

and sixty-four assistant pharmacists certificates were issued during the quarter ending March 31, 1927.

South Dakota.—The Board of Pharmacy announces its next meeting on June 7th, 8th and 9th at Brookings.

After this examination, all candidates for entrance to examination must have four years of experience and be graduates of a four-year high school course or prove equivalent credits; or must be graduates of an approved college of pharmacy and furnish proof of one year of practical experience. This is in accordance with the amendments to the pharmacy law enacted at the recent session of the legislature.

Virginia.—The Virginia Board announces that its annual meeting was held on Monday, April 25th at Richmond, Va. Report of officers elected will be published in our next issue.

The annual report of the Virginia Board of Pharmacy shows that 53 candidates were examined during the year for registration as pharmacist and that 39 successfully passed and were granted certificates. Eleven pharmacists from other States were granted reciprocal registration, making a total of 50 new registrants. The total number of registered pharmacists in the State is 1351; assistant pharmacists, 106. Number of women pharmacists registered, 23.

Wisconsin.—The State Board of Pharmacy concluded its examination on April 23, 1927, after examining the largest class of applicants that has appeared in the 44 years since the Board was created. Out of 195 candidates, 100 were successful.

This being the annual meeting of the Board, the following officers were elected for the ensuing year:

Gustav V. Kradwell of Racine, *President*; Henry G. Ruenzel, of Milwaukee, *Secretary*.

The next examination will be held in Madison on Monday, July 18, 1927. No applications will be accepted after July 1st.

A PLEA FOR THE ADOPTION OF THE QUARTERLY SYSTEM BY COLLEGES OF PHARMACY.*

BY A. RICHARD BLISS, JR.¹

The suggestion offered in Article VI, paragraph 4 of the By-Laws of the American Association of Colleges of Pharmacy; the activities of the writer in a recent movement initiated and sponsored by The City Club of Memphis, a civic organization, for the adoption of an "all year round school" for the public schools of Memphis; and a study of the quarterly system now under way at the University of Tennessee College of Medicine, College of Dentistry and School of Pharmacy are the influences that prompted the writing of this paper.

The American Medical Association and the Association of American Medical Colleges have definitely approved the quarterly system for Class A medical schools. The American Association of Colleges of Pharmacy has indicated its approval in the article of its By-Laws referred to above. A number of colleges, universities and public school systems have adopted the quarterly plan of continuous operation. The plan has evidently passed the experimental stage, and its feasibility and advantages definitely established.

A casual perusal of recent pharmaceutical literature convinces the reviewer that, while page upon page of discussion appears concerning the extension of the basic course in pharmacy from two years to three, four, five and even six years,

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relatively little consideration has been apparently given that important factor "Father Time" from the economical and personal standpoints of the pharmacy student. Our good friend and colleague Doctor Gregory of the College of Pharmacy of the University of Buffalo stands almost alone as the inquisitor for "Father Time." An examination of current catalogs of the colleges of pharmacy shows that very, very few, if any, pharmaceutical institutions have adopted, are promoting, or are even seriously considering the time-saving quarterly system.

At the start permit the writer to stress the fact that he is not advocating any curtailment of the actual time in clock hours prescribed for the basic course in pharmacy.

This paper purposes to show the following:

First.—That an individual should have the right and the opportunity to progress as rapidly and as far as his ability will permit, unhampered by artificiality and unreasonable customs and prejudices.

Second.—That the actual calendar time expended in "educating" the individual is unnecessarily long and may be easily shortened.

Third.—That the greatest waster of time is the so-called summer vacation period.

Fourth.—That the long summer vacation period arose from the pioneer necessity of the children helping with the work on the farm, and not to preserve their health or the health of the teachers.

Fifth.—That although material factories have changed in answer to quantity production calls, new conditions, etc., our educational factories have remained largely the same.

Sixth.—That the usual short summer session and abbreviated courses offered by them are of no real value to the vast majority of students.

