

THE AUTUMN CONFERENCE IN MATHEMATICS AT THE UNIVERSITY OF CHICAGO.

The number in attendance at the departmental conference in Mathematics was about sixty, representing some forty-five schools. The discussion on the topic: *What should be the scope and purpose of first year work in Algebra*, was led by four representatives of widely different relations to the school system, all of whom are engaged in an active campaign for the improvement of teaching algebra and among whom there was substantial agreement in certain fundamental points as follows:

(1) There is need for careful reconsideration of the scope and purpose of algebra in the first year of secondary school.

(2) At present too much complicated and abstract work in algebra is introduced in the first year. While ample drill work on the processes is absolutely necessary, yet it is more important to drive home the few fundamental principles on oft-repeated single exercises than to utterly discourage the pupils with continued complicated manipulations which require hours of his study time.

(3) Theoretical and demonstrational presentation of algebra is not fitted to the age and maturity of the first year pupil.

(4) The solution of problems should form the central theme for the first year. These should be concrete, interesting, and connecting with things related to life. New processes should be introduced as they are needed in handling problems, and when so introduced should be drilled upon until they are thoroughly familiar. Concrete geometry and physics should furnish large and rich sources for problems. While neither demonstrational geometry nor experimental physics should be taught in the algebra to the first year pupil, yet the simple and easily recognized facts of both these subjects are easily within the reach of his comprehension and interest.

(5) All of the work of the first year should be developed out of and tied to arithmetic. The chasm between arithmetic and algebra should be closed.

(6) The foregoing points of view compel a readjustment in order of topics. Instead of crowding the first four or five months of the year with abstract and complicated manipulations in long multiplications and divisions, fractions, factoring, highest common divisor, lowest common multiple, etc., for which the pupils never find any use in application, either here or anywhere, much of this work should be put late in the year (much indeed should be left out entirely from the high school requirements, and included only in the later course to be elected by those preparing for college).

In this way space and time will be gained for solving problems and for helping both the pupils who may go to college and those who will not to see that algebra is not a mere juggling of symbols but is a practical tool for interesting, useful, and immediate service.

The speakers were: Superintendent C. M. Shelton of Crystal Lake, Ill., who is working out a plan on these lines both in the high school

and in the grades, Supervising Principal Paul G. W. Keller of Manitowoc, Wis., who is producing results in the way of added interest and power in the study of algebra, Mr. G. A. Harper at the New Trier Township High School, Wilmette, Ill., who is enthusiastic over the problem point of view in algebra as against mere abstract manipulation, and Mr. J. H. Dickey at the Academy of James Millikin University, Decatur, Ill., who is a strong advocate of reform along the lines mentioned above and is getting results to justify his ideas.

The papers are printed in full in the February number of the *School Review*, which is devoted to a complete discussion of the conference in all departments.

H. E. SLAUGHT, Chairman.

NEW YORK PHYSICS CLUB.

The forty-third regular meeting of the club was held in the Erasmus Hall High School, Brooklyn, on Saturday, November 23, 1907. About 40 members were present. The members were shown the laboratories and other equipment of the school and were interested in a wireless telegraph station which had been installed by pupils of the school. A practical test of this station was furnished during the day when a message was handed to President Woodhull which had been received by the wireless outfit. This message was an invitation to Mr. Woodhull to visit and inspect another wireless outfit which had been installed in another part of Brooklyn by pupils of another school.

The members listened to an address of welcome by Dr. W. B. Gunnison, Principal of the Erasmus Hall High School, in which he spoke of the school as the oldest secondary school in New York state; of the pride they felt in the original building, still standing and used for school purposes. Among the early patrons of the school were Alexander Hamilton and Aaron Burr.

By means of a lantern and by other experiments, Mr. R. H. Burnham demonstrated Rayleighs' principle of reciprocal deflection. This was done as follows: two points were taken equidistant from the ends of a uniform glass rod, and at one of these points a weight was hung. The deflections of both points (magnified) were then noted on the screen. The weight was then transferred to the other point on the glass rod and the deflections again noted. The deflections were just reversed to what they were before. An irregular glass rod was then taken and the weight hung near one end as before. Then the weight was put in the reciprocal position and the deflection noted. They were again reversed. The same principle was shown by hanging a weight at different points of a vertical spring.

Mr. F. W. Huntington explained and demonstrated Stoke's principle of dynamic similarity. This principle may be stated thus: two elastic bodies of similar shape whose linear dimensions are as 1:2 will vibrate in periods which are as 1:2. This was illustrated by (1) two bottles, (2) two brass rods, (3) two stretched wires, and (4) two coiled vertical springs. In all cases the linear dimensions were as 1:2, thus making the volumes 1:8. In the first three cases the vibratory periods were