

behavior. We lack the grammar and the lexicon for formulating these form characteristics. We must develop morphographic methods which will simplify and generalize form phenomena. A psycho-morphological approach will also bring us closer to the ancient problem of psychic constitution and of mental types. It is indispensable for the delineation of the ontogenesis of human behavior and the comparative psychology of life cycles.

(5) *Cultural Anthropology*. Hamlet must not be left out of the play. In fact, in the Story of the Human Mind, there are two Hamlets: the Biological Adam and Culture! Culture, as Malinowski aptly put it, is nothing but the organized behavior of man. The scientific study of the patterning of human culture would seem to constitute a fundamental approach to the science of the individual mind, which mind is in part a product, in part a creator, of the culture in which it has its being. Culture is "a large-scale molding matrix, a gigantic conditioning apparatus. In each generation it produces its type of individual. In each generation it is in turn reshaped by its carriers."

We are quoting Malinowski, for he is no mean authority and he grew up in the tradition of the exact sciences, including laboratory training in physical chemistry and experimental psychology at the University of Leipzig. As the founder of the functional school of anthropology, he holds that there exist scientific laws of culture. "Culture is a determinant of human behavior, and culture as a dynamic reality is also subject to determinism."

The term culture comprises much. It includes the prosaics of food getting and of everyday family life,

as well as the exoticisms of ceremony and magic. It is not assumed that multifarious masses of anthropological data must be incorporated into the subject-matter of psychology. However, the anthropologist sees in living cultures, in spite of their apparent diversity, a pervading sameness, arising out of common traits of human nature. This quality of sameness denotes underlying psychological laws which should enable us to better understand ourselves and our cultures, including religion, morals, mores and government. Thus also we may arrive at more insight into the diseases of culture as manifested in poverty, economic crises, crime and war. It is not strange that cultural anthropology claims to be the very basis of social science. But scientific anthropology, no less than psychology, is inextricably bound up with physics, chemistry, physiology and biology. Culture began with a very primitive man who has not lost all his primitiveness.

The understanding of the human mind, it therefore seems, will be attained not through the researches of a single discipline, but through the conjunctive results of a great interlocking system of sciences, a system which is itself the most characteristic cultural product of our technological civilization. No previous culture has ever achieved a product more magnificent than the present body of natural and engineering science. This achievement is our hope, as well as our despair. The despair will not lessen until the techniques of modern science can be more sincerely brought to bear on problems of behavior. Only through profound self-knowledge can the human mind bring itself nearer to individual and collective control.

THE AMERICAN MATHEMATICAL SOCIETY 1888-1938

By Professor ALBERT E. MEDER, JR.

NEW JERSEY COLLEGE FOR WOMEN

It is indeed strange that organized mathematics in America is only fifty years old, especially in view of the fact that mathematics is as old as civilization itself and that in Europe the seventeenth and eighteenth centuries were periods of tremendous mathematical advance. On this continent, however, even a half century ago there was but little mathematical research. To be sure, contributions to the science had been made by Robert Adrain, Nathaniel Bowditch and Benjamin Peirce of an earlier generation and by G. W. Hill, Simon Newcomb and Josiah Willard Gibbs among contemporaries, the *American Journal of Mathematics* was in its tenth year, a few universities had been sending out doctors in mathematics for some

little time, and a number of Americans had received degrees from European universities, yet this activity was scattered and somewhat sporadic, and there was little cooperation or feeling of solidarity among American mathematicians. The time was ripe, however, for the formation of an organization to draw together those Americans interested in mathematical pursuits, and to foster actively the development of mathematical scholarship and research in this country.

It was not, however, the well-known mathematicians who took the initiative in forming such an organization. A young college instructor in his first year of service, Dr. Thomas Scott Fiske, of Columbia College, but recently returned from a period of study in Cam-

bridge, at which time he had attended meetings of the London Mathematical Society, thought, as he put it, that there should be "a stronger feeling of comradeship among those interested in mathematics," and proposed to two of his friends the formation of a similar society in New York. So it happened that three young men of twenty-three signed the call for the organization meeting, to which six persons responded and completed the organization of the New York Mathematical Society. J. H. Van Amringe, professor of mathematics at Columbia, was chosen president, and Fiske secretary, an office he held for seven years.¹

The 6 increased to 16 by the end of 1889, to 23 in 1890, then, following a campaign for members directed by the secretary, to 210 at the end of 1891. In 1920 it was 770, and at the end of 1937, 2,127.

