

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

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DEPARTMENT.

Editorial Note: The following papers by Deans Sturmer and Dandreau were presented at the Conference of Boards and Colleges of District No. 2 and were submitted to me by Dean Hugh C. Muldoon, Secretary of the District. The topics discussed by Deans Sturmer and Dandreau are timely and I trust that they will have the attention of all readers of this Section.—C. B. JORDAN, *Editor.*

SOME THOUGHTS ON COMPREHENSIVE FINAL EXAMINATIONS.

BY DR. J. W. STURMER.*

In the early nineties final examinations came along as regularly as June roses, and were as inescapable as taxes. Soon, thereafter, this annual ordeal fell into bad repute, and many universities and colleges discontinued the practice. The controversy which affected the change was no mild affair: it brought forth much emotional oratory and divided faculties into hostile camps. Professors who claimed to be exponents of the advanced thought in education held that final examinations were the last word in pedagogic asininity; that they were futile as well as unfair, that they created conditions under which good teaching could not flourish, that they perpetrated an injustice on the real student, while they favored the loafer who happened to have the ability to cram for the occasion, that they were a manifestation of cruelty which should be reported to the humane society. Yes, there were deep convictions on the subject in those days.

And now we have a great institution of learning, namely, the University of Chicago, proudly proclaiming its new educational policy which involves affording the undergraduate the utmost freedom in regard to attendance, even to the point of no attendance, but requiring, before the degree may be conferred, satisfactory scholastic achievement as evidenced by comprehensive examinations. And knowing the University of Chicago, and its ideals, I am sure that this new policy does not signify a prospective lowering of scholastic standards. It means, rather, that there are, in its present system of operation, certain features which have turned out badly, have been disappointing as to results and that these flaws are now to be eradicated, even though it may require a major operation. It means also that this institution of learning is confident that there may be devised examinations which are real achievement tests, for unless this were the case, the new policy could not have had the support of experienced educators.

And if the University of Chicago can elaborate tests which may be depended upon to serve as a true measure of achievement, probably we can—at least we can learn how this may be done; and we can conduct such dependable tests, even though we may wish to retain all our present graduation requirements. I would state, however, as my firm conviction, that unless we can make our final examinations true achievement tests, we had better get along without them, for the wrong type is just as objectionable to-day as it was in the late nineties.

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I have seen the pendulum of pedagogic wisdom swing back and forth several times, and from one extreme attitude toward finals to the other. I have conducted courses with finals, without finals, then with finals, once more without and again with finals; and my judgment is that finals are unnecessary in such subjects as mathematics or language, but are desirable in subjects where there is a lack of integration of knowledge, and in which factual knowledge figures largely. Unfortunately, it is in these latter subjects that special difficulties are encountered in framing questions which would constitute a true test, capable of showing conclusively whether the candidate had an adequate fund of facts and could make intelligent use of them. Thus we are forced to decide what constitutes an adequate fund—and of which facts.

Shall we say 75% is enough? If we so decide, it is with the realization that our decision is of necessity an arbitrary one, and without a demonstrable basis. We can, of course, soothe our conscience by citing as a parallel and a precedent, the age-requirement for full citizenship, a requirement which also is arbitrary and clean-cut, and which ignores the fact that some individuals are more matured as to mentality, and in their judgment at the age of twenty, than others are at thirty, or at sixty. There is, however, this difference: time alone will cure a deficiency in age, and there is no ignominy attached to youth, while failure at college is considered a disgrace, and it means, if not a complete change of life's plans, certainly another year of preparation, with the incident extra expense. It is therefore with the greatest reluctance that faculties express scholastic standards in definite figures representing arbitrary decisions.

Remember, I am not objecting to 75% as the passing-mark, but wish to emphasize our responsibility when we proceed to determine on a strictly mathematical basis—no matter whether the figure be 75%, 70% or any other—who is to graduate and who is to repeat the year. We do not relish the necessity of drawing a hair line as a separation, thus creating by that act two distinct groups, one of which is destined to receive the bad news from the dean's office. Certainly we would feel more comfortable about our verdict if we could contrive tests which decisively and unmistakably placed each candidate in the one group or the other. Probably this may be accomplished by reducing, in our examinations, the emphasis on memory work, or by making a distinction between assimilated knowledge, and knowledge in original packages.

We pass now to another aspect: Let us assume, as an illustration, that a certain course embodies 5000 facts, and that 50 questions constitute the final examination. Our test-portion thus represents 1%, and we must admit that the element of chance enters into the procedure, for we have no means of making this small test-portion as representative of the student's fund of knowledge as a test-portion for chemical analysis may be made representative of a sample to be analyzed. Thus it is evident that some of the candidates who just make the grade are plain lucky, while some who fail might have passed, had Fortune, the fickle goddess, not withheld her smiles. We all dislike the thought of running a lottery. It is illegal. How, then, can we work out true achievement tests, not open to the objections so justly urged against a clear-cut passing grade, a meticulously mathematical process in grading and with the element of chance a conspicuous factor? I submit this as a problem for serious study to the teachers whose courses involve, as does

materia medica, for example, a staggering total of factual knowledge, more or less uncorrelated, and certainly devoid of such thorough integration as we find in the matter comprising the foundational courses in the sciences. Obviously the test should be far more comprehensive than one based on a single percentage unit of the subject matter of the course.

