

how far some ball will go in a manner contrary to the facts, but to the physics professors' satisfaction. What the students want to know is roughly, approximately, how much is air resistance, how does it arise, what about streamlining, what about the spin of the ball. Let any professor take a brief vacation from $s = (1/2)at^2 + v_0t$, etc. and tell the boys the "real dope" without formulas but with quantitative connections discussed graphically. Students wake up, eyes brighten, the boys begin to think physics means something. It gets exciting, like chemistry the day the chemistry professor made a big explosion and a lot of red fire right on the lecture table.

In short, I hold the opinion that there is too much attempted mathematical treatment of physics in the beginning course, with resultant cutting out of interesting qualitative descriptions of phenomena, and artificial over-simplifications which make the subject obviously unreal, in order to bring it to the painfully low level of mathematical attainment of college freshmen. The remedy, obviously, is to resume the teaching of mathematics in the secondary schools.

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INCOMPLETE FILES OF CURRENT PERIODICALS IN AMERICAN LIBRARIES

A LETTER¹ from Dr. Stuart Mudd emphasizes the inevitable breaks in continuity of files of American scientific journals in foreign libraries and makes a plea for the preservation of copies in this country to complete these files, when and if foreign libraries can resume their acquisitioning.

Dr. Mudd's plea is admirable. There is need of equal emphasis on the preservation of the continuity of files of foreign journals in American libraries. Unfortunately, shipments are being lost. In several cases at least, ships carrying nearly all the copies of certain issues of European publications destined for American libraries have gone down. Some American libraries have already discovered that issues lost at sea can not be replaced by the publishers. Few, if any, libraries have been able to obtain complete files of foreign periodicals for 1940. Some libraries have arranged for storage in Europe. How far such storage is a safe means of temporary preservation is not yet known.

The outlook may be far worse after the war. English and Canadian libraries, in general, have cancelled subscriptions to German periodicals. These libraries will certainly be eager to complete their files after the war, but it is probable that no copies can be found. Most publishers, both in Germany and the United States, are printing only enough copies to meet the demands of their subscribers. It will probably be

quite impossible for all libraries which desire complete sets of German scientific publications of the war period to obtain them after the war.

The fact that many colleges have failed to receive European journals regularly has already proved a hindrance to research. It is very desirable that subscribers who have personal subscriptions to scientific journals and others who have received exchange copies preserve these numbers very carefully. They may be of inestimable value in future years.

The Iowa State College Library has not yet completed all its 1917-18 files of French and German scientific journals. Even the completion of the outstanding *Mathematische Annalen* for 1917 and 1918 was impossible until 1930. Many hindrances to research through lacunae in 1940 periodicals are arising, and the end is not yet.

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IOWA STATE COLLEGE LIBRARY

THE CONTINUITY OF THE SCIENTIFIC RECORD

WE should indeed, as Dr. Stuart Mudd suggests,¹ keep the written record of scientists' research unbroken, not only in this country but abroad. The destruction of scientific libraries now taking place in the warring countries must be remedied in the days of peace that must eventually follow. Since the first World War there has been introduced upon the scientific scene a new technique, which makes this possible at relatively low cost. This is microfilming, already in use in this country to take from library shelves to the work desk of the scholar or scientist the particular item of literature he wishes, when he wishes it. In the same way, in condensed form, and upon relatively imperishable photographic film, long runs of scientific journals can be provided at a cost comparably equivalent to the original single copy cost. Provided the original copy is available, this can be done in small editions, even as single copies, at the time when the material is needed.

There should, however, in these trying times be clear thinking and decisive action, as Dr. Mudd suggests, so that when the dead hand of war is lifted, science in freedom may continue.

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THE UNIVERSITY OF HAVANA SUMMER SCHOOL

I HAVE recently received a notice of the first summer courses to be given by the University of Havana and it gives me pleasure to call attention to the unusual opportunity which is offered for the first time to American naturalists.

¹ SCIENCE, April 18, 1941, 93: 376.

¹ SCIENCE, 93: 376, April 18, 1941.