ring to a sulfhydryl group of the apoenzyme. In our experience, apodehydrase and codehydrase form an easily dissociatable system. Fully activated succinic acid dehydrogenase from mouse liver is completely inactivated by diluting the liver homogenates twenty times. The reduction of triphenyl-tetrazolium chloride (TTC) to formazan and the reduction of methylene blue to its leuco base were used as tests for enzymatic action. Similar inactivation by dilution takes place in the system alcohol apodehydrase from yeast that had been activated by the coenzyme. The activity of the enzyme that was lost by dilution is again restored to its full value by the addition of excess codehydrase. There exists a dissociation equilibrium between apo-enzyme and coenzyme which changes in relation to concentration, and which corresponds to the respective enzymatic activities. Apodehydrase and codehy-drase are therefore bound differently than is cyto-chrome c to its complementary protein (2).

ERNST WALDSCHMEIDT-LEITZ
HELMUTH SPRINZ

Hepatitis Research Laboratory, 98th General Hospital, U. S. Army, European Command

References

1. THEORELL, H., and BONNICHSEN, R. *Acta Chem. Scand.*, 5, 1105 (1951).
2. THEORELL, H. *Biochem. Z.*, **301**, 201 (1939) ; THEORELL, H., and AKESSON, A. *J. Am. Chem. Soc.*, **63**, 1804, 1818 (1941).

An Index of Educational Qualifications of a Faculty

SEVERAL years ago the writer compared the formal educational qualifications of the faculties of corresponding departments of two similarly organized colleges during the preceding decade. From a study of data compiled from catalogues and bulletins issued by the two institutions, it was apparent that the formal educational qualifications at one college were superior to those at the other, but the comparative trends at the two colleges were not so evident. In an attempt to show the comparison more clearly, two indexes (Table 1) were tried.

TABLE 1

INDEXES OF FORMAL EDUCATION

(B = bachelors, M = masters, D = doctors)

$$4\text{-}5\text{-}7 \text{ Index} = \frac{(4B + 5M + 7D)}{7(B + M + D)} \times 100$$

$$1\text{-}2\text{-}4 \text{ Index} = \frac{(1B + 2M + 4D)}{4(B + M + D)} \times 100$$

The 4-5-7 index is based simply on the total number of collegiate years generally required for each of the three academic degrees, but, in order to give more weight to advanced degrees, the 1-2-4 index was tried. Qualitatively, the comparison and trends were similar with both indexes, but the 1-2-4 index brought them out more clearly. Consequently, and for the sake of brevity, only the 1-2-4 index will be considered here.

Since the data used in the study were unofficial and

TABLE 2

FORMAL EDUCATION OF TWO FACULTIES

Year	Bachelors	Masters	Doctors	1-2-4 Index
College 1, Department X				
1937	1	6	10	77.9
1938	0	6	11	82.3
1939	0	6	12	83.3
1940	0	6	13	84.2
1941	0	5	13	86.1
1942	0	4	13	88.2
1943	0	4	13	88.2
1944	0	3	15	91.7
1945	0	3	16	92.1
1946	0	3	16	92.1
College 2, Department X				
1937	3	5	6	66.1
1938	3	5	7	68.3
1939	2	6	8	71.8
1940	2	6	9	73.5
1941	2	5	10	76.5
1942	2	5	8	73.3
1943	2	6	7	70.0
1944	2	7	7	68.7
1945	2	8	7	67.6
1946	3	8	6	63.2

were subject to some error in compiling and processing, assumed data will be used for illustration. Accordingly, synthetic data for corresponding departments of two hypothetical colleges are given in the first four columns of Table 2. For both departments the resulting calculated 1-2-4 indexes are shown in the fifth column.

The data given in the first four columns of Table 2 show that formal educational qualifications at College 1 are superior to those at College 2. A brief inspection of the calculated 1-2-4 indexes given in the fifth column of Table 2 will serve to show clearly the trends at the two colleges and the comparison between the trends. These relations are shown more concisely in Fig. 1.

