THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

Editor's Note: "The timely subject of Prof. Eby's paper, which follows, is of great interest to all engaged in teaching in colleges of pharmacy. He has covered the visual aids in pharmacognosy, giving information regarding different types and makes of apparatus, in a way that will be helpful to all teachers of the subject. The Editor hopes that similar papers on visual aids in other subjects will be presented at our Teachers' Conference.—C. B. JORDAN, *Editor*."

VISUAL INSTRUCTION IN PHARMACOGNOSY.

BY FRANK H. EBY.*

During the last few years visual instruction has commanded the attention of many educators, and many institutions have made careful studies on this form of instruction and its value as an aid in teaching. Instructors in the field of science have long recognized its value and many consider it one of the most important educational forces at their command. Where careful studies have been made to determine its value, results indicate that there is a definite increase in learning for students who have the advantages of visual instruction as compared to the learning of students having the ordinary forms of class room instruction. Recently a number of educational institutions have established departments of Visual Education which are equipped with all types of projection apparatus and slide and film libraries. In most cases these departments have been established only after careful studies have indicated that visual instruction is a sound educational practice. Improvements in projection devices and the application of new and improved methods in photography have been responsible for much of the progress which we have witnessed in this field.

The importance of visual instruction has been emphasized very definitely during the last few years; however, this form of instruction has been an important part of the educational program in many professional schools for a long time. The many developments which have taken place in this field would seem to justify a brief review of the possible applications of visual instruction in the teaching of Pharmacognosy.

Most teachers of Pharmacognosy are using visual aids but they have been confronted with the problem of preparing or securing suitable material. Very few if any of the organizations which sell or rent visual aids offer satisfactory material for this course and in order to develop good collections of slides and films, instructors have found it necessary to prepare most of the material which they use. In many cases instructors have used their personal photographic and other equipment in preparing material for visual instruction. This condition has been relieved since photographers' supply houses are offering their services for the preparation of slides and films, a service that is very valuable to the instructor who, through lack of time or facilities cannot prepare his own material.

The instructor of Pharmacognosy occupies a position in which there are many

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opportunities for visual instruction. A variety of modern projectors and an almost unlimited field from which to select valuable material make it possible for the instructor with some initiative to develop a varied program which will do much to vitalize the course.

There are five types of projection apparatus available for the teaching of Pharmacognosy: The Lantern Slide Projector, Opaque Projector, Film Strip or Slidefilm Projector, Micro-Projector, and the Motion Picture Projector. Each of these involves different projection principles consequently different material is required for the use of each machine. The interest and initiative of the instructor will determine the character of the program which he may build around any one or several of these devices.

The Lantern Slide Projector is the most widely used and certainly one of the most valuable projectors for use in the class room. Since it is possible to prepare lantern slides on any subject that can be photographed there is practically no limit to its use. An excellent example of the value of the lantern slide as an aid in teaching Microscopic Pharmacognosy has been demonstrated by George H. Needham, of New York, who has prepared a number of photomicrographic lantern slides with the approval of Professor Ballard of Columbia University. Each slide contains from one to four photomicrographs showing typical fields and identifying elements in important powdered drugs. Slides of this type are a very important factor where the instructor wishes to aid the student in the correct identification of microscopic elements or where time does not permit the student to make a thorough study of an important drug in the powdered form. A number of instructors have developed excellent collections of slides showing medical plants, their natural habits and their cultivation. There are, however, very few good collections of lantern slides showing the various phases of Commercial Pharmacognosy, a field which offers a wide variety of subjects on which lantern slides may be prepared. Where the instructor wishes to prepare lantern slides showing drawings, tracings or diagrams, Tracelene, a recently developed product, enables one to prepare quickly and inexpensively lantern slides of good quality. Special glass and solutions used for preparing glass for latern slide drawings or tracings does not give the best results.

The opaque projector permits the showing on a screen, pictures of all kinds of objects approximating flatness. Photographs, pictures from books and periodicals, and drawings can be shown with this projector without any special preparation of the material. The operation is very simple and the results satisfactory.

The Film Strip, Film Slide or Slidefilm Projector is designed for showing pictures printed on standard motion picture films. Two general types of projectors are being used: One, a special machine designed for showing film strips only; the other, a special unit which may be attached to most of the standard lantern slide projectors. In the preparation of film strips such materials as camera pictures, photographs, drawings, half-tones from books or anything that can be photographed may be used. Pictures may be hand-colored and captions may be inserted with each picture. The Society for Visual Education and other producers and distributors of visual aids will prepare film strips from your own material, placing as many as two hundred pictures on a single strip. The advantage in using the film strip is the low cost per picture which permits the instructor to use a

greater variety of pictures or more completely picturize a subject. Where visual instruction is used to a limited extent the film strip does not possess any advantages over the lantern slide.

