

and graduate school but it is far from the true objective of the college of pharmacy. If we allow that objective greatly to influence our curriculum construction, we shall soon be graduating "campus pharmacists" who will be no more prepared to render real pharmaceutical service than are "drug store cowboys." We must not let the gap widen between the colleges and the practice of the profession. Through our curricula we must see that our students are prepared to take their places in the world as well as on the campus. In preparing these curricula we should keep our feet on pharmaceutical ground so that our heads may not be up in the rarified atmosphere of the radical educationalist. No pharmaceutical curriculum will be perfect, because a good curriculum must provide for the more remote future professional activities of the student as well as for those of the immediate future. Wherefore even a curriculum carefully constructed after considerable study must in the end be based to some extent on the judgment of the constructor regarding future developments of the profession.

I believe the best guarantee that a curriculum will be at least a good one, in the future as well as now, is the acceptance of the thought which I have expressed on previous occasions that any curriculum constructed is "not offered as something fixed and unchanging in the years to come; on the contrary, it is expected that refinements and adjustments will be made through continuous study, evaluation and testing of the materials of the curriculum and *that it will keep pace with the progress and practice of the craft.*"

THE PRESENT STATUS OF HOSPITAL PHARMACY.*

BY EDWARD SPEASE.¹

My subject may be viewed from a number of different standpoints, but it occurred to me that at the present moment it would be of interest to point out briefly (a) what the colleges are doing, (b) what the associations are doing, (c) what recognition hospital pharmacy has received and (d) one or two suggestions for future activities.

A bibliography has been added to the paper, which may prove useful to schools contemplating work in hospital pharmacy and which may also prove useful in the work of teachers.

In this modern age of chain stores and merchandising drug stores, I can conceive of a school where major interests may be in the fields of merchandising and purely commercial pursuits, but in the field of strictly professional pharmacy I consider a close relationship with medical and dental schools and the hospital an absolute necessity.

(A) THE SCHOOLS.

A letter was sent to the 55 schools of the ASSOCIATION as listed in the April number of *The American Journal of Pharmaceutical Education*.

Of this number, seven did not reply and the following is a brief summary, which will be found to be of value as a printed record.

* Section, Hospital Pharmacy, A. PH. A., New York meeting, 1937.

¹ Dean, School of Pharmacy, Western Reserve University and Directing Pharmacist, University Hospitals of Cleveland.

The question asked was: "Please inform me whether your school has any relationship with or performed any service for any hospital; if there is any relationship existing at the present time; and exactly what the nature and status of this relationship is."

Alabama Polytechnic Institute	None
University of Southern California	None
Does furnish supplies and coöperates with Student Health Service.	
University of Colorado	None
Just started Student Health Service in a local hospital, but no connection with any university unit.	
Connecticut College of Pharmacy	None
Some graduates working in hospital pharmacies.	
George Washington University	None
University Hospital and Hospital Pharmacy operate under Medical School.	
Howard University	
Began in October 1922 in the course, "Incompatibility and Dispensing" to send each student one hour per day, five days per week in the senior year, to the dispensary of Freedmen's Hospital, where under direction of two registered pharmacists they compound prescriptions and make preparations. About 3833 prescriptions are dispensed to hospital and out-patients monthly with no charge to patients.	
University of Florida	None
Are working upon a plan.	
University of Georgia	None
University of Idaho	
Prepares the formulas and compounds most of the prescriptions for the University Hospital. Gives some technician courses to nurses.	
University of Illinois	
Started a course in Hospital Dispensing in October 1924. Each student is required to spend 50 hours in the Drug Room of the Illinois Research Hospital, a hospital of 450 beds and an out-patient department of 400 patients daily. The students are in groups of 3-5, put in part of the time during the school term and part during the summer, each filling approximately 250 prescriptions, manufacturing and filling hospital orders. The work is supervised by two registered pharmacists who are members of the Staff of the College.	
The hospital pharmacy is equipped with ointment mills, a tablet machine, granulator, drying oven, autoclave and equipment for sterile parenteral solutions.	
The physicians in the Dispensary are not restricted in types of medications. They do, however, restrict the use of proprietaries when an official or N. N. R. one of a similar nature is available.	
Indianapolis College of Pharmacy	None
Plans are now being worked upon.	
Purdue University	None
Does compound over 20,000 prescriptions annually for the Student Health Service. Manufactures preparations for the Student Health Service and furnishes the preparations for emergency dispensing. X-rays every freshman who responds to tuberculin test. Of the 2200 students entering in September 1936, took 572 pictures, developed them and sent them to the Health Service for diagnosis.	