Passing now to the other part of my double-barrelled question, namely to an opinion as to the kind of facts worthy of consideration in connection with a final examination, I would answer briefly, *important facts*. Nothing is more fallacious than the assumption that if the candidate shows knowledge of uncommon, out-of-the-way facts, he may reasonably be credited with knowledge of the important facts. That if, for example, he knows about beth root, we may assume that he has full knowledge of cinchona, and of opium, and of nux vomica and of belladonna. If consciously, or subconscious, we are influenced by this assumption we may, in framing our examinations, perpetrate blunders which are indefensible in their unfairness. Moreover, such questions will result in repercussions in the class which will make effective teaching difficult.

Allow me to present a quotation which I consider relevant. A university president, in a recent inaugural address, said:

"The teacher in a professional school is in a strategic position to preserve and carry forward the liberal culture and the general view. He can bring to a focus on the most highly technical problem all the historical, economic, social, psychological, political or philosophic influences which converge upon it with implicating power."

Here we find an expression on education at its best: a teaching rich in inspirational qualities and in cultural value, helping students to grow and to develop intellectually, helping them to a worth-while objective, and to an understanding of this complex present-day civilization of ours, in order that they may learn how to adjust themselves to it, and to labor valiantly and effectively in their chosen calling. This is the kind of teaching we all aspire to provide for our own students. It expresses the great ambition of every real teacher; and it is because we harbor this ambition that we are antagonistic to anything which might tend to frustrate our efforts in the direction of resultful teaching. And the wrong type of final examination does just that. How can we expect the student to meet us half-way, with a receptive mental attitude—with a favorable "mind-act," and a hearty response to our own enthusiasm, if he has been lead to anticipate, as a climax to the course, an examination covering a list of several thousand uncorrelated facts, many of which he will never use in his practice of the profession, and any of which he could look up in a book, should occasion arise? The reaction, on the part of the student, to a test of this type, is deplorably unfavorable. He feels that such examinations are not in harmony with the instruction, because over-emphasis is placed on memory work, and that the questions do not give him an adequate chance to show what he has learned in the course. The whole thing seems arbitrary and unfair to him, for he does not see how such a test can provide a true measure of his capabilities. The result is that he develops a dislike for the subject, and a resentment toward the teacher who expects attention in lectures which are so largely on matter not comprised in the examination.

So it appears that we cannot have, in courses of the aforementioned type, a high order of teaching, certainly not as far as results are concerned, unless we have

the right type of examinations. I wonder how the University of Chicago, in connection with their new educational policy, would deal with such a subject as *materia medica*. It certainly presents difficulties, and, not being a teacher in this field, I am wholly incompetent to offer specific suggestions. It is my hope, however, that with the coöperation of our board of pharmacy friends, whose examination problems are inextricably intertwined with ours, there may be devised a real achievement test, comprehensive as to extent, and comprehensible as to its significance, for those subjects which, like *materia medica*, are burdened with a plethora of uncorrelated facts of varying degrees of importance. Briefly, let us so contrive that our examinations help true education and do not make such education impossible.

WHAT STEPS SHOULD BE TAKEN BY PHARMACY COLLEGE FACULTIES TO KEEP ABREAST OF CHANGES IN THE PRACTICE OF PHARMACY?

BY DEAN JOHN L. DANDREAU.*

I find that for a number of years past considerable thought has been given in the subject which we are to discuss this afternoon, and that many excellent ideas have been put forth which should tend to aid the faculty members in keeping abreast of the times. However, there is still need for some concrete method by which the faculty members may be encouraged to a further endeavor in seeking knowledge pertaining to changes which are taking place from time to time in our profession. That there are changes it is apparent, for there are changes continually taking place in every walk of life.

In a lecture at Yale University, Professor Millikan spoke of the changes which have come since his student days, in supposedly fixed, fundamental and unchangeable principles of matter. He stated that he had listened to a lecture in the early nineties delivered by one of the most famous of world's scientists, in which the speaker stated that probably all the great discoveries in physics had already been made, and that future progress was to be looked for not in bringing to light qualitative new phenomena, but rather in the more exact quantitative measurements upon old phenomena. Then came in 1895 and later, the Roentgen-ray and radio activity. Thus proving the 19th century to be the beginning and not the end of discoveries; that there were new properties of matter and that this was a dynamic instead of a static universe. "The dogma of immutable elements," said Professor Millikan, "is forever gone; the physical world is changing, evolving and it is a dynamic living organism. The keynote of modern science is service, the subordination of the individual to the good of the whole." It seems that perhaps we are a little bit too near our own profession to realize that these same processes have been going on in Pharmacy and that the same key note may be appropriately sounded by pharmaceutical educators.

The ever-changing conditions in the practice of pharmacy, and the rapidly changing curriculum in the colleges are factors with which we should reckon. It was in 1927 when the two-year course was changed to a three-year college course. Now we are putting into practice a much needed four-year course for pharmacy.

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