

American pharmacy. Better things are on the way. We pharmacists of to-day are the inheritors of the pharmacy of the past. We have accepted the trust but are maintaining and administering it in a feeble way. We are not doing our best until we firmly resolve, and carry out our resolutions, to advance and increase this trust to a point where our posterity can receive it with the realization that we did not exploit it but enhanced it greatly in return for the sacrifices made for us by our forebears. We older ones must point the way for our younger associates and must urge them to profit by our experience, so that they will build better than we did. We must imbue them with the understanding and conviction that their responsibility is a later one in the course of pharmaceutic events and therefore a greater one. We ought to try harder to make them realize that neither individual nor mass pharmaceutical indifference and inactivity will lead onward, but that a dynamic nobility of purpose and a sincere and earnest and active resolution to aid in every consistent and helpful way toward the marshalling and mobilizing of all pharmaceutic agencies into one resistless and constructive force for the broadening and developing of a noble and unselfish calling is part of their duty toward the calling and toward themselves. They should be strengthened in the ideal that pharmacy affords not only an opportunity but a privilege as well, to render a responsible unselfish service to man. Only such should be admitted to the ranks who can accept and subscribe to these ideals.

UNIVERSITY OF MINNESOTA,
SEPTEMBER 4, 1923.

MATERIA MEDICA IN THE HOSPITAL TRAINING SCHOOL.*

BY FRANCES M. GREENWALT.

Four years ago when I accepted the position of hospital pharmacist, which I still hold, I was told that I would be expected to teach *Materia Medica* to the nurses. I was to give them a course of twenty hours and I was to select the subject matter.

A few years previously I had some teaching experience, so that the problem was not so much, "How to teach the class?" as, "What to teach the class?" as, "How much to include in a course of *materia medica* for nurses, and what to eliminate?"

Upon looking over the textbook which was being used in our hospital, I found it to be a very excellent one, but too complete and too difficult for nurses to study in the short time allotted to them for *materia medica*. I am quite certain that student nurses are too tired when off duty to spend much time in actually grinding over some subject which may be assigned to them. Besides they need their off-duty hours for rest and recreation. They have so many classes that they cannot give any *one* subject a great deal of extra time outside of the class room. I decided, therefore, to use the textbook only as a reference book and to prepare a rather complete outline for lectures including everything they should know to qualify them for the intelligent administration of medicines, and then when it became their responsibility to care for patients under any form of medication, the nurses would

* Section on Practical Pharmacy and Dispensing, A. Ph. A., Asheville meeting, 1923.

be able to observe and to report accurately the results obtained from the action of the drugs administered. Such a course should include: dosage, familiarity with the appearance of common drugs, and solutions of drugs, the meanings of terms and symbols; idiosyncrasies; symptoms of poisoning from toxic drugs; antidotes and a few first aid remedies.

It had been reported to me that nurses consider *materia medica* their most difficult subject to master, and that there were more failures in State Board examinations in that subject than in any other. I determined that none of our nurses should fail if I could help it. With the preparation of my class for the Board examinations in view, I obtained a few sets of questions from previous examinations. I was astonished and a little disappointed with the simplicity of the questions. It seemed that the examiners must be making light of the subject. And yet, there were failures. Was the fault with the nurses, or with their instructors?

I have learned only within the past year that there is a standard curriculum for training schools for nurses, with an outline given for the entire course. The first twenty hours are confined to drugs and solutions. This course is a preliminary one and is taught in our training school by the superintendent of nurses during the first year of training. The other twenty hours of the course, outlined in the curriculum, are taken up with *materia medica* and therapeutics. This course is given to the intermediate class by the pharmacist. While the outline I have prepared is not just the same as the one in the standard curriculum, I believe that it covers the same subject matter, and expresses one way to present the subject successfully.

The outline I use is, in brief, as follows:

- | | |
|---|--------------------------------|
| Lecture I. | 2—Pilocarpine Group. |
| 1—Definitions for <i>Materia Medica</i> , Pharmacology, Therapeutics, Toxicology. | Lecture VII. |
| 2—Drugs: General Action, Methods of Treatment, Methods of Administration. | 1—Digitalis Group. |
| 3—Synergistic, Antagonistic, Specific Drugs. | 2—Antitoxins and Vaccines. |
| 4—Tolerance and Idiosyncrasy. | Lecture VIII. |
| Lecture II. | 1—Aconite and Veratrum. |
| 1—Weights and Measures. | 2—General Anesthetics. |
| 2—Apothecaries' and Metric Systems. | 3—Soporifics in general. |
| 3—Solutions—methods of dilution by proportion, per cent. solutions. | Lecture IX. |
| 4—Latin and English Equivalents. | 1—Acids—Organic and Inorganic. |
| 5—Irritants, Corrosives, Stimulants. | Lecture X. |
| 6—Astringents. | 1—Alkaline Earth Metals. |
| Lecture III. | Lecture XI. |
| 1—Antiseptics and Disinfectants. | 1—Mercury—preparations of. |
| 2—Classification of Drugs. | 2—Antimony—preparations of. |
| Lecture IV. | 3—Arsenic—preparations of. |
| 1—Cathartics and Purgatives. | 4—Bismuth—preparations of. |
| 2—Vermifuges. | Lecture XII. |
| 3—Ferments. | 1—Copper—preparations of. |
| 4—Ecbolics. | 2—Lead—preparations of. |
| Lecture V. | 3—Zinc—preparations of. |
| 1—Strychnine and Caffeine Group. | 4—Silver—preparations of. |
| 2—Alkaloidal Hypnotics. | 5—Gold—preparations of. |
| Lecture VI. | Lecture XIII. |
| 1—Belladonna and Atropine Group. | 1—Animal Products. |
| | Lecture XIV. |
| | 1—Emergency Remedies. |

I think that I may use the term "successfully," without an apology, for my classes have been able to pass the State Board examinations with fairly high averages, and for two successive years our training school has graduated the nurse who made the highest average of all nurses taking State Board examinations both years. Their grades in materia medica were well up in the 90's.