Seventh.—That the quarterly system of voluntary continuous attendance at school is a desirable and economical plan that neither sacrifices efficient, effective and thoroughly acceptable instruction, nor curtails the actual clock hour time demanded for such instruction.

Eighth.—That there is no really logical or valid objection to applying a workable quarterly system to the curricula of colleges of pharmacy.

Any system which denies the individual the right and the opportunity to advance more rapidly and farther than his fellows inevitably leads to Bolshevism and socialism. Civilization will not be advanced by any system which represses above-average individuals so as to keep up the delusion of all men being equal. All men are born equal only in their right to equal privileges, and this right itself demands that these privileges be available to the individual just so soon as he is ready for them. Repression of the above-average individual does not assist his below-average brother.

Humanity as a whole should be lifted to the greatest heights possible; but if there be any individuals endowed beyond their fellows, these must be permitted and encouraged to rise as rapidly and as far as possible, for in so doing they will be the more capable of extending a helping hand to their brothers of lesser ability, and of raising the whole of humanity. The same opportunity is not democracy. Opportunity to be equal must be available. Ideal democracy must present equal

available opportunity for all, at any age, at any time, on all days of the week, and on all weeks of the year.

In order to be productive of good and goods a people must be healthy, industrious, intelligent and well-trained to do those things well which each individual chooses as his part of the world's activities. It is the function of the school to develop these qualities, but if all these things are secured for a people and still the time for production so limited that the individual leaves the world no richer than he found it, decay must positively follow. The histories of all republics relate this story. Industry, riches, literature, ease, extravagance, idleness, degeneration and decay complete the cycles of the history of humanity. To escape, or at least minimize, the decadence that inevitably follows the ease and extravagance begotten of wealth, it is essential that industry be maintained throughout the cycles of human existence.

The longer the time expended or the greater the number engaged in preparation for production without producing, the fewer the individuals left to produce. The fewer producers thus left can support fewer individuals preparing for production but not producing. If a fixed number of producers can sustain a certain number of non-producers for a long time, then the same number of producers can certainly maintain a much larger number of non-producers for a short time. What is true of a whole population is true of the unit of our civilization—the family.

The parents being a fixed number, the longer the children are kept from producing, the fewer of such children can the parents support. The intelligent portion of our population, those who are not willing to provide their children with less than what is usually considered necessary for a fair start in life, are, through non-marriage, late marriage and birth-control, so reducing reproduction that our population is more and more maintained by the so-called lower classes. Vital statistics foreshadow this impending condition. Records kept of the graduates of the larger universities and colleges show conclusively and accurately that that portion of our population, which has enjoyed the opportunities and privileges of higher training, is not reproducing itself in sufficient numbers to maintain the standard of mentality and efficiency that now exists in our land.

Education is not to be completed before production commences. Education is a life's job lasting from cradle to grave. However, there is no reason why production should not begin while learning how to produce better. One does not learn to walk by studying anatomy and physiology, or by shaking his foot indefinitely before taking a step. One learns to walk by walking. An individual learns to work by working, not by thinking about it. All the study in the world about work without production would permit a hungry world to starve to death. The first duty of every man is to support himself and his family. If he does not accomplish this, he is a failure.

Education is not information, but it is the ability to use information. The printing press rendered unnecessary the lumbering up of the human brain with a lot of information which might be preserved more permanently and accurately in a dollar book. Education is not found in books alone; in fact but a small portion is to be gained there. Real education enables the individual to do things better than he could do them without such training.

A very brief review of the origin and development of our graded school system will prove enlightening. The first industry of every nation was agriculture, and the summer or growing season was the busy time. The first school was and is the home. Later in the development of education, tutors were employed for the children of families or groups of families. Then the community school was inaugurated to function when the needs of agriculture could best spare the children, *i. e.*, during the winter months, and not during the summer or growing months. As riches accumulated and education became more and more in demand, the short winter school of several weeks gradually developed into longer and longer sessions until only the three or four months of the growing summer session were left for help at home. Thus grew the custom of summer vacations, not because of the necessity of rest for the student or the teacher, but from the necessities of an agricultural nation.

