

# THE DEPARTMENT OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

("During the war our attention was directed to the Intelligence Tests that were used in connection with our army. Psychologists believe in the value of the Intelligence Tests, and other educators are willing to admit that there is something in them. The Dean of every college of pharmacy is well aware of the fact that too great a percentage of students who enter pharmacy fail to complete their work successfully. For every student who fails there is considerable waste both for the institution and the student. This waste should be reduced to the minimum by the reduction of the percentage of failing students.

"The following article by Dean Wulling points out a way to this accomplishment, and deserves the thoughtful consideration of our educators."— C. B. JORDAN, *Editor.*)

## INTELLIGENCE TESTS IN HIGH SCHOOLS.

BY FREDERICK J. WULLING.

In a previous paper I referred to the experiments with intelligence tests made in the College of Science, Literature and the Arts of the University of Minnesota. Other institutions of higher learning have given these tests some attention and it seems that their value is being established as the superior one among a number of ways of determining students' fitness for scholastic work. If these tests are of value in colleges and universities, they ought to be no less valuable in secondary and grade schools. That at least is the position the Minneapolis high-school authorities are taking who are now entering upon an experiment with the Arts College of the University of Minnesota to develop a system whereby the capacity of pupils for higher scholastic work may be forecast while the pupils are still in high school. Dean J. B. Johnston of the Arts College submitted, at a meeting of high-school principals, a proposal to try out a system of intelligence tests designed to show the mental ability of each high school student and to save much time and tax-payers' money in those cases where students cannot possibly go on successfully with higher work, but where that fact would otherwise be discovered only after much delay and cost in the higher schools. Information resulting from the tests will be given only to the respective pupils and their parents. The custom followed at the University, where results of the ability tests are kept in confidence, will be followed by the high schools.

Most of the colleges of pharmacy derive their students from the high schools and soon all Conference schools will be upon the high-school graduation entrance requirement basis. That will be a collective forward step, but in the light of the experience of colleges that have exacted the high-school graduation requirements for a long time, this step should be quickly followed by one which should be based upon an intelligent and reasonable selection of students. The selection would necessarily have to be based upon a number of things, among them, general fitness, character and mental qualification and potentiality.

In a school of pharmacy with which I am intimately familiar and whose entrance requirements for its minimum course of three years are more than merely high-school graduation and whose student body compares favorably with that of other colleges in the fields of pharmacy, dentistry, arts, engineering, etc., an annual average of between twenty-five to thirty per cent. fails to show or to develop

the capacity to go on with the normal progress of the classes. Some have said the "normal" progress in this college is too rapid, but the fact that from seventy to seventy-five per cent. of the students are able to maintain that rate of progress establishes scholastic and economic justification for it. The twenty-five or thirty per cent. who drop out on account of mental inability to carry on work believed by a competent faculty to be of a fair and necessary standard, would be greatly benefited by any method that would save them the year or more it takes in the ordinary way to find out that they are wrongly placed. The colleges too in which such students matriculate lose time and money, of which there is always a scarcity. Dean Johnston, who for a number of years has been preparing and using intelligence tests, has sent letters to certain parents informing them that their children cannot succeed in the University. In practically every case the parents were grateful for the information and set about to place their sons and daughters in more fitting vocations where they are winning success they could not have attained by continuing at the University. There are many cases of the square pegs in the round holes. The intelligence tests tend toward fitting the square peg into the square hole and the round peg into the round hole. It is somebody's business to aid the young men and women in the selection of the field of work in which they can succeed and be happy. In this connection let me quote Dean Johnston: "If we continue to let young men and women go on to certain disappointment and failure, we shall have a most serious injustice to account for. Also, we shall have a serious waste of tax-payers' money to account for." Pharmacy badly needs a better grade of mental material from which to seek recruits. There are among us too many whom medicine, dentistry, education and other fields requiring respectable training and capacity would not have admitted. The collective standard of a profession is made up by averaging the individual standards of its members. The extreme in the standards of pharmacy are too far apart. Some unsuccessful pharmacists have stated that the calling has a distinct duty to perform to keep out those who are unlikely to become successful. I think they are right. A time may come when it will be thought right and proper to establish committees or bodies who will, according to carefully prepared rules for their guidance, determine who may be admitted to pharmacy. Boards of pharmacy might carry out such a function under proper rules.

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#### THE COMMONWEALTH STUDY OF PHARMACEUTICAL EDUCATION.

##### BULLETIN NO. 4.

This is the fourth of a series of twelve monthly statements to be issued by the staff conducting this study. These bulletins are issued to acquaint the profession with the progress of the study.

