

Now how does the federal civil service regard the pharmacist? At present, there are two grades for registered pharmacists, and none for registered assistant pharmacists. The so-called pharmacists' assistant in the civil service is placed in SP 4th grade at \$1620 to \$1980, and the pharmacist in P & S 1 at \$2000 to \$2600, according to length of federal service, personal rating and size of the hospital. They both have the same requirements, namely, the completion of a two-year college course in pharmacy and a state license as registered pharmacist.

X-ray, clinical laboratory and dental technicians, with no college training or state license required, start in the same grade as the assistant pharmacist, SP 4; and nurses, dietitians and physiotherapy and occupational therapy aides can be advanced into the grades of SP 7 and 8, which are higher than P & S 1, which is the same in pay as SP 6, and which is the highest the pharmacist can go. Doctors of medicine and dentistry average about \$4000 with a maximum of \$6500 for a hospital superintendent.

The Veterans' Administration with its sixty odd hospitals is the greatest example of unified practice of medicine in this nation, and it presents an unparalleled opportunity for advancement of the science of medicine by research clinics and the practice of uniformity in treatment and medication.

In this project the pharmacists will have their share, and will be ready and capable of giving material assistance in furnishing the best possible medicines to the ex-service men. I should like to see more uniformity in the drugs and medicinal preparations that are made available in the different federal hospitals, so that the doctors and patients will not find the treatment so different in changing from one place to another. Only the best medicines for the different diseases should be used, and helping to attain this is one of the functions of the pharmacist.

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#### ARE BEGINNING PHARMACY STUDENTS UP TO STANDARD?\*

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With the opening of the academic year of 1926-1927, Purdue University inaugurated an orientation period, whereby it was hoped that each student would be enabled to make a better start with his university work and to adjust himself more effectively to the new conditions of university life. At the inauguration of this testing period there were seven schools in the University and since that time the number has grown to 10 schools.

The orientation tests have been conducted under the supervision of the director of Educational Reference. The results are carefully analyzed and the findings with comparisons are sent each year to the faculties of the different schools on the campus.

These findings, as they pertain to Pharmacy students, have been carefully weighed and comparisons have been made over this five-year period for the purpose of giving our faculty an insight into the type and training of the student with whom they have to work and also to present the needs of the student so that his work can be adjusted to his ability.

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\* Section on Education and Legislation, A. Ph. A., Miami meeting, 1931.

The purpose of this paper is to set forth: *first*, the uses that we are making of the orientation tests; *second*, the value of the orientation tests in predicting the ability of students; *third*, the type of students entering Pharmacy.

During the orientation period for the freshmen the following tests are administered:

1. The National Council on Education Psychological Examination;
2. The Iowa Placement Chemistry Aptitude Test;
3. The Iowa Placement Mathematics Training Test;
4. The Purdue Placement Test in English.

The scoring on the various tests is not a percentile rating but an average score made on all the tests given at orientation. The highest scores that can be obtained on the tests are as follows: Psychology 319, Chemistry Aptitude 109, Mathematics Training 71 and Purdue English 239. The tabulations that we are using are the total averages of all tests given to all students entering the various schools of the University.

These tests have been used in sectioning students in chemistry, English and mathematics. Also any student obtaining a low rating on the English tests is required to take a subcollegiate English course as a prerequisite for freshman English. The same is true in mathematics. Students obtaining high ratings on the English and mathematics tests are given special consideration in these courses.

Table I (for the first year of the tests 1926-1927) shows that Pharmacy students ranked the lowest of the seven schools in Chemistry and Mathematics, above Agriculture in Psychology and above Agriculture, Mechanical Engineers and Science in English. This meant that the students of Pharmacy were more poorly trained in the fundamentals and that the mortality should be high in this one school. One explanation for this status is that the pharmacy course was a three-year course while all other schools gave nothing but the four-year course, therefore those students with poorer training turned to the school where they could graduate in three years.

TABLE I.—1926-1927.

