

1. Cost of special physiological apparatus for each section or group of students..... \$130.00
(It should be noted that this does not include the ordinary apparatus also required, such as beakers, funnels, etc.)
2. Cost of additional apparatus for the general laboratory, to be used for demonstrations, etc..... 350.00
3. Cost of animals. (The figure that follows will doubtless be sufficient for providing enough animals for a class of fifty)..... 150.00

Many may look upon the cost of the materials that should be provided for each group of two students as rather high. It is true that this amount will be increased to about \$150.00, when the cost of the ordinary apparatus, like beakers, funnels, etc., is added. However, when one takes into consideration the importance and value of the work, the fact that the apparatus can also be used by the Department of Physiology for laboratory instruction, and the fact that the apparatus with ordinary care will last indefinitely, the amount is not extremely high. The annual cost of up-keep is comparatively small. The cost of animals can be materially decreased by breeding them. Some medical schools require the students to furnish their own animals, or charge an additional fee for providing them with the necessary animals.

LABORATORIES OF PHARMACOLOGY,
SCHOOL OF MEDICINE,
EMORY UNIVERSITY,
ATLANTA.

PHARMACY AND THE NEW EDUCATION.*

BY CHARLES O. LEE.

In the educational rôle of this country, pharmacy has not played a very conspicuous part. However, it has been only a little more than a generation ago since it began to be introduced into our colleges and universities as an integral part of such institutions. Its growth among the schools has been slow but certain. The requirements for entrance to and graduation from schools of pharmacy have gradually increased so that pharmaceutical education promises to be an educational factor of much greater moment in the future than it has been in the past. The teaching of pharmacy has not been thought of much as a problem in education probably because of its professional or technical character. The purpose of such training whether by schooling or by apprenticeship or by both is to fit a man to do certain peculiarly technical things. As in other courses of like nature the study of the subject had to follow certain prescribed courses and no one has ever changed the procedure very much.

Conditions have changed, however, and the signs of the times are that pharmacy must not be forgotten in the readjustment of the great educational upheaval which is upon us. Students of education and sociology tell us that we have suddenly come into a new democracy, and education must readjust itself to the demands of a contemporary civilization. If education means anything it must

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fit men and women to meet, adequately, new and changing conditions. Not only that, but each member of a democracy must be taught to feel and bear his definite responsibility to society. Education in a democracy such as ours must create in the individual a personal interest in social relationships and help to form habits of mind which will secure social changes without introducing disorder.

If this big problem of educational readjustment is to find a solution we must deal with some fundamental principles. If we are nearer the beginning than the end of a great period of transformation, as some one has said, the problem looms larger. We wonder if Josh Billings wasn't about right when he said, "tain't what men don't know that makes trouble in the world, it's what they know for certain that ain't so." It would not be hard for us to believe that much of the chaos and unrest in the world is based upon such a philosophy. If so, education is the cure. William James once said that the life of an infant is a "big, blooming, buzzing confusion." Swift¹ goes on to say, "that's what life always is, and education in its highest sense is only an attempt to bring a little order into this confusion and to classify it as far as available knowledge permits." Education, then, would involve thinking, comparison and interpretation, which would result in the elimination of a lot of non-essentials and ultimately bring contentment and satisfaction into life.

If the world is to be remolded educationally, pharmacy must not be left out as a contributing factor. This, then, will involve a brief reference to our theories of education and how pharmacy fits into them. The two commonly accepted theories of education are the utilitarian and the classical or philosophical. Those who adhere to the former theory believe that education's first purpose is to teach how to make a living. Followers of the latter theory pursue the so-called classical studies. They hold that the important things to insist upon are ideals, aspirations and correct habits of thinking. These theories are quite opposite. *Thinking* and *doing* are put one against each other. However, it cannot be implied that because a man has been taught to think a problem through he could always be trusted as a skilled artisan at a task, nor can it be assumed that a skilled workman thinks his job through, or by thinking makes his task more pleasant and more serviceable. While our educational policy in the past quarter of a century has swung greatly toward the vocational type of training, it is not without its inadequacies and dangers. The new democracy not only demands that a man perform a certain definite task for a pecuniary return, but it expects him to make himself a member of society—adding not only to his own well-being and happiness, but he must accord the same to others—he must not only receive but he must contribute.