In 1891 the monthly publication, *Bulletin of the New York Mathematical Society*, was begun as "a historical and critical review of mathematical science" under the editorship of Professor Fiske, who established high standards in the development of what was essentially a new type of mathematical journal.

Three years later the society began the custom of holding summer meetings, and with the inauguration of this series changed its name to American Mathematical Society as a more accurate description of its constituency. Valuable as these summer meetings proved to be, with their larger attendance, wider geographic distribution and longer duration than the regular winter meetings, there was a further need which the society could satisfy. The suggestion came from Professor H. S. White in these words: "a series of three to six lectures . . . on selected chapters . . . bringing some fundamentals, but progressing also to some few of the highest and latest results of research." The society council was favorable; the name Colloquium was adopted for this activity, and in 1896 the colloquia were initiated in connection with the summer meeting of that year, the lecturers being Maxime Bôcher, of Harvard, and James Pierpont, of Yale. There were thirteen in attendance. Since that time there have been nineteen additional colloquia, and the attendance has reached a high point of 220. It is now the policy of the society to publish the Colloquium lectures, as well as to include in the series of Colloquium publications other monographs expository of new mathematical developments, even though these have not been orally presented. Twenty-four volumes in this series have been issued, and it is no exaggeration to say that they are internationally recognized as authoritative and distinguished presentations.

¹ It should be mentioned that the organization meeting and over two hundred later meetings were held in the halls of Columbia University, which has also provided the society's office and housed its library. For this hospitality, the society is truly grateful.

By this time the society's membership was so large (275) and so scattered that the meetings in New York and the summer meeting were inadequate properly to serve the membership. In 1897 there was therefore organized the Chicago Section, which continued an extremely active and productive existence until 1924, when its meetings became regular meetings of the society. The sectional organization was later extended to the western group, constituting the San Francisco Section, 1902-1929, and the Southwestern Section, 1906-1928. All meetings of the society in any section of the country are now regular meetings of the organization as a whole.

By 1898 the society began to feel the need of a journal for the publication of original mathematical research. Negotiations were begun with the Johns Hopkins University looking toward a cooperative arrangement with the *American Journal of Mathematics* whereby it would be enlarged and published jointly by the university and the society, the latter bearing the additional expense. The editorial control was to be vested in the society. These negotiations were not successful, and the society proceeded to consider the advisability of establishing its own journal. Once again Professor Fiske was the leader in making the arrangements. The younger men were all agreed as to the desirability of the step, but some of the older men feared that the establishment of such a journal would constitute a rival or competitor of the *American Journal of Mathematics*, and this would be both unfriendly toward the older publication and unfortunate in itself. The title *Transactions of the American Mathematical Society* was chosen to overcome these objections, for all were agreed that any society might publish its transactions without unfriendly inference. Professors E. H. Moore, E. W. Brown and T. S. Fiske were the first editors of the new periodical, which first appeared in 1900, and, as was true in the case of the *Bulletin*, they succeeded in establishing notable standards. Moore was editor-in-chief, and to him belongs primarily the credit for this achievement.

During its earlier years the society was the only American mathematical organization of national scope. Consequently its attention was necessarily given to matters of mathematical interest, but not of a research nature, such as college entrance requirements in mathematics, questions of pedagogy, etc. In 1914 determination of whether the society should continue its interest on all levels of mathematical activity or confine itself exclusively to the promotion of research was necessitated by the raising of the question of the relation of the society to the collegiate field covered by the *American Mathematical Monthly*. Early in 1915 the council of the society decided that "it is deemed unwise for the American Mathematical Society to enter into

the activities of [this] special field . . . but the Council desires to express its realization of the importance of the work in this field and its value to mathematical science, and to say that should an organization be formed to deal specifically with this work, the Society would entertain toward such an organization only feelings of hearty good will and encouragement." The next year the Mathematical Association of America was founded, and the good-will predicted by the council was immediately realized. The society and the association regularly hold their meetings on successive days in the same location, and joint sessions are frequent.