	Agri.	Ch.E.	C.E.	E.E.	M.E.	Home Ec.	P.E.	Pharm. Sci.	I.E.	Pharmacy Rank.	
Psychol.	—	+	+	+	+	....	....	128.89	142.22	....	6th of 7
Chem. Apt.	54.59	76.53	65.52	68.47	65.19	....	....	53.80	58.15	....	7th of 7
Math.	19.60	30.64	27.15	25.83	25.36	....	....	19.33	21.74	....	7th of 7
Engl.	64.91	93.17	79.29	80.28	73.39	....	....	76.11	75.48	....	4th of 7

TABLE II.—1927-1928.

Psychol.	119.88	146.72	135.60	134.30	131.06	111.82	....	114.98	127.42	....	7th of 8
Chem. Apt.	35.93	60.96	48.24	50.05	49.20	32.94	....	42.90	43.08	....	6th of 8
Math.	22.69	40.46	35.53	36.15	34.20	....	....	24.02	25.57	....	6th of 7
Engl.	75.97	107.57	100.89	96.60	96.92	100.16	....	88.10	101.93	....	7th of 8

TABLE III.—1928-1929.

Psychol.	117.80	162.90	141.76	147.14	144.98	120.30	....	119.18	146.56	....	7th of 8
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	Agri.	Ch.E.	C.E.	E.E.	M.E.	Home Ec.	P.E.	Pharm. Sci.	I.E.	Pharmacy Rank.
	-	+	+	+	+	-		+		
Chem. Apt.	42.90	65.40	54.30	58.78	56.00	41.48	....	44.50	52.51	.... 6th of 8
	+	+	+	+	+			+		
Math.	23.89	37.58	33.29	34.96	32.98	....	....	20.66	27.49	.... 7th of 7
	-	+	+	+	+			+		
Engl.	81.70	111.20	93.16	96.59	93.15	104.29	....	83.39	106.80	.... 7th of 8

TABLE IV.—1929-1930.

	-	+	+	+	+	+		+	-	
Psychol.	99.92	151.06	129.38	130.56	132.60	111.50	89.92	109.68	132.10	106.16 7th of 10
	+	+	+	+	+	-		+		
Chem. Apt.	42.68	62.45	52.41	60.34	59.76	41.06	39.61	46.21	54.41	46.17 7th of 10
	+	+	+	+	+			+	+	
Math.	25.61	38.78	35.48	36.52	35.73	....	22.57	23.73	28.96	27.00 8th of 9
	-	+	+	+	+			+		
Engl.	89.19	133.72	114.95	114.43	116.91	120.50	88.28	101.36	134.32	77.17 7th of 10

TABLE V.—1930-1931.

	-	+	+	+	+	-	-		+	-
Psychol.	115.30	180.90	154.90	158.30	156.70	136.70	109.50	147.70	153.70	126.00 6th of 10
	-	+	+	+	+			-		
Chem. Apt.	46.70	71.10	60.50	63.80	60.60	45.70	41.50	55.10	53.40	49.50 5th of 10
	-	+	+	+	+			-		
Math.	22.75	40.06	35.53	37.63	35.53	....	21.61	28.87	28.30	27.49 5th of 9
	-	+	-	-	-	+	-	+		
Engl.	83.50	122.00	106.80	108.60	105.70	118.70	83.00	109.70	118.60	84.50 4th of 10

TABLE VI.—RANK ON THE UNIVERSITY HONOR ROLL, 1926-1931.

	26	27	27	28	28	29	29	30	30	31
1926-1930	8	8	3-9	7	9	7	9-10	8-9-10	..	..
1927-1931	..	..	1	6	6	8	8	7	8-9-10	..
1928-1932	..	..	..	..	4	2	1	3	1	..
1929-1933	..	..	..	..	..	..	7	8	4	..
1930-1934	..	..	..	..	..	..	..	..	3	..

The following is taken from "Studies in Higher Education VIII" by J. N. Stalnaker (1928), "The Electrical Engineering students (at Purdue) rank second in most tests and the Civil Engineering students third. The actual difference of means, however, is not significant. The Pharmacy students also frequently displace Agriculture in last place. Here again the differences are not significant."

Table II (1927-1928) shows that the entering group of Pharmacy freshmen is still near the bottom. They ranked next to or above Agriculture and Home Economics. This was the first year for the School of Home Economics and the second year of the orientation tests.