In democracies, where the ruled of to-day become the rulers of to-morrow, it soon became apparent that universal education must go hand in hand with universal suffrage, and a system of quantity production was demanded. The answer to this demand was the graded school system, just as the factory was the response to the demand for quantity production of materials. It is a question as to whether the quality was improved in either case.

The educational factory, the school, operated during the winter months, partly through agricultural necessities and partly through tradition and custom. During these periods of our country's development, while the material factories have answered every new call and new demand, made because of changing conditions, the educational factory or system has remained largely the same.

Our school systems are factories for quantity production of education at such cost as the taxpayer or individual can afford. It is the duty of the educators to improve the quality while economically keeping up the quantity. The system should be modified from time to time to make it responsive to the changing needs and the development of our civilization.

At the beginning, the graded school system consisted of eight years of elementary and four years of high school work, a total of twelve years. These twelve years were divided into twelve grades or classes, an educational step-ladder with twelve steps, each of which required one year to advance over. Students were divided into twelve groups according to their ability, and each group or class occupied one step on this ladder. Needless to say, there was just as much difference in the ability among the students of one class as there was between the most able member of one group and the dullest member of the class one step higher. However, this difference was ignored and the individual was sacrificed by a cast-iron system. All students in a given class had to advance at the same rate. If some could not keep up the work, they were moved to the class or step below—an entire year back—even though a much shorter review might have sufficed. If an individual was capable of doing more work than that prescribed, he was either held back to keep pace with the average, or was forced to skip an entire year's work and advance to the step or class above.

Later on this educational ladder was reconstructed so that there were twenty-four steps instead of twelve—each step one-half year long instead of one year—and promotions or advancements were semi-annual. This plan offered twenty-

four instead of twelve classes into which the entire student body might be divided. The evident injustice of the previous twelve-step plan was accordingly reduced one-half.

Recently the educational ladder has been remodeled in some localities so as to provide forty-eight steps instead of twenty-four, and each step is just one-fourth of the year in length instead of one-half. Further, the remodeled educational ladder is functioning the year round instead of but eight or nine months of the year. The increased number of classes in this system provides forty-eight classes or groups into which the student body may be better fitted, not perfectly fit to be sure, but evidently twice as nearly perfect as the twenty-four-step ladder, and four times as good as was possible with the twelve-step educational ladder.

Under the forty-eight step plan, a student not properly assigned can either advance or go back, as the case requires, one step or one-fourth of a year instead of one-half a year as with the semi-annual promotions, and instead of a whole year as with the annual promotion plan. Under this system the work done in nine months of the session continues to be done in the same nine months, but an additional three months' work is provided, so that one and one-third of the present nine months' school year's work is covered in one calendar year. The plan not only increases the rate of speed of the educational factory's machinery, but it also insures the continuous operation of the factory the year round. Who, but the proverbially impractical school teacher, would run his factory but three-quarters of the year, when the world is crying for its products and the raw material lie fallow one-quarter of every year?

Under this quarterly system a student, who is needed at home or forced to drop out because of limited finances and the necessity for working so as to accumulate more funds with which to attend school, can discontinue school work at the end of any three months of the year and take up the work where he left off at the beginning of one of the three months' period or quarters. Further, students endowed with mentalities and bodies capable of continuous or sustained efforts, who wish to attend all four terms or quarters of the calendar year, can do one and one-third year's work in one year's time; and, if they did this three calendar years, they would be four years advanced in their work. Thus, it would be possible for a student to gain during the entire course, one, two or three years, depending upon how much time his necessities or pleasures kept him out of school. One, two or three years saved at the beginning of life is just as valuable as the same number of years added to the end of life.

There is every argument that a school plant costing thousands or millions should not be idle three months of each year. Where there is a certain amount of work to be done, it very probably would cost less, rather than more, to do it regularly and continuously than spasmodically.