Neither of these theories of education when carried to the extreme will solve our great national problems. There ought, then, to be a rational compromise between these two policies which would be better than either of them. It seems to me that our highest type of pharmaceutical education comes pretty nearly doing this. Certainly it combines splendid technical skill with a vast amount of information, not all of which is technical, but which requires and develops thinking. No good dispenser of medicines can be slovenly and thoughtless. There is every opportunity to improve upon technic. There is every reason why a pharmacist should feel that his tasks, even to the smallest, are a part of a great

service to humanity. This should make for interest, efficiency and pleasure, as not every trade or profession seems to do. We have not been philosophical enough about this work. Our courses are designed to fit the student to perform a peculiar scientific task. We forget that the pharmacist exercises his dexterity and skill only as it pertains to society. Such service might well be called professional, but it should be done with the proper attitude of mind. It is here that we must get beyond the utilitarian point of view. The highest compensation a man can receive is the complete satisfaction of real service rendered. Men trained in pharmacy are trained in technic. They learn the art of handling, compounding and dispensing of medicines but may not learn much of the humanities of life. We go on from year to year teaching pharmacy, chemistry and materia medica as something too much apart from real life. The physician links up his knowledge of chemistry with life processes. In the same way he makes use of his knowledge of materia medica and pharmacy. Why not bring such knowledge and skill into vital relation with life and society? The fact that we teach our students pharmacy in order to equip them to perform a certain kind of technical service cannot excuse us from helping to acquaint them with the world's business and social problems. To teach automatic routine laboratory exercises may increase skill but it does not necessarily lead to new perceptions. On the contrary, it tends to limit rather than widen the horizon of life. It is for this reason that purely vocational or technical training should turn back and link up with the more philosophical educational policies. There should surely be some connection, in the mind of the performer, between the performance of a task and the result, or else the whole thing will be a sort of a trick. The problem, then, is to relate every performance to every possible value and use. Education, then, is really freeing the capacity of the individual, progressively and in the direction of service to society. Something more than technical training is needed for this. The men who furnish the brains for big business have more than skill. They have vision, imagination and convictions, the prerequisites to progressive development. The president and manager of a large growing electric company is quoted as saying that "the fundamental limitation of the majority of men, from the standpoint of promotion, consists in a lack of capacity to adjust themselves to new requirements." He finds that men do not keep themselves fresh at the growing point. They do not anticipate or imagine the needs of a growing business and, as a consequence, the business grows more rapidly than the men in the business. Modern business cannot wait for men to qualify after promotion. Every growing man will be ready for the job that comes to him, by anticipation and prior preparation. If a man lacks resourcefulness and is not mentally flexible enough to meet the constantly changing conditions of a growing business, he soon ceases to progress and, in the end, fails.

The big problems of business and education are quite closely associated, and vitally so, since we look upon specialized training and mental discipline as means to a most complete success. Dewey⁵ puts the situation quite well when he says, "an education which acknowledges the full intellectual and social meaning of a vocation would include instruction in the historic background of present conditions; training in science to give intelligence and initiative in dealing with materials and the agencies of production; and a study of economics, civics and politics to bring the problems of the day, and the various methods proposed for

its improvement into touch with the worker. This ideal has to contend with the inertia of existing educational traditions, and is opposed by those who use other ideals to further their own ends." Voorhees,² another authority, says "education consists in the strengthening of the powers of the body and mind by the process of body building, spirit building and institution building: that is, by the elevation of the health, of morals, and of the democratic and political institutions of the country." This author goes on to suggest that the three subjects which especially need to be taught in our schools are ethics, economics and politics. Ethics treats of conduct and service. Economics and politics not only treat of means of living independently but harmoniously as well. Snedden³ states that "the modern world insists on specialization in productive activities as the keynote to efficiency; but it must learn to insist equally on the democratization and universalizing of fine consuming capacities, as a condition of maintaining the larger forms of social life." Modern society cannot call a man liberally or properly educated who manifestly professes no interest or concern in the exercise of any social responsibility, which is bound to fall upon every citizen, in proportion as he is qualified.

