

fidentially and used. No report will be wasted.

Since every school will be invited to cooperate in this Report, many will be involved in which no organized guidance program exists. The program here proposed

furnishes a powerful argument in favor of regular provisions in the school organization for a program which can make similar kinds of assistance to all pupils an accepted responsibility of the community in time of peace as well as war.

Shortage of Pharmacists

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[Aware of the acute shortage of registered pharmacists, a group from the pharmaceutical profession and drug trades approached Edward L. Bernays, Counsel on Public Relations, for recommendations on how to overcome the difficulty. Mr. Bernays and his staff made an objective survey and submitted their findings in a 1,200-page report. The survey was based on published material available, correspondence with thousands in the industry and the profession, personal interviews with representatives of important groups, and with key men.

Those recommendations from the report which are of special significance to vocational counselors are given here. They are excerpts from a paper read by Mr. Bernays at a meeting of the American Pharmaceutical Association, Columbus, Ohio, and published in *The New York State Pharmacist*, October, 1943. You will note that among the recommendations is the suggestion that a study of pharmacy as a career be made by the National Vocational Guidance Association.—Ed.]

FIRST, AND MOST important from the standpoint of maintaining the present structure of the pharmaceutical profession and the drug trade is the shortage of registered pharmacists. But what of the future? Let's say the next five years. Obviously, it is difficult to foretell a future as complicated as the one we are facing, with any degree of certainty. But we can estimate that if the present trend of losses and replacements continues, the net loss in five years will be at least 7,000 pharmacists, which is probably more than 10 per cent of the number now in practice. We got that figure by careful evalua-

tion and careful weighing of information from many dependable sources.

Actuarial figures, for example, show that 2.6 per cent of practicing pharmacists, or about 2,100 in number, die, retire, or enter other activities each year. That makes 10,500 in five years. Of the approximately 14,000 pharmacists in the Armed Services, it is estimated that 4,000 will not return to pharmacy, for one reason or another. Some will be war casualties. Some will remain in the standing army, which will probably be larger than heretofore. And some will enter other activities.

Of those taken for Army replacements as the war goes on, and of those in this year's graduating classes who have been drafted, at least another 800 will probably be lost permanently to pharmacy. Add all these figures together: in five years the losses, estimated conservatively, will amount to at least 15,300. Moreover, increasing numbers of registered pharmacists have been going each year from the drug stores into drug manufacturing establishments, research institutions, hospitals, etc. That movement, too, will continue after the war. It will doubtless be accelerated by changes after the war, such as the emphasis on increased public health care set forth in the program of the National Resources Planning Board.

NUMBER OF GRADUATES INSUFFICIENT

How many new pharmacists can the schools be expected to produce to offset those losses? During recent pre-war years annual gradua-

tions have averaged about 1,600. That number, of course, was not sufficient even to replace the normal loss of 2,100 a year. For almost a decade, in fact, the schools have graduated too few to replace the normal loss. War conditions have aggravated a situation that was already gloomy. Today, pharmacy school enrollments are a little more than half the average of the past few years. However, with the great majority of schools giving accelerated courses, thus permitting two graduating classes a year, new recruits from the schools may number about the same as the recent average or a little more. [We have estimated it at 1,700 a year.] The pressure of this same acceleration program, however, and the higher standards of work demanded by the War Manpower Commission for deferment may cut that figure somewhat. More than the usual 33 1/3 per cent will drop out between freshman year and graduation—we calculated about 36 per cent. [We may thus expect 8,200 replacements in five years, if enrollments are kept at the present level.]

Obviously, to get the needed replacements (15,300), the number of enrollments will have to be much higher than at present. In fact, it must be almost doubled. About 4,700 freshmen, we estimate, should be registered during each of the next five years in order to maintain the number of registered pharmacists practicing in the country normally, which is about 82,000.

