science, Ms. Koppelman's taxonomy of patterns, or any other single theory will explain or represent all mathematical developments. It is even less likely that these analyses will in themselves lead to any new advances. However, the theories, the taxonomies, and even more the discussions which they engender, can increase understanding and stimulate interest at many levels of study and instruction. These are goals greatly to be desired.

QUANTITATIVE GROWTH OF MODERN MATHEMATICS IN JAPAN PRIOR TO 1930

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