Educational procedure can no longer rest upon tradition. Past methods must go if they cannot be expanded into newer and larger ranges of activity and service. We quote again from Snedden,³ "The demands of contemporary civilization for a more purposeful, a more comprehensive and a more efficient system of preparing the young for adult life are insistent and of increasing definiteness." Modern education has come to be thought of in terms of "social economy" in every sense of the word. This means the development of a social consciousness, prevention of disease, control of conditions which give rise to crime, suffering and waste of life; the promotion of civic idealism, economic efficiency and other qualities that are conducive to the highest well-being of every member of society.

In our technical courses we have always more or less rigidly prescribed a certain number of subjects which are considered absolutely necessary. Isn't this feudalistic and traditional? So much that we teach never functions in any practical way. However, the bane of education is trying to make everything practical. Here we are again trying to choose between humanitarianism and utilitarianism as educational policies. Neither alone seems adequate or sufficient, but if our students do not lack so much in skill and knowledge as in attitude, interest and experience, then these latter qualities should be cultivated. Nothing so unfits a man to become a part of the general scheme of things as does lack of interest, irresponsibility and mental slovenliness. Certainly not many people have too much mental equipment. The more of it a man has the more successfully and graciously will he encounter the struggles that a great big world of activity has to offer. We sometimes think that our educational doses are much like dispensing sugar-coated pills. They are already prepared, their disagreeableness is disguised, and the dose is small. But the medicine has been swallowed and the patient lives in the faith that it will produce mental, social and moral reactions. As long as we continue to hand out "as directed" courses to our students we can't blame them for having sugar-coated notions of life and service. In an autocracy we may expect to be told what to do, but in a democracy we must all do things and make the golden rule our motto.

We cannot separate education and democracy. Education is the foundation-stone of democracy. Our schools must not only prepare the individual to live but to live more abundantly, in every sense of the word. Since a democracy is a great community of mutual interests and responsibilities we agree with Allengry,⁴ who says, "It is important, therefore, to constantly increase the intellectual capital of the nation, to train up citizens who will be above selfish considerations, to develop a political sense which will subordinate private interests to the general good, to engender a sense of duty, and to create great moral forces which are the sole guarantee against slavery and demagogism." The problem of education is much bigger than the individual and his trade or profession, it is as big as society itself. If the leading educators of the country are expecting the schools to make it a part of their business to develop a sincere moral intelligence, create a great national character and establish adequate standards of ethical ideals, we, who have the highest success for pharmacy at heart, must take cognizance of the situation. We may need to forsake the old way for the new, but progress in education means that it is dynamic and not static, that "Contentment is death" to pharmaceutical education as it is to every other field of education.

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PURDUE UNIVERSITY SCHOOL OF PHARMACY.

WHY CASTILE SOAP SHOULD BE DROPPED FROM THE PHARMACOPOEIA.*

BY E. V. KYSER.**

At the meeting of the American Pharmaceutical Association held in New York last year I presented a note "Proposed Changes in the Soaps of the Pharmacopoeia,"† suggesting that the definition of Soap in the Pharmacopoeia be changed so as to conform to the standards adopted by the United States Bureau of Standards. This would do away with the recognition of olive oil soap and would eliminate the use of the word "Castile soap" as a synonym for the official soap.

This proposal was referred to the Committee on Revision.

Since that time an importer of Castile soap has published an article on the subject in which he attempts to refute the arguments which I put forth in the paper referred to, and to create the impression in the mind of the reader that the retention of the present definition of Soap in the Pharmacopoeia was necessary

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† *Jour. A. Ph. A.*, October 1919, p. 813.