MATHEMATICS

Chairman: IRVING BURR, Purdue University

G. N. WOLLEN, Purdue University, was elected chairman for 1959

ABSTRACTS

Mathematical Models and Statistics in Collision Warning. JUDAH I. ROSENBLATT, Purdue University.—When two high speed aircraft are in danger of colliding it is essential that at least one pilot be warned in sufficient time to avert catastrophe. Visual observation alone has been shown ineffective. Under the assumptions that
  a) Each airplane flies a constant velocity course
  b) Distance measurements are accurate to within K feet
  c) Bearing angle measurement errors are statistically independent, normally distributed, mean 0 fixed known variance,
a simple effective test of the hypothesis that the two airplanes are on a collision course is devised, which can be performed by machine. The effect of certain reasonable violations of the above assumptions on the effectiveness of this test was discussed.

Report on the 13th Annual National T.E.P.S. Conference. CHARLES BRUMFIELD, Ball State Teachers College.—The 13th Annual National T.E.P.S. (Teacher Education and Professional Standards) Conference was held at Bowling Green University during the summer of 1958. This conference was attended for the first time, by large numbers of academicians as representatives of the subject matter disciplines. An atmosphere of cooperation prevailed. Similar meetings are planned by State and Regional T.E.P.S. bodies. The ultimate aim is a removal of the misunderstandings that have damaged relationships between groups of professional educators and subject-matter associations. It is hoped that problems of teacher training and certification will come to be seen as a responsibility of the entire teaching profession.

The Report of Indiana School and College Committee on Mathematics. J. C. POLLEY.—A discussion of the composition, organization, purpose, and activities of the committee, headed by a special committee of the Indiana Academy of Science composed of J. Crawford Polley of Wabash College, chairman, Glen D. Vannatta of Broad Ripple High School, Indianapolis, co-chairman, and Gerhardt N. Wollan of Purdue University, executive secretary. The membership at large is composed of representatives of the colleges and universities of Indiana, an approximately equal number of representatives of elementary and secondary schools in the state, and representatives of various state educational associations connected with teaching. The purpose of the committee is to study the teaching and course content of courses in mathematics in

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schools throughout the state, elementary to junior college level inclusive, and on the basis of this study to recommend and promote changes designed to improve the teaching of the subject. A ways and means committee had been appointed to seek funds to support the activities of the committee, and a curriculum committee to make the preliminary study of existing curricula. Among proposed activities are the promotion of lecture series to be sponsored by colleges to which teachers of mathematics in the local area of each college would be invited; the organization of in-service institutes for mathematics teachers, centered at various colleges, with weekly sessions during the school year; and summer institutes for mathematics teachers in Indiana schools.

Panel Discussion of Proposals of the M.A.A. Committee on the Undergraduate Program. CHARLES BRUMFIEL, Ball State Teachers College.—A brief description of the content of Universal Mathematics was presented with the remarks that the speaker approved of the modern treatment of functions and relations, set theoretic topics, vectors in analytic geometry, the processes of mathematical abstraction and the like.

MELVIN HENRIKSEN, Purdue University.—The author supported the CUP program for the following reasons:

(1) The universality of the first year of the program allows the student to postpone for a year fundamental decisions about mathematics which, in general, he is not prepared to make as an entering freshman.

(2) The fact that the portion of the program designed for future engineers and scientists is calculus oriented makes it easier to teach.

(3) Fundamental concepts are defined carefully, thereby making it feasible to hope that the student completing the program will have some idea of what mathematics is. The author feels that the classical way of teaching the first two years of mathematics is a failure for all but a small minority of the students that we handle—precisely because we expect them to absorb fundamental concepts by osmosis.

DONALD J. LEWIS, Notre Dame University.—1. The C.U.P. curriculum appears to be designed from a technicians rather than a liberal arts viewpoint. Their courses are designed to acquaint the student with the language of mathematics and with some aspects of the subject that have immediate application. Such an approach may be necessary for the majority of students, but it is dubious that it leads to a true understanding and love of mathematics. In no area do the courses delve deeply, rather they skim the surface of many topics. Thus the student encounters a large vocabulary but fails to appreciate its need, e.g., the discussion of algebra.

2. The principle of a universal course must be questioned since students have varying immediate and long range needs as well as varying abilities. This critic doubts that Calculus I will satisfy the needs and demands of most Engineering Schools.

3. The emphasis on the use of tables may short change the serious student later. Calculations have not vanished from mathematical research and the failure to expose the student to the various techniques such as substitution may severely handicap him later.

4. One must question if anyone presently knows what mathematics the social scientists need. The social sciences are just beginning to be mathematized and hence need imaginative people well versed in all branches of mathematics, who can create the mathematics which is needed. For the time being, the majority of social science students will be better served by a good course in statistics and estimation theory than they will be by the C.U.P. program.

George Whaples, Indiana University.—He contended that a universal course for all students taking mathematics would waste the time of the better students and discourage them. He prefers a combination of entering courses (with adequate provision for changing from one to another) for students of varying high school preparation and interests (physical science or social science) such as is now being tried at Indiana University.