HOW TO INCREASE THEIR NUMBER

[There is only one way to increase the number of pharmacy school graduates, and that is to get more students. As has been indicated, the trend toward lower enrollments was apparent long before the war. There is no reason to expect a reversal of the trend, unless something is done about it. Our recommendation, therefore, is to proselytize among high school students through the vocational counselors that are part of our school system. Our survey shows that the students, particularly the better ones, hesitate to choose pharmacy as a career, and vocational counselors not only do not advise pharmacy, but they actually turn prospective students away from it in many cases. In our report we have

made numerous recommendations for acquainting the counselors with the advantages of the pharmaceutical profession: (1) a study of pharmacy as a career, to be made by the National Vocational Guidance Association (2) an independently published book on the subject; (3) folders based on the study for distribution to counselors and students.]

[To carry out the program a united front for public relations must be set up. This united front we are recommending will not be an elaborate superorganization. It will take the form of a public relations office, directed by a steering committee representative of the entire drug trade and pharmacy field. The chairman of the committee will work with counsel on public relations in laying down plans, strategy, themes, and activities to handle each of the situations.]

Pharmacy will gain many advantages from such an organization. Here will be a unified voice to complement the present organizations in the field, conflicting with none and strengthening all. Here will be a focal point for the collection and dissemination of facts and points of view from and to the public, the various governments, and those in the industry and profession.

[With that organization and its office in operation, the program can get under way, using the strategy and tactics that have proved themselves of value in public relations over a long period.]

[There are many points in favor of increasing public interest and support. Pharmacy is a profession vital to the well being of the country. Pharmacy is the partner of the medical profession in caring for the health of the people. Pharmacy is concerned in protecting the public through drug compounding and dispensing. Pharmacy offers excellent opportunities for the young man or woman seeking a career. Pharmacy is an essential part of the social pattern—a first aid station and a store of emergency equipment in time of crisis.]

AVERAGE EARNINGS

Time Magazine conducted a survey among college graduates two years ago to determine their average earning power. The findings of that survey were compared with the results of an investigation of pharmacists' incomes by Registrar John E. Kramer of the Philadelphia College of Pharmacy and Science.

Mr. Kramer chose a graduating class that had been out of college for 16 years, assuming they were settled in activities that would occupy them as long as they were to be gainfully employed.

The following table, reported by the *Bulletin of the Philadelphia College of Pharmacy and Science* in February, 1942, indicates a most favorable comparison. The Bulletin believes the pharmacy sampling accurately represents conditions in the field generally.

The figures on the left are *Time's* average for college graduates in all fields. Mr. Kramer's findings appear in the right-hand column:

	Others	Pharmacy Graduates
Average earnings for males.....	\$2,620	\$3,668
Average earnings for females.....	\$1,590	\$2,410
Average for those engaged in some phase of pharmacy:		
Drug store owners.....		\$4,307
Drug store partners.....		2,538
Drug store managers.....		2,826
Drug store clerks.....		2,092
Hospital pharmacists.....		2,400
Pharmaceutical manufacture....		4,780

The Correlations between "Mechanical Aptitude" and "Mechanical Comprehension" Scores

Further Observations

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IN A STUDY of the relationship between mechanical aptitude as measured by the Minnesota Paper Form Board Test and mechanical comprehension as measured by the Bennett Mechanical Comprehension Test, Traxler¹ found a correlation of 0.393 between the two tests and a partial correlation of 0.283 when intelligence was held constant. The correlations of the scores on the two tests with total scores on the American Council on Education Psychological Examination for High School Students (1940 Edition) were 0.419 and 0.367, respectively. The data were based on test scores of 230 cadets in the United States Merchant Marine Cadet Corps. The majority were between the ages of 18 and 22, and their

academic aptitude was generally better than that of the average high school senior.

The purpose of this study is to determine the relationship between two other tests widely used in the measurement of mechanical aptitude and comprehension. One is the Revised Minnesota Paper Form Board Test which is highly correlated with the Minnesota Paper Form Board Test. The other is the O'Rourke Mechanical Aptitude Test which consists of two parts. Part 1, in which the task is to match corresponding tools and objects and to indicate which tools are used to do certain things, resembles the Bennett Mechanical Comprehension Test in the use of pictorial materials. Part 2 consists of multiple choice questions calling for information on mechanical matters.

Data were available for 232 men between the ages of 18 and 25, who applied for work

¹Correlations between "Mechanical Aptitude" Scores and "Mechanical Comprehension" Scores, OCCUPATIONS, XXII, Oct., 1943, pp. 42-43.