The quarterly system grants each individual his inherent right to advance as rapidly as his abilities permit, and not to be hampered and retarded by being bound to the stupid or the lazy. The system permits the capable and the strong to become productive one, two or three years sooner than under the old system.

The foregoing discussion has concerned itself largely with the quarterly system as applied to the elementary and the secondary schools where it would be possible to save a maximum of three years during the entire course of instruction. While

all the public school systems have adopted at least the twenty-four-step ladder plan with semi-annual advancements or promotions, and the others the forty-eight-step ladder or quarterly plan, most of the institutions of higher learning, the universities, the colleges and the professional schools, have tenaciously clung to the antiquated and time-wasting system of eight or nine months' sessions with their annual advancements or year-lost failures, and long wasteful summer vacations. To be sure there are and have been quite a few years summer sessions of more or less efficacy, but these short-period summer sessions were originally planned for and are more or less exclusively patronized by students who are attempting to make up deficiencies of various descriptions which have been acquired during the regular session in various fashions. The nature of these summer session courses and the type of the work by many students in at least some of the summer schools, have caused not a few instructors to refuse to accept short summer session courses "satisfactorily completed" in lieu of the work of the regular sessions.

A relatively small number of universities and colleges, such as the University of Chicago, have been operating under the quarterly system, but their results have been successful and confirm the belief that there is a real demand for educational opportunities at all times. Doubtless, better results are obtained because of the continuous occupation of the student. The continued use of the system is evidence that it has passed the experimental stage and has definitely demonstrated its worth and value. It has been shown that it is possible to shorten the time of preparation for productivity, not only without harm to the individual but with positive advantages to him and the world at large. It is the opinion of the writer that this system will ultimately be the American System of Education from the elementary school through the institutions of higher education.

Think of the actual time saved in educating an individual for such professions as medicine, dentistry and pharmacy if the quarterly system were applied from the elementary grades on through the professional school years! As pointed out above, a student could successfully complete the twelve years of elementary and high school training in nine years, thus saving three years. The minimum of two years of premedical training could be completed in one and one-half years, a saving of another half year, bringing the total thus far saved to three and one-half years. The four sessions of the medical course proper could be completed in three years, thus saving another year and bringing the grand total saving in years for the medical graduate to four and one-half years. Each year he would have had a total of one month's vacation, *viz.*, the two weeks usually provided in the quarterly system at Christmas, and two additional weeks before or at the end of the summer quarter. How many individuals, workers, in other walks of life enjoy more than a month of vacation annually? Furthermore, after a year or two of internship in a hospital, the medical graduate would be ready to enter upon the active practice of his profession in the full vigor, enthusiasm and confidence of well-prepared youth, instead of, as is too often true under the present system, at an age of waning enthusiasm and vigor. The dental graduate, with his one year of pre-dental work, would have saved a total of four and one-quarter years; and the pharmaceutical graduate of the three-year course would have saved a total of three and three-quarter years.

Thus, the quarterly system in the school of pharmacy proper would save the

student three-quarters of a year (three-year pharmacy course); in the dental school proper, one full calendar year; and in the medical school proper, one full calendar year.

In addition to the saving in time, there is also a monetary value to be considered. Dean E. W. Lord, of the College of Business Administration of Boston University, recently announced some interesting results of a survey among three groups of workers to determine the financial benefits of higher education.

Doctor Lord's study showed that the *untrained boy* goes to work at fourteen; reaches a maximum income of less than \$1200.00 per year at the age of thirty; at fifty or earlier drops below his maximum income, because it is largely dependent on physical strength and manual dexterity; and in sixty out of every hundred cases becomes dependent upon others for support at the age of sixty. Between the ages of fourteen and sixty the untrained worker earns about \$45,000.00. Not more than \$2000.00 is earned in the four years that would have given him a high school education.