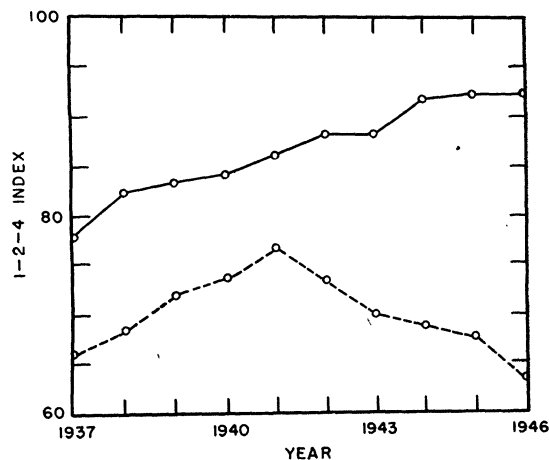In this paper, the expression "formal educational

FIG. 1. 1-2-4 Indexes of formal education: solid line for Department X of College 1; broken line for Department X of College 2.

qualifications" is used to denote academic training in the field being taught. It is recognized that other forms of professional training constitute valuable qualifications of a teacher. Be that as it may, the formal educational qualifications index is offered only as a measure of the pertinent academic training of a college faculty. As used in this paper, the index does not take into consideration academic training in excess of the requirements for a lower degree but insufficient for a higher degree. Such training could be recognized by using appropriate fractional values.

C. KINNEY HANCOCK
Department of Chemistry
Agricultural and Mechanical College of Texas

Book Reviews

An Explorer-Scientist's Pilgrimage: The Autobiography of William Herbert Hobbs. Ann Arbor, Mich.: Edwards, 1952. 222 pp. Illus. $3.75.

The reviewer has often tried to figure out what a well-matured man was like when he was a lad. This book answers the question effectively for one. The reverse question has also been pondered. What will the student of today be like when he is 60? 80? 90? If Dr. Hobbs' tutors ever let their imaginations thus wander they will be interested in reading this satisfying story!

Dr. William Herbert Hobbs studied at four universities, taught at three, and lectured at many. Some of these contacts were important in his development, but the contacts with men were more valuable than those with institutions.

As the title suggests, Hobbs was a traveler—particularly a geologic traveler—and an observer-student. He visited Europe several times, Africa twice, the Pacific Islands, Japan, Australia, New Zealand, the Hawaiian Islands, Greenland several times, and apparently most of the United States, always with his eyes open to minerals, rocks, and geologic phenomena. He became an authority on earthquakes, volcanoes, and glaciers, and his more than 400 articles and 15 books show his magnificent range of interest and scholarly approach to the problems that caught his attention. Translations of some of these have been made into French, German, Italian, Spanish, and Rumanian. He met men easily and was privileged to possess acquaintance with a long list of leading men in science, education, government, and business, both in America and abroad.

Besides all his valuable personal and institutional contacts, there have been the projects and field problems with which he has wrestled. All have been important in his development. Hobbs' research has included volcanoes, present and past, in Italy, Greenland, Germany, Parícutin in Mexico, Lassen in California, and Halemaumau in Hawaii; earthquakes in Spain, Calabria, Malta, and the eastern and western United States; glaciers in Alaska, Greenland, Switzerland, and ancient glaciers in Wisconsin, Iowa, New England, and the scablands. He has studied and written upon arctic and antarctic problems. After careful study of maps and literature he has presented new interpretations of several exploratory journeys by others. He has made great contributions to the problem of winds on Greenland's icecap, and on continental glaciers.

The book should be read by young scientific aspirants and by any who doubt the value of environment and contacts or the reaction of native ability and application to environment.

GEORGE D. HUBBARD
279 Oak Street, Oberlin, Ohio

Intermediate College Mechanics: A Vectorial Treatment. Dan Edwin Christie. New York–London: McGraw-Hill, 1952. 454 pp. $7.00.

With the emphasis of present-day mechanics on vectorial methods, it might be considered too much to ask that a completely adequate treatment of the analysis involved could be incorporated in a text on intermediate mechanics without, at the same time, obscuring the physical principles involved. Too often, the college junior, in his preoccupation with the complexities of the vector mode of treatment, sacrifices physical understanding to mere manipulation of symbols.

As a vectorial treatment, Christie's book provides a well-consolidated body of physical material, while still presenting the requisite mathematics in some detail but without undue prominence. Each concept has been given careful attention with regard to illustrative examples and has, on the whole, been complemented by a set of well-graded exercises.

In the arrangement and development of the text, the author largely follows the standard pattern of procedure. The notion of force, encountered after the preliminary treatment of vector algebra, is taken up from a semi-intuitive point of view. With the statements of Newton's three laws, the analytical basis for statics of a particle is established. The case for equilibrium of rigid bodies follows in the very lucid chapter on couples and moments.

Time, the "third basic ingredient of mechanics," is added next. Here the student is introduced to the fundamental nature of vector rates of change. The author very skillfully keeps the purely formal aspects of the analysis subordinate to the principles embodied in their formulations. The logical development of the kinematics of a particle and of rigid bodies follows,