

INTRODUCTORY REMARKS

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Prototype verification of experimental and theoretical prediction in hydraulics and related fields was chosen as the theme of this, the seventh in the series of triennial Conferences held by the Iowa Institute. Justification of such a choice was hardly necessary, for both scientists and engineers well realize that correlation with actuality is the final measure of every analytical deduction or model test. Following the custom of past meetings, fourteen speakers new to the Conference programs but authorities in their respective fields were invited to present papers in the course of the five technical sessions.

The two speakers of the general opening session complemented one another in several ways. First of all, each embodied many years of experience as a civilian with a military organization—one the Army and the other the Navy. The former, representing the Waterways Experiment Station of the Corps of Engineers, has dealt primarily with the flow of water through natural channels; the latter, during his association with the David Taylor Model Basin of the Bureau of Ships, dealt primarily with the motion of man-made bodies through water. The work of the one, moreover, has become effectively that of a practicing engineer, whereas the other has remained more or less true to his upbringing as mathematical physicist. Each of these factors will be found reflected in the first two papers of this volume, which together provide a nice assessment of the general situation as it now exists.

Among the other sixteen speakers and coauthors, distinctions could be drawn in as many different ways. They represent together essentially all of the major professions dealing with fluid motion, and at the same time essentially all of the Federal organizations actively engaged in flow research of a type that is related to hydraulics. Among them are mathematicians, physicists, meteorologists, and oceanographers, as well as aeronautical, chemical, hydraulic, marine, and mechanical engineers. Their papers cover research techniques ranging from full to probably the smallest scale at which natural flows have been simulated to date. These attributes likewise will be found reflected in the papers that follow.

Past Conferences have each seen three or four papers, as well as a laboratory demonstration, illustrating the pertinent interests and activities of the host organization. Because of the nature of the present theme, only one

paper of the fourteen was presented by a staff member of the Institute; it is noted with pride, however, that four other authors were formerly graduate students at Iowa. The guided tour of the Institute laboratories was much like those at past meetings. New to the Conference series, on the other hand, was a special exhibit of early writings on hydraulics, arranged and annotated by the University Library; some fifty items of the Institute's growing collection were on display, ranging from Guglielmini and Mariotte through Bernoulli to Froude and Reynolds. For the seventh successive time Dean and Mrs. Dawson were hosts to incoming guests at a buffet supper, and the customary Conference dinner was highlighted by a particularly entertaining address.

Attendance at the Conference—some 173 engineers and scientists representing 28 different states and 10 foreign countries—was below that of the recent past but still rewardingly large. However, if an apparent correlation between the Conference date and the end of the fiscal year is ignored, such a trend would point up a question long in the minds of the writer and his colleagues. Though the First Hydraulics Conference was in fact the initial one of its kind to be held in the United States, in the intervening twenty years many organizations have come to sponsor national meetings of a similar nature; indeed, these have multiplied to the extent that in the summer of 1958 at least four were scheduled within a few weeks of one another. Must one conclude therefrom that the Conference series has now more than served its purpose? Might not a useful countereffort be made in the direction of fewer rather than more numerous gatherings? In a word, should the Seventh Hydraulics Conference be the last?

Comments invited at the beginning of the Conference and received for weeks thereafter were almost entirely in a vein favoring the continuation of the series, primarily because of the belief that the Iowa Conferences offer something which the others generally do not: the discussion of carefully selected topics built around a broad but ever-changing central theme. Perhaps the future should hence bring a compromise between cessation and continuation without change. The Proceedings of the Conferences, of which the sizable total of some 11,000 copies have found their way around the world, might best terminate with this volume, for if too many meetings are now being held, surely far too much is being published thereafter. In fact, the discussion aspect of a future Conference might well be slanted more thoroughly in the direction of the spoken rather than the written word, yet without losing through complete spontaneity the value of the careful preparation that has featured Conferences of the past. Thus the Eighth Hydraulics Conference, if and when it is held, will avoid duplication of effort so far as is possible, but will emphasize those features that have proved attractive in the past.