Table III (1928-1929) is also like the first and second tables, as the same conditions seem to prevail as in the preceding years. This condition may be due, in part, to the three-year course in Pharmacy because very few of those students entering Pharmacy chose the longer four-year course.

In 1929-1930 (Table IV) two new schools have been added to the University, the School of Physical Education and the School of Industrial Education. The rank of the students entering Pharmacy this year was again next to or above Agriculture, Home Economics and these new schools.

However, in 1930-1931 all Pharmacy schools of Indiana required the four-year course as a minimum for entering students. This placed the Pharmacy students on a par with all students entering the University. The question was asked, "What effect would this have upon the type and rank of students entering Pharmacy?" The results of the orientation tests as shown in Table V clearly indicate the answer

to this question. In every case the Pharmacy students ranked not just above Agriculture as in the past four years but in Psychology they ranked above Agriculture, Home Economics, Industrial Education and Physical Education, or 6th out of the 10 schools; in Chemistry they ranked 5th of the 10 schools, that is, above Agriculture, Home Economics, Industrial Education, Physical Education and Science; in Mathematics the rank was about the same as in previous years; in English they ranked fourth in the University, above Civil Engineering, Mechanical Engineering, Home Economics, Agriculture, Physical Education and Industrial Education.

The following statement is taken from the analyzed report sent to the faculty by the director of Educational Research on November 6, 1930: "There are two items particularly worth noting: the improved quality of the Pharmacy students as compared with previous years, and the fact that the Mathematics Training Test, administered this year for the first time to Science women, shows them to be appreciably superior to Science men."

If the orientation test is an indication of the ability of the student, as the first four years have seemed to indicate, then this can mean two things for Pharmacy students at Purdue: first, the mortality of the present class of freshmen will be far less than that of any previous year; second, the achievement of this group of students should be superior to any previous group. The outcome of the college career of these students is being watched with a great deal of interest and, after the completion of the first year of their course, the results so far obtained seem to bear out the predictions set forth above.

The mortality seems to be predicted by the orientation tests because the greater percentage of those students whose rating lies in the lowest one-tenth on orientation fail to complete the course due to their inability to satisfactorily carry the required load prescribed by the University.

From Rules and Regulations Governing Students, Purdue University, comes the following:

"A student who, at the end of any semester fails to make a passing grade in a minimum of 12 hours of the work for which he is registered in that semester (or in a minimum of 6 hours in a summer session of 9 weeks) shall be placed upon probation for the next two sessions (whether semester or summer session), for which he is registered; and in case in either of the next two sessions for which he is registered he fails to pass the required minimum number of hours (12 hours for a semester, 6 hours for a summer session) he shall be dropped from the University; provided that when failure to make a passing grade in 12 hours work for which he is registered (6 hours in a summer session of 9 weeks) is due to the temporary record of I, this rule shall not apply. No student, however, will be dropped for failure in one subject only."

Beginning in September 1931, all students who fall in the lowest one-tenth of the orientation group shall automatically be placed upon probation, the results of the orientation tests in the past being used as a basis for this action. In this way those students in the lower group will be permitted to remain in the University if they are capable of carrying the work assigned to them but they must demonstrate their ability to do so during the first semester.

Purdue University not only penalizes poor scholarship but it also rewards good scholarship. Quoting from the general catalog of the University:

"High scholastic attainment is recognized by citation for distinguished scholarship. Those placed on the list of distinguished students are entitled to special privileges as follows:

"Junior and senior students cited for distinction in scholarship are relieved from the University requirements regarding regular attendance at class exercises during the semester immediately following a citation for scholastic distinction, but such absence is allowable only after satisfactory arrangement between the student and instructor.

"Honor students of all classes are offered the opportunity to do, for credit toward graduation, work in addition to their regular schedule of studies. These additional assignments must have the approval of the head of the School involved.

"By authorization of the Board of Trustees any student qualifying as a distinguished student is exempted from the payment of the required incidental, library and laboratory fees for the semester or term of attendance immediately following such qualification.

"Students who have been cited for distinguished scholarship are permitted to register first without regard to their alphabetical position.

"Students who maintain exceptionally high standards of scholarship throughout their course are graduated 'with distinction,' suitable acknowledgment being made at graduation and a letter of certification being given by the President of the University."