- Valparaiso University None
 University Infirmary just being started and has hopes of professional affiliation with it.
- University of Notre Dame None
- University of Iowa
 Since 1906, the College of Pharmacy has had responsibility of the University Hospital Drug Room. Have absolute charge of hiring of help and purchasing of all drugs and dispensing them. Also responsible for all narcotics and alcohol used by Hospital or University. Work has a supervisor; also two registered and one part-time pharmacist. Also have Drug Service Department connected with the College which furnishes everything needed by laboratories or departments in the drug, chemical or reagent line. Much of this is done by pharmacy students under careful supervision.
- University of Kansas
 Have had charge of drug room in University Hospital of 40 beds since 1932. A pharmacy professor is in charge and is assisted by one advanced student. Certain well-qualified seniors take a course in quantity manufacturing for the Main University Hospital in Kansas City, forty miles away.
- Louisville College of Pharmacy
 Have succeeded thus far in having all pharmacists and pharmacy employees in City Hospital checked for qualifications by the College of Pharmacy.
- Loyola University None at present
 In 1903-1904 and 1905 the teacher of pharmacy was chemist in Charity Hospital and utilized both students and preparations at that time.
 At times since, the school has furnished Charity with preparations but this was stopped during Prohibition. Since 1933 students may help make preparations. Is hopeful of making progress soon against the resistance offered to proper pharmaceutical service.
- Xavier University None
- University of Maryland
 Since the fall of 1934, members of the instructional staff have been doing the pharmaceutical work in the Hospital and in the out-patient department of the Hospital of the University of Maryland. The plan is to assign two graduate assistants to the pharmacy in the hospital and two to the out-patient department. One is on duty in each place at all times during the day and gives instruction to students. The assistants devote half time to this work and the other half to graduate work. They have a Bachelor's degree, are registered pharmacists and are supervised by the Dean.
 The School in its own laboratory manufactures practically all the preparations used in both places.
- Massachusetts College of Pharmacy None
 Now making plans.
- Detroit Institute of Technology None
 Now making plans.
- Wayne University
 Since 1935 has a direct connection with the Detroit Receiving Hospital whose chief pharmacist conducts courses in Hospital Pharmacy as a part of the regular program of study. Through the Detroit Hospital Apothecaries' Association, of which the Dean is President, an indirect contact is made with about one hundred hospital pharmacists.

University of Michigan

In 1912 they began filling prescriptions for the Student Health Service which later developed into a full-time position for a pharmacist who is under the supervision of the College of Pharmacy. Now manufacture pharmaceuticals for this service.

University of Minnesota

In 1908 the out-patient department of the University Free Dispensary was placed under a professor in the College of Pharmacy. He gave instruction to senior medical students and supervised the course in dispensary practice required of senior pharmacy students.

After the construction of the Elliot Memorial Hospital on the campus a pharmacist was placed in charge of the out-patient department. This pharmacist supervised the work of senior pharmacy students in the out-patient department only, and did not teach in the College of Pharmacy. In 1929 the University Health Service was moved to the Medical Group and the pharmacist in the out-patient department assumed the duties in connection with the Health Service. The College of Pharmacy is still sending seniors to the hospital pharmacy for practical dispensing. The College has no direct supervision over the drug room of the University of Minnesota Hospitals. The laboratories of the College supply pharmaceutical preparations made by students under supervision of the faculty to the University Hospitals, but this is not in the nature of a service enterprise. No connections exist with hospitals in the Twin Cities.

University of Mississippi

None

Some attempts have been made to establish a hospital relationship.

St. Louis College of Pharmacy

None

Graduates are in local hospitals.

Montana State University

During the war, the school took over training of hospital pharmacists at Fort Missoula. Since then the School has given free instruction in Materia Medica to the nurses and hospital pharmacy staff of St. Patrick's Hospital, Missoula. In the new 1937 pre-nurses' training course given by the University, the School of Pharmacy offers the Materia Medica.

Creighton University

None

College of Pharmacy in same building with Medical School and conducts the pharmacy service in connection with the Medical Clinic in the School of Medicine. Began service in 1907 and senior students dispense an annual average of 10,000 prescriptions. Each student spends 80 hours at this work. All is under supervision of a professor of pharmacy.