The Micro-Projector affords a means of direct projection of mounted specimens, a phase of teaching, especially in the laboratory that is of ever-increasing importance. This projector makes it possible for the instructor of Pharmacognosy to point out to large groups many important details in a microscopic specimen, thus assuring more uniform and understandable assignments for student laboratory work. It permits the instructor to differentiate the microscopic characteristics of authentic drugs and common adulterants or substitutes, thus making it possible to demonstrate certain microscopic sections which time would not otherwise permit the student to study.

The Motion Picture Projector is the latest projection device to be used successfully in the class room. In order to derive the full value of good motion picture photography a projector of good quality must be used. Many excellent projectors are available for both the 35-millimeter and 16-millimeter films. Most of the educational pictures which are now being used are supplied in both widths although many instructors prefer the narrow width films because they can be used in the more compact portable projector. Since the introduction of sound motion pictures there have been a number of improvements in projection devices and the disc type unit which was first used in sound motion picture projection has been replaced in many instances by the more satisfactory sound-on-film projector.

Within the last several years we have witnessed the remarkable development of the motion picture as an aid in teaching, and pictures dealing with specific themes have become a part of the teaching program in a number of institutions. There is a wide range of subjects covered in these new films including: Botany, Zoölogy, physics, chemistry, mathematics and music. Their scientific character would seem to indicate that the motion picture can be used in almost any field of instruction. A thorough knowledge of the uses of the many devices of photography including microscopic motion pictures, time-lapse photography, telescopic photography, animated diagrams and sound recording makes it possible to portray the important details of many subjects which cannot be satisfactorily portrayed by any other means.

In considering the motion picture as an aid in teaching Pharmacognosy both silent and sound pictures could be employed and the subjects covered may include: Lectures by outstanding educators, pictures protraying the various procedures employed in the preparation of crude drugs for pharmaceutical commerce, and pictures showing important drug industries such as the Opium, Cinchona and Spice industries and probably many others. A few instructors in Pharmacy Schools have produced some very good motion picture films which they use in their own teaching programs and it is possible that others will produce some excellent films in the future. However, what I have in mind, primarily, is the production of films of outstanding character and scope which cannot be produced by the individual instructor because of the expense and the lack of proper facilities. Films of this type should be produced by skilled technicians under the direction of a capable staff of educators and then be made available for distribution to any School of Pharmacy that may wish to use them. While I am interested in the motion pic-

ture as an aid in teaching Pharmacognosy, I believe there are many opportunities for using this type of visual aid in teaching other subjects in the Pharmacy School Curriculum. The educational films which have been produced by the Erpi Picture Consultants are fine examples of what can be done with scientific material if the latest technical methods are employed and the production of the films is supervised by a capable staff.

At this time I would like to suggest that some consideration be given to the idea of establishing a film library in the new Pharmacy Building at Washington. No provisions have been made for a film library but I have been informed that there is ample space. If worth-while educational films portraying American Pharmacy are to be produced, and I believe they will be eventually, it seems that the Pharmacy Headquarters would be the logical depository and center of distribution for these films. Pharmacognosists would certainly play an important part in the development of a library of this kind and I believe steps should be taken in this direction.

I am convinced that motion pictures can be used to considerable advantage in teaching Pharmacognosy as well as other subjects now being presented in pharmacy schools and I am not unmindful of the difficulties which may be involved in the production of films of outstanding character; however, in any program which we may propose we must understand that the purpose of motion pictures is not to afford entertainment or portray the unusual, but to present subjects which could not be presented with equal effectiveness by any other means.

THE FIRST MODERN PHARMACOPŒIA.*

BY EDWARD KREMERS.

The word Pharmacopœia (1) did not appear until 1561 on the title page of one of the treatises now commonly designated by that name. Moreover, some writers are inclined to recognize as a pharmacopœia any collection of pharmaceutical formulas, be they the *Luminare* of Nicolaus Præpositus (2), the *Formulary* of Scribonius Largus (3), or the directions carved into stone or brick of even more remote antiquity (4). However, most writers on pharmaceutical history prefer to regard as modern pharmacopœias those treatises, originally for the most part merely collections of formulas, that were compiled by special authority and made the pharmaceutical law of the city state which authorized and adopted them (5).

Viewed from this angle it is the Florentine *Receptario* which is generally recognized as the first (5) modern pharmacopœia. As the title page indicates (6) it was compiled by the medical college at the request of the local apothecaries and published in 1498, the year in which Vasco de Gama circumnavigated the Cape of Good Hope, thus discovering the all water route to the (East) Indies. This was six years after Columbus had started on his westward trip hoping to reach the same goal but ending in the discovery of the West Indies. Both discoveries ultimately proved of the greatest importance to the materia medica, hence exerted an indirect influence on the making of pharmacopœias, though this influence did not manifest itself until much later (7).

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* Section on Historical Pharmacy, A. PH. A., Madison meeting, 1933.