Thus, there are outlined fourteen lectures. Each class period is also taken up with a review of the previous lecture by an oral quiz.

The nurses are required to keep notebooks covering all lectures and these are examined and corrected monthly. Every fourth lecture hour is taken up with a written quiz and their papers are briefly reviewed at the following lecture. A final oral review is held, and lastly, a final written examination. The nurse's final average is made from the grades of all written examinations. Occasionally some nurse will fail in the entire course and has to repeat the subject in her senior year. Such nurses are usually those who have shown indifference in other subjects as well. I have known some of these nurses to improve and do most excellent work the second year.

I have found that most nurses become deeply interested in the study of drugs before the course is completed. This interest is developed by showing them specimens of the plants from which some of the drugs are obtained. I have been able to get some very good specimens from our college of pharmacy at the university. I have also suggested that the students visit the medicinal plant garden at the college, which is within an hour's ride, by street car, from our hospital. Then, again, I have shown them pressed specimens of plants and flowers that I have obtained on some vacation trip, such as *Digitalis purpurea*, gathered last summer in Alaska, from an Indian cemetery. There is a romance about flowers which appeals to every woman, and so many interesting little stories associated with medicinal plants and drugs that help to fix a drug more firmly in one's mind. The story of the discovery of Digitalis by an old woman; Socrates and the poison Hemlock; Quinine, and the naming of the plant for the Countess of Cinchon; the naming of the Ordeal Bean; all these are interesting to students of materia medica. Crude drugs are always interesting and easily obtained. Even glandular products are to be had by writing to some of the packing houses for them. We secured a very complete collection, gratis, from one house in Chicago. Each type of gland was carefully labelled and preserved in its separate container.

Last year our State Pharmaceutical Association met in St. Paul. They put on a drug show, inviting the public to attend. Our nurses found some of the exhibits most interesting, particularly the exhibit of confiscated narcotic goods and the adulterated narcotic goods. Those who attended Dr. H. H. Rusby's lecture relating to his trip through South America felt well repaid for the time spent.

Special lecturers are also available, who help to present the subject matter in an interesting way; manufacturers of pharmaceuticals and biologicals are always ready to assist in contributing to programs with illustrated lectures.

Lastly, in order to give the nurse her practical or laboratory work, she has two or three weeks of drug room training. While in the drug room she becomes acquainted with pharmaceutical preparations, such as tinctures, syrups, etc. She learns to compound simple preparations under the observation of the pharmacist. She has practical work in the making of solutions and learns the actual

amounts of such quantities as grains, grams, etc. She learns more about dosages by reading prescriptions and becomes more familiar with the therapeutic action of drugs by observing the remedies prescribed for certain diseases. She usually wants to know what the malady of each patient is, and when she has found this out from the floor nurses she then realizes why the doctor has ordered a certain drug, or combination of drugs, in each particular case. If the nurse is studious, she will frequently turn to her reference book for additional information.

I, myself, have learned more of materia medica and therapeutics since I started to teach these subjects than I did before coming to the hospital; for if I can avoid it, I do not want to have to answer "I do not know" to any of the numerous questions asked me by my students.

THE ACID CONTENT OF THE PEPSIN PREPARATIONS.*

BY H. W. VAHLTEICH.¹

The formulas of several of the pepsin preparations of the N. F. IV include an amount of hydrochloric acid calculated to make the finished product contain 0.20 to 0.30 per cent. HCl. Quite possibly the use of this quantity of acid is based upon the assumption that pepsin acts best in a medium of this acid strength and because the normal stomach juice is of about the same acidity. It is well known, too, that while scale or spongy pepsin retains its proteolytic activity over a period of years with comparatively little loss, liquid pepsin preparations deteriorate quite rapidly in their ability to digest protein material. As a result of this any change in the nature of the vehicle of the N. F. preparations which would result in a better retention of their peptic activity has held the interest of pharmacists and physicians for some years. Especially has this been the case with manufacturing pharmacists who make these preparations on a large scale.

It has been suggested that the acid content of the pepsin preparations might have some influence upon the retention of the proteolytic power by the vehicle, but as to whether this should have been increased or decreased was not clear three or four years ago, when some work was begun in an effort to clear up the point.² At that time there was considerable opinion in favor of doubling or even trebling the HCl content of the more often used pepsin preparations in order to aid in maintaining their peptic activity. On the other hand there was evidence which indicated that peptic proteolysis proceeded quite rapidly in weakly acid or even natural solutions.³ Further, it was reasoned that since pepsin was protein in nature and a 0.3% HCl solution has been accepted as about optimum for vigorous digestions it

* Read before the Unofficial Conference of U. S. P. and N. F. Revision Workers at Chicago, January 12, 1924.

¹ NOTE.—Professor C. M. Snow, in introducing Dr. Vahlteich to the Unofficial Conference of U. S. P. and N. F. Workers, held in Chicago, January 12, 1924, stated that a special committee of the N. F. Revision Committee had been appointed some time ago to investigate and report upon this matter of the acid content of the pepsin preparations, but its report has not as yet been presented. He further stated that Dr. Vahlteich had done much valuable work along these lines and that his opinion might well command the respect of the Conference.

² H. W. Vahlteich and C. G. Glover, *Jour. A. Ph. A.*, 10, 595, 1921; E. J. Traut and H. W. Vahlteich, *Ibid.*, 11, 686, 1922.

³ Jul. Schutz, *Wiener klin. Wochenschrift*, 20, 136, 1907.