The scholarship index is obtained by the following formula:

$$\frac{6.5 H + 5A + 4B + 3P + 2C + 1D + 1F}{H + A + B + P + C + D + F}$$

The grades given at Purdue are H passed with high honor, A passed with honor, B passed with merit, P passed, C conditioned, D failure and must repeat the course, and F failed for absence. The formula means that the total semester hours of H, A, B, etc., are multiplied by their respective unit and the total sum is divided by the sum of the hours of work taken. If this index is 5 or above the student is then eligible for the Distinguished List.

To complete our consideration of the orientation tests it is fitting that we present the status of the Pharmacy students in percentile rating on the Distinguished List as compared to the balance of the students in the University. This has been carefully checked for nine of the past ten semesters; the last report has not yet been published. Because of the large amount of tabulation necessary to present the facts, the totals have been compiled in Table VI which shows the position of each class as compared to all schools in the University.

This may be interpreted as follows: The Pharmacy class entering in 1926 and graduating in 1930 ranked the lowest in percentage on the Distinguished List of the University during the first three semesters in school, in the fourth semester they were seventh, lowest in the next semester, seventh in the last semester of their Junior year and lowest during their Senior year. There is one outstanding group, the class of 1928 to 1932. This group ranked high in every semester and as a whole it is an outstanding group of students.

According to the orientation tests of the freshmen class of 1930-1931, the group should rank high on this Distinguished List, and the results obtained so far seem to bear out our assumption. They ranked third in the University the first semester and we are of the opinion that they have retained the same rank in the second semester, although the List has not been published at this time.

It is well to state that no student has been reported on the Distinguished List in the past five years whose orientation average was below 30. Sixty-four and three-tenths per cent of those students in Pharmacy whose names appeared on the Distinguished List were from the group having an average of 50 or above on these orientation tests.

The incoming freshmen of 1930-1931 all enrolled in the four-year course in Pharmacy and, after a study of their orientation grades, there seems to be distinct indications that they have been better trained in the fundamentals. This group had the highest percentage of their number with a score of over 50 in the School of Pharmacy during the past five years, there being a total of 42.8% of the group with an average above 50, 68.6% above 30, 77.2% above 20 and only 5.7% below 10. The mortality of this group should be low as compared to that of previous years.

In conclusion, the orientation tests have been of value to us in sectioning students, in predicting their performance, in determining the load that should be assigned and in comparing the mental ability of students entering Pharmacy with students entering the other schools of the University. The results show that students entering the shorter course in Pharmacy have been below the average and that students entering the four-year Pharmacy course showed, this year, a great improvement. What will happen hereafter we cannot say, but we are optimistic enough to predict that this improvement will continue.

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#### PLACE AND PURPOSE OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AMONG PHARMACEUTICAL ORGANIZATIONS.\*

BY J. H. BEAL, FORT WALTON, FLA.

In a society in which powerful combinations are universally relied upon to influence public policies, the ability of a numerically small and unorganized group to make itself heard above the general clamor is pitifully small.

Assuming a total of 120,000 registered pharmacists in a census of more than 120,000,000 people, a ratio below one to a thousand, or less than one-tenth of one per cent, the chance of the individual pharmacist to influence legislative and administrative policies is practically zero.

Whatever has been accomplished to give pharmacy place and standing has been solely through the efforts of a comparatively small section of this tenth of one per cent. Consider what might be accomplished if we could count upon the genuine and intelligent coöperation of a majority of pharmacy's scattered units!

#### NUMBER AND WEAKNESS OF PHARMACEUTICAL ORGANIZATIONS.

Apparently there is no scarcity of pharmaceutical organizations. There are possibly several hundred city, county and other local societies, nearly half a hundred state associations, and almost a dozen societies of national scope, but it is estimated that less than one-third of those on the rolls of registered pharmacists are dues-paying members of their state and national associations. Organizations are numerically abundant, but the degree of organization is slight. The machinery is ample but the motive power is woefully inadequate—like a thousand-ton liner with the power plant of a dingey.

The great problem of pharmacy to-day is to discover some effective means of reaching the great mass of non-coöperating druggists and of successfully per-

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