University of Nebraska

Except with the University Infirmary. They do all compounding and dispensing for the Student Health Service including the Infirmary.

Rutgers University

None

Does, in conjunction with pharmacists and state medical society through a professional relations committee, carry on a plan of prescription writing taught to internes in the better hospitals of the state.

University of North Carolina

None

A member of the staff makes some preparations for the infirmary.

North Dakota Agricultural College

Contemplating coöperative effort between the School of Pharmacy and a hospital whereby senior students would be permitted to spend some time in the hospital laboratories.

Ohio Northern University

None, other than graduates in hospitals and some service in an advisory capacity.

- Ohio State University None
 Has at various times made preparations for local and state hospitals.
- Western Reserve University
 The Dean is Directing Pharmacist University Hospitals. Hospital pharmacists have faculty rank. Have printed drug policy prepared by Pharmacy Committee of one medical representative from each major service, the Pharmacist and the Directing Pharmacist. Students given training. Graduate work begun in 1937. See attached bibliography.
- University of Oklahoma
 Since 1920, pharmacy students have dispensed medicine for the Central State Sanitorium in Norman. Number of patients nearly 2700. Seniors must all fill prescriptions for sanitorium until pronounced efficient by pharmacist in charge before receiving diploma. Furnish many preparations, reagents and do most of difficult technician work for infirmary.
- Oregon State Agricultural College None
 Several attempts have been made to establish a Student Health Service, but outside pressure has prevented this. A new Student Health Service building built by aid of W. P. A. funds was opened January 10, 1937. About 1922, the Dean was a member of the Board of Directors of the Corvallis General Hospital and taught nurses.
- North Pacific College
 Have only had four students who have done any hospital work.
- Duquesne University
 When the school opened in 1925, a contact was made with Mercy Hospital and the first seniors began work in 1928. Two of the hospital pharmacists are members of the faculty, and the seniors in groups of two receive 40 clock hours of dispensing practice. A written daily report comes to the University.
- Philadelphia College of Pharmacy and Science None
 At one time furnished preparations to Philadelphia General Hospital.
- Temple University No answer
- Pittsburgh College of Pharmacy
 Affiliated with St. John's Hospital giving special course in Hospital Laboratory Technology. (See bulletin.) Since September 1931, have worked with the Medical Center and School of Medicine in the Falk Clinic. The pharmacy in Falk Clinic is administered by the School of Pharmacy and the pharmacist is on the teaching staff. He has two graduate assistants. Senior students serve 96 hours at the clinic in project work under immediate supervision of a staff member in manufacture of preparations. Pharmacy students in this clinic contact medical, dental and social service students.
- University of the Philippines
 The Chief of the Department of Pharmacy is also Chief of the Department of Pharmacy of the Philippine General Hospital, with a capacity of 727 beds, besides free dispensary that treats about 300 to 350 daily. Relationship has existed since 1914.
 Students are given privilege of practicing in the Pharmacy of the Hospital until they complete the three years of drug store practice required by law, to take the state board examination.
- University of Puerto Rico None
- Rhode Island College of Pharmacy None
- University of South Carolina None
 Plans are now under way.

South Dakota State College

None

School maintains a dispensary in the Student Health Service and also does all the clinical work connected with diagnosis. The dispensary is in charge of a registered pharmacist who fills the prescriptions, prepares the reagents and analyzes urine and blood specimens. For four years has conducted the X-ray service. Frequently performs clinical service for local hospitals.

University of Tennessee

In 1937 established a connection with John Gaston Hospital, a municipal 500-bed hospital. The medical staff appointed a dispensary and therapeutic committee of three men, and the University appointed the chief of the division of Pharmacology. The aim of the committee is to promulgate the use of U. S. P. and N. F. prescriptions in the dispensary. The dispensary uses four clerks in the manufacture and dispensing of drugs and there are about 150,000 prescriptions filled in the hospital annually. It is a charitable institution.

The school has used the hospital for teaching purposes for about twenty years.

University of Texas

When in Galveston, staff members and students assisted in the dispensing laboratory of the John Sealy Hospital. Since moving to Austin, there has been no connection save teaching of nurses in the Nurses' Training School in Austin.

