EDUCATIONAL NOTES AND NEWS

MR. AND MRS. WILLIAM FITZHUGH have given $12,000 to the medical school of Stanford University for the purchase of one gram of radium, for use in the actinography department of the University Hospital. The net income is to be used for clinic beds for indigent patients, particularly for those who need either X-ray or radium treatment.

THEODORE HOOVER, consulting engineer, has been appointed professor of mining and metallurgy in Stanford University.

PROFESSOR W. LEE LEWIS, of Northwestern University, has been elected chairman of the department of chemistry to succeed Professor A. Van Eps Young, who has recently retired. Captain Lewis was in charge of Organic Research Unit No. 3 of the Offense Research Section, C. W. S. during 1918 and is at present assisting Colonel W. D. Bancroft in editing the researches of the American University Experiment Station.

DR. GEORGE W. WILSON, of the Rockefeller Institute for Medical Research, has been appointed head of the department of pathology, bacteriology and preventive medicine in the Loyola University School of Medicine, Chicago.

JULIAN G. LEACH, of the University of Minnesota, has been appointed assistant professor of botany in the Colorado Agricultural College.

DISCUSSION AND CORRESPONDENCE

APROPOS OF THE PROPOSED HISTORICAL SCIENCE SECTION

IN the April 4 number of SCIENCE, page 331, Felix Neumann referred to a proposed "Historical Science" Section of the American Association for the Advancement of Science. If the feasibility of forming such a section is to be seriously considered during the meeting at St. Louis it would be of interest to know how the various sciences would probably be affected by this section. As regards mathematics, in particular, it is very difficult to say what is historical mathematics and what is non-historical mathematics.

As early as 1640 the famous French mathematician and philosopher R. Descartes wrote as follows:

> I am accustomed to distinguish two things in the mathematics, the history and the science. By history I mean what is already discovered, and is committed to books. And by the science, the skill of resolving all questions.

Since the days of Descartes the amount of mathematics committed to books has increased a hundredfold and hence the history of mathematics up to the present time has outgrown the powers of a single man.

Successful mathematical investigators must perforce be mathematical historians as regards their fields of investigation. If these fields are extensive the successful investigators therein require an extensive historical knowledge. Such men are, however, not commonly known as mathematical historians but as mathematical investigators. The former term is usually reserved for those whose historical studies include details relating to the older developments, which usually have little contact with modern advances.

The historical mathematics which is of greatest interest to the investigator engaged in advancing mathematics is usually based on considerable technical knowledge and hence it would scarcely be treated in a section composed largely of non-mathematicians. On the other hand, the historical mathematics which is now commonly known as mathematical history has extensive contact with the history of other sciences and might profitably be treated in such a section. The fact that the proposed name "Historical Science" would be too comprehensive as regards mathematics can scarcely be regarded as a serious objection since the questions which would normally come before such a section would naturally be determined by its membership.

In a broad way it might perhaps be said that the mathematical history suitable for such a general section might include practically all the useful developments in this subject before the beginning of the eighteenth

century, a considerable part of the developments during the eighteenth century, and a very minor part of later developments. The unequal emphasis which such a section would thus place on the different chapters in the history of mathematics would be partly compensated by the fact that it would prepare the way for a more sympathetic attitude towards mathematical history in general.

If such a section is formed it should be understood that the more technical and perhaps the more important part of the history of science is of such a nature that it can be appreciated only by the specialists in the fields to which it relates. There is, however, a great need for work on intercommunicating roads in science and such a section might tend to improve these roads.

G. A. Miller

University of Illinois

VITAMIN TESTS WITH CHICKS

Our experience recently with the use of chicks for the purpose of demonstrating to classes in elementary physiology the rôle of vitamins in a diet has been so satisfactory that we thought it might be of interest to other teachers.

The day-old chick is so universally available, so easily reared, and its growth is so rapid that it makes an admirable laboratory animal for such a demonstration. Because of their hardiness Leghorn chicks were selected and divided into two groups of equal number and weight. Both the control group and the one to be tested (such chicks being easily marked with dye) were placed in the same large cage with free access to water, grit, shell, etc. Both groups were allowed to partake freely from food kept in a feeder. The food thus accessible consisted of either highly milled corn-meal, crumbs of unleavened white flour bread, or cakes baked from rice flour, or combinations of any or all of these. Changes were frequently made so that the chicks ate readily of the food furnished. In addition to this the normal or control group was fed once a day with small amounts of food containing vitamins.

After the second day the curve of the daily average weights showed a marked difference between the two groups. After approximately two weeks the one group began to exhibit the typical symptoms of lack of vitamins. Death occurs so promptly in the young chicks after the onset of symptoms that care must be taken to at once feed the ailing chicks with vitamin containing food. Small amounts of milk, scraped apple, lettuce, etc., sufficed to cause prompt recovery with marked acceleration in the rate of growth.

We of course recognize that no new results have been achieved but felt that the method of demonstration was worthy of note.

R. J. Seymour,
E. P. Durrant

Ohio State University

QUOTATIONS

THE BRITISH AIR-FORCE ESTIMATES AND AERONAUTICAL RESEARCH

The development of military aviation has been one of the wonders of the war, but we have naturally been kept somewhat in the dark as to the exact extent of such development while the war was still in progress. The veil has now been lifted, and General Seely, in speaking on the Air Estimates in the House of Commons on March 13, has given us a striking summary of the progress made during the past four years. The fact that the expenditure on the Air Force has increased two-hundred-fold since the outbreak of hostilities is a sufficient comment on the enormous advances that have taken place in the aeronautical world. General Seely states that if the armistice had not been signed, this year's estimates would have reached the sum of £200,000,000—an amount which is practically four times our pre-war expenditure on the entire navy! Even with the signing of peace in sight the sum of £66,500,000 is asked for, in order to ensure the maintenance of the aerial supremacy which we have gained during the war.

It is exceedingly gratifying to note that the true value of research is at last being appreciated, and the specific provision of £3,000,000