In recent years, there has been little fundamental change in the manner in which the society performs its functions. There may be mentioned the establishment in 1923 of the semi-popular Josiah Willard Gibbs lectureship on applied mathematics, this notable series of fourteen lectures being inaugurated in 1924 by the late Professor M. I. Pupin, an early member of the society; the holding of over two hundred invited "hour addresses" since 1921, largely on topics of current research interest; the provision of wider international contacts by means of reciprocity agreements—the first in 1922—with foreign mathematical societies for members of one of the societies to enter the other at reduced rates; the appointment, at the request of the *Annals of Mathematics* in 1926 and of the newly established *Duke Mathematical Journal* in 1935, of associate editors representing the society on the editorial boards of these independent journals; the consummation in 1927 of an agreement with the *American Journal of Mathematics* similar to that sought in 1898, thereby providing additional publication facilities sorely needed; the incorporation of the society under the laws of the District of Columbia in 1923, enabling it better to deal with its manifold financial problem; the extensive growth and increased usefulness of the society's library—particularly strong in relatively obscure journals—especially under the administration of Librarians D. E. Smith (1902–1920) and R. C. Archibald (1921–); the adoption in 1926 of the visiting lectureship plan, by which lectures by a distinguished mathematician are made available at a number of mathematical centers; and the establishment and periodical award of the Bôcher and Cole prizes for mathematical research.

Since 1891 the society has received and expended for society purposes over half a million dollars, well over half of this being derived from membership fees, and much more than three quarters having been spent for publication. In 1891, the year in which publication was first undertaken, the receipts were not quite \$975 and the disbursements a little over \$700; at present receipts and disbursements are each in the neighborhood of \$35,000 per annum. Although the membership

has increased tenfold, the expenses have multiplied fiftyfold. The greatest problem of the society through the years has been financial. In its solution, the society has always turned first to its members, who have helped notably in voting from time to time to increase their dues, in contributing to an endowment fund (now amounting to \$70,000), in increasing the subscription list of the society's publications and in bringing new members into the society. A plan for patron and sustaining memberships was drawn up, which worked well during years of business prosperity, but failed under the stress of the depression: many of the sustaining memberships were held by commercial companies. The Carnegie Foundation, the General Education Board and the Rockefeller Foundation also helped generously by contributions and subventions. The present source of support beyond individual memberships and subscriptions is in institutional members—largely universities and research institutions—whose dues are calculated in proportion to the annual publications of the members of their staffs in the society's journals.

It is obvious that the transformation of a small local group into a national organization internationally recognized has been accomplished through devoted service; it did not just happen. The society has been especially fortunate in its secretaries: the work of Professor Fiske, the first secretary, has already been mentioned, and it is impossible to overestimate or exaggerate the importance of the zeal, wisdom and unceasing labor of the second secretary, Professor Frank Nelson Cole, of Columbia University, who served from 1895 to 1920. The present secretary, Dean R. G. D. Richardson, of Brown University, who has held office since 1921, and his associates, are worthy successors. The presidents, too, who, with one exception, held office for two years each, have been an able and honored group. Emory McClintock, G. W. Hill, Simon Newcomb and R. S. Woodward, who constitute the succession from 1891 to 1900, all were widely honored outside the circle of their own colleagues. E. H. Moore, Maxime Bôcher, H. B. Fine, E. W. Brown and Frank Morley—to mention among their successors only those no longer living—have likewise been of recognized eminence.

The future, as the past, of the American Mathematical Society depends on the men it will rally to its service. Signs are not wanting that men of talent and devotion are still to be found in its ranks. The society enters its second half century with the strength of a loyal membership, and the inspiration of a noble history—the development of a recognized "American School" of mathematics. Its accomplishments constitute as well a great responsibility. May it prove worthy of its heritage and promise.