Medical College of Virginia

Filling of prescriptions by students and staff of the School of Pharmacy for the out-patient department of the hospitals began prior to 1900. This connection was enlarged in June 1922, through an agreement with the hospitals that in the future they would only employ such pharmacists as are recommended by the School of Pharmacy. Since the above date the hospital pharmacists, the out-patient pharmacists, and the prescription laboratories in which both groups work have been shared with the School of Pharmacy in the teaching of dispensing pharmacy.

The State College of Washington

The Dean of the School of Pharmacy for ten years has been Head of the Finch Memorial Hospital and chairman of the College Health Committee.

The hospital is a new building, 64 beds, 4-full time nurses and will employ two licensed physicians for coming year.

Dean of Pharmacy purchases all equipment and supplies, hires the nurses and has general charge of the operation of the hospital. The hospital is supported by student fees and has a large reserve fund.

One pharmacy student puts up medicine for students for minor ailments. Prescriptions are filled at local drug stores, but copies and bills pass through the Dean's hands. Enrollment is 5000 students. Dean has served on Health Committee for 18 years.

University of Washington

Since 1922, has prepared hospital supplies for use in Student Health Service Hospital on campus. These are dispensed by the physicians and nurses.

West Virginia University

None

Fills prescriptions for Student Health Service.

University of Wisconsin

Pharmacy department was first connected with a hospital in 1917. Is now coöperating with various state (hospitals and otherwise) institutions in the manufacture of several preparations.

(B) ASSOCIATIONS.

Many of the items mentioned here are known by those who have helped to bring them about. The mention of them again may be helpful to those who are just becoming acquainted with the national aspects of the work in hospital pharmacy now going forward.

In October 1936, the American College of Surgeons adopted minimum standards for hospital pharmacies.

These standards have been adopted by the Catholic Hospital Association of the United States and Canada, and it is now considering plans for a survey of its hospital pharmacies with the aim of carrying these standards into effect.

During the year of 1936, the American Hospital Association had a committee on pharmacy which rendered a report that is published in the *Transactions of the American Hospital Association*, Volume 38 for 1936, page 240.

This report should be read by all interested. It states among other things that a questionnaire will be sent out during 1937 to obtain information leading to the drafting of a set of pharmaceutical standards. A new committee was selected for 1937, and I have every reason to believe it is functioning. One of its members is a pharmacist, physician and a member of the staff of a leading hospital publication.

The AMERICAN PHARMACEUTICAL ASSOCIATION created this year a sub-section upon hospital pharmacy. I do not know if this action is merely a preliminary to the creating of a section or not, but surely hospital pharmacy is worthy of more recognition by pharmacy than this. Undoubtedly the hospital associations will form sections or give over certain meetings each year to pharmacy if the hospital pharmacists desire it, as some such meetings have already been held. The Catholic Hospital Association has had their meetings devoted to pharmacy for the past four years.

It is hoped those interested in hospital pharmacy will have an opportunity to read Sister M. Ludmilla's paper presented at the last convention upon the subject of, "Teaching Functions of the Hospital Pharmacist." It appears in the October issue of *Hospital Progress*.

(C) RECOGNITION OF PHARMACY.

This topic has been partially covered in the previous section of this paper under the heading of "Associations."

Some additional points, however, may be of value. It is impossible for the writer to know everything that has been published or done in recognition of pharmacy by hospitals, but he is familiar enough with the field to say that there has been extreme activity in hospital pharmacy during very recent years.

For many years all I read and heard of the work was done by William Gray and Irwin Becker. I am thankful to know they are both still at work and should both be quite happy to see how their child has grown.

I shall always bear in mind one visit I made to William Gray when I saw him surrounded by nursing students who were hearing about the usefulness of pharmaceutical education. The *May Bulletin* of the Presbyterian Hospital of the City of Chicago gives this picture and serves as a marker at the conclusion of 31 years of his faithful service there.

Irwin Becker was fittingly recognized by America's oldest college of pharmacy last June for the work he has done.

No two hospitals are exactly alike nor are they organized and governed in exactly the same manner, and I have found that this information is the first thing to secure before one can make any steps toward professional recognition.

Harvey A. K. Whitney has done a great work at the University of Michigan Hospital. His internship plan is listed in the bibliography attached. I hope he will soon publish the story of his pharmacy, covering the entire field over which he has jurisdiction, for many of the things he is doing are based upon fundamental principles which you should know about. An outline of his teaching of internes and nurses should also soon be forthcoming and in case he forgets, also the story of his work with hospitals, and medical and dental societies in his state.