The *high school graduate* goes to work at the age of eighteen; catches up to his untrained brother within seven years (since he makes an average of \$1200.00 per annum at the age of twenty-five); rises steadily to his own maximum of about \$2200.00 to \$2400.00 at forty; and continues at this level for the remainder of his life. The total earnings of the high school graduate between the ages of eighteen and sixty is about \$78,000.00, a sum \$33,000.00 more than that earned by the untrained man.

The permanent earnings of the *college or technical school graduate* rise practically without a break to \$4000.00 at forty; \$5000.00 at about forty-seven years of age; \$5500.00 at fifty; and, since his income is dependent upon his mental ability and training, which is constantly improved by practice, it continues to rise until at sixty he is earning \$6000.00 a year and often more. The total earning of the college graduate between the ages of twenty-two and sixty, not including anything earned during the college course, is \$150,000.00, an excess of \$72,000.00 over the earnings of the high school graduate, and \$105,000.00 over the untrained worker. The totals for graduates of the professional schools and colleges would undoubtedly be still larger.

The foregoing figures are quoted at such length to show that the earning capacity of the trained individual is not determined by age, but rather by the thoroughness of his training and by his skill. Accordingly, if the school and college training are completed earlier, the producing period of the individual is lengthened and consequently the individual is enabled to earn a larger annual salary earlier in life, to increase his income sooner and to enjoy the fruits of his labor in greater measure more fully and for a longer period. The figures, in larger denominations than those above, are therefore undoubtedly applicable to the pharmacy school graduate.

Consideration of the foregoing facts leads the writer to the conclusion that the colleges of pharmacy of the United States should give serious and careful thought to the following:

1. The adoption of the quarterly system by the elementary and high schools.
2. The adoption of an all-year course of study of forty-eight weeks by colleges of pharmacy.

3. The division of the present conventional college session of nine months into three terms or quarters of twelve weeks each.
4. The institution of regular summer terms or quarters of twelve weeks duration.
5. The organization of classes each twelve weeks.
6. Three terms or quarters of twelve weeks each to constitute a college session.
7. Voluntary attendance at summer terms or quarters.
8. A study of such factors as health which should be used in deciding upon the admission of a student to all summer terms or quarters, and in permitting regular members of the teaching staff to continuously instruct during the summer periods.

FORTIFYING THE PRESCRIPTION COUNTER.*

BY CHARLES H. STOCKING.

Advancement along all lines in pharmacy to-day is no longer a matter for mere speculation. We hear less and talk less about the "good old days" in pharmacy, and, though we honor and revere the memory of those who laid the foundation, we believe we are building a superstructure that will stand the test of time. With our surveys and campaigns we are advertising pharmacy to pharmacists and are digging deep into the needs of the profession in order that corrective measures may be applied wherever necessary. Thus are we looking conditions squarely in the face and taking stock of present-day methods with the sole purpose of placing this time-honored profession where it can fulfill its mission in the public health group with impunity.

No pharmacy is a real pharmacy unless within its confines there exists a prescription department worthy of the name. Other departments such as those for the sale of toilet goods, soda water, cigars, etc., are frequently necessary and advisable, but the confidence of the public in any store is established unquestionably by the presence in the store of a well planned and well kept prescription department. In days gone by, this department was invariably located at the far end of the store in a dark and secluded spot beyond the view of even the most inquisitive customer. Here the pharmacist betook himself when he filled the prescriptions that were brought to his store. Here he manufactured the preparations that he used at the prescription counter.

Modern manufacturers of store fixtures have glorified the prescription and manufacturing room with sectional cabinets and polished table tops, leaving space for autoclaves and sterilizers, ointment mills and suppository machines, as well as for other important pieces of apparatus. But some of the fixture concerns have not yet realized the strictly commercial advantage to the pharmacist of the proper location of the prescription department, and, in line with older methods, still insist upon placing this most important department in the most obscure location in the store. As an instructor in a college of pharmacy I very frequently tell the students in my classes that they can have the kind of a store they want to have. In other words, if it is the desire of an individual to own and operate a

* Section on Practical Pharmacy and Dispensing, A. P. H. A., Philadelphia meeting, 1926.