The study of nomenclature divides itself into two distinct branches:

The nomenclature I, to be able to read prescriptions

II, to be able to read the U. S. P. and N. F.

##### I. THE NOMENCLATURE TO BE ABLE TO READ PRESCRIPTIONS.

A prescription is divided into six parts; namely, the *superscription*, *inscription*, *subscription*, *signa*, *name and address of the doctor* and *name and address of patient*. Only the first four are considered in the nomenclature study.

The *Superscription* consists of  $\mathcal{R}$ , which is an abbreviation for *Recipe*, the imperative

form of *Recipio*, which means "you take" and is printed on nearly all prescription blanks. It has been ignored in this study except to observe the rules of syntax which it governs.

The *Inscription* contains the names of the ingredients and their quantities. The ingredients are written in the genitive case and the quantities in the accusative case.

The *Subscription* gives the working directions to the pharmacist.

The *Signa* gives the directions for the patient to be written on the label by the pharmacist.

The studies showing the Latin necessary to be able to read a prescription are as follows:

- A. Latin used in the *subscription* and *signa* of 10,000 prescriptions.
- B. Latin used in designating quantities of ingredients found in same 10,000 prescriptions.
- C. Latin used in the titles of ingredients found in 16,000 prescriptions.
- D. Rules of syntax involved in the prescription.

A. Ten thousand (10,000) prescriptions collected from ten geographical centers were examined to discover what Latin terms were used. These prescriptions were divided into sets of five hundred (500) each, a *pro-rata* sample from each center, and the partitive sampling method was used on them. That is, as each five hundred were examined, record was kept of the number of new terms appearing per five hundred to discover the point of vanishing terms.

*Method.*—Each term or word was written off as it actually appeared on the prescription on a small piece of paper and these were tabulated together under the proper heading. While the terms were being tabulated, record was kept of the forms in which they were written on the prescriptions. The variety of incorrect forms used by the Doctors was amazing. The outstanding example was that of the Latin word "*chartula*" which was written 22 ways in 437 times used.

The terms "*ana*," "*quantum sufficit*" and "*ad*" in the inscription were included here.

B. The same 10,000 prescriptions as for study A were examined to discover what terms were used in the quantities following the same method. After studying three thousand (3000) prescriptions, no new terms appeared. Only new forms infrequently appearing were encountered after the third thousand.

Sixteen thousand (16,000) prescriptions which include those used in studies A and B were examined to discover what nomenclature was used. The same method was employed as before. Each ingredient as it actually appeared was written on a small piece of paper and these were tabulated together under the official title. In this way, the frequency of the correct Latin title, English title, and synonym was shown. The abbreviations whether written correctly or incorrectly were combined under one heading of abbreviations.

The type of ingredient report shows the frequency of the number of times the Latin title, English title and synonym occur whether written correctly or incorrectly.

All titles which began with the letter "A" except proprietaries were studied. A title to be in correct Latin should be in the genitive case since the inscription of a prescription is in the genitive case. In some instances the synonym was Latinized and therefore it was recorded in two places, first from the standpoint of showing the Latin, secondly of showing the synonym.

The results of the study on titles beginning with the letter "A" were as follows:

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| 1. Times it appeared in correct Latin 12.5%    | 4. Times it appeared in incorrect English 3.1% |
| 2. Times it appeared in incorrect Latin 16.5%  | 5. Times it appeared in correct synonym 11.1%  |
| 3. Times it appeared in correct English 11.1%  | 6. Times it appeared in incorrect synonym 4.8% |
| 7. Times it appeared in abbreviated form 40.9% |  |

Here again, the variation in forms for writing titles is very interesting. The ingredient *Aspirin* or *Acidum Acetylsalicylicum* was written in 129 ways; *Calomel*, *Hydrargyri Chloridum Mite* in 108 ways, and *Sodium Bromide*, *Sodii Bromidum* in 104 ways.

D. The first fifty prescriptions were translated into full correct Latin then all the rules of syntax were drawn off. This then was repeated for two more sets of fifty each when it developed nothing new appeared. These rules will be part of the finished report.

## II. THE NOMENCLATURE TO BE ABLE TO READ U. S. P. AND N. F.

This study divided itself into two groups, namely: 1. The vocabulary or terms: 2. Rules of syntax.

1. The U. S. P. and N. F. were studied and each word or term was recorded with its particular form. This gives us a frequency of terms used.

2. The U. S. P. and N. F. were studied and each rule of syntax which was involved was listed.