This month his connection with scientific medicine appears in an article in collaboration with two physicians in the *Journal of the American Medical Association*.

In our own case at Western Reserve and its University Hospitals, the bibliography is referred to where you can read it and save time. I merely wish to add that our Graduate School has approved a program of graduate instruction in hospital pharmacy, and graduate students are already enrolled and at work. In case you may not understand, let me add that we have no delusions of grandeur, we merely feel that there is a place for some hospital pharmacists with advanced degrees. This in no way minimizes the work of those of us who have succeeded without these degrees.

We are looking to the future and know that pharmacy must keep abreast of the trends in education if it is to be recognized professionally where it should be.

Proper recognition makes the going easier and the service rendered better.

(D) SUGGESTIONS.

For those who are about to undertake hospital pharmacy either in schools of pharmacy or as individuals, a few words are offered that may make some difficult paths easier.

First, learn about the organization of the hospital with which you wish to work. Then adapt yourself to it.

Remember two things you can do; one is save money for the hospital no matter what type it is, and of far greater importance is the service you can render. These are two proved facts for which we can furnish you documentary evidence for your campaign.

Also be informed that progress takes time. Perusal of this paper will show you. But new attempts now to confer with hospitals and clinics should be much easier since it has been done in a number of places.

If possible get a written drug policy for your hospital as soon as possible; it makes the going more intelligent and easier.

Get a committee of medical men with whom you can meet regularly for discussion of pharmaceutical problems so necessary to the proper conduct of a hospital.

Get your pharmacy organized and departmentized so that you know what its services and duties really are.

Make as many acquaintances with all the professional people connected with the hospital as you can.

Compile an annual report and record the services rendered whether this report be published for you or not.

Seize every opportunity to appear before professional groups that you can, and above all else, stay away from empiric medication and learn thoroughly what is meant by rational therapy.

Read regularly hospital and medical literature, as well as pharmaceutical.

The writer firmly believes that this section must see to it that sections or meetings are held in the several hospital associations each year and that pharmacy appears in hospital publications with decided frequency.

The program in the hospital associations can be of such a nature that it will be of benefit to the hospitals themselves, while in the A. PH. A. section we can devote our time to things purely scientific on the one hand which are of interest to the pharmacist himself, and on the other hand which tend to instruct our members and show them how to perform this very necessary service.

May it be asked of those of you who are now really interested that the attached bibliography on hospital pharmacy be read and send the readers' comments to the writer advising of what should be added or should be deleted. This will be of immense value in teaching.

The writer is happy in having been able to take part in this work. He feels that the work has been so successful that it will now go on forever no matter which one of us drops from the picture. Professional pharmacy, though much still needs to be done, has at last come into its own.

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LINNÆUS—THE KING OF THE FLOWERS.*

BY LOUIS H. RODDIS.¹

Karl von Linné, the greatest botanist of all time, and picturesquely called by Jacob Riis, the "King of the Flowers," was born in a little country parsonage, at



Fig. 1.—Karl von Linné.



Fig. 2.—Linné's Birthplace.

Carolus Linnæus Smolandus.
Carl Linnæus
Carl v. Linné Carl Linné
Carol Linne

Fig. 3.

1. Carolus Linnæus Smolandus.
 (a) Signature on matriculation at Upsala, 23 Sept., 1728.
2. Carl Linnæus.
 (b) Signature in 1755.
3. Carl v. Linné.
 (c) Signatures in 1765.
4. Carol Linne.
 (d) The last signature known, 1777.

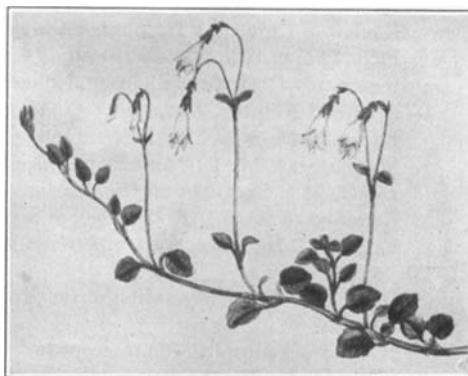


Fig. 4.—Linna borealis.

Rashult in the province of Småland in southern Sweden, between the hours of midnight and one o'clock of May 13, 1707.

* Presented before the Section on Historical Pharmacy, A. Ph. A., New York meeting, 1937.

¹ Commander, Medical Corps, U. S. Navy.