

Libraries and Graduate Programs, Especially in the Scientific Fields

Mr. Brown, librarian of Iowa State College, has adapted a paper read at the Conference of Presidents of Negro Land-Grant Colleges on Oct. 24, 1944.

THE DEVELOPMENT of an adequate library for graduate instruction is far more complicated than is the organization of an undergraduate library. Instruction on the graduate level, even if limited to the courses necessary for the master's degree, is expensive. Many of the requirements for a library to support graduate instruction are beyond the control of the librarian and must be studied by college presidents and boards of trustees. Unless certain basic conditions can be met, it would seem desirable to postpone the inauguration of a graduate school until a survey can be made of vital factors necessary for a satisfactory program. An adequate library is one of these factors, but not the only one. All of them are interwoven. The library must not be isolated and considered apart from other factors. We librarians too often have thought of the library as a distinct unit in itself, without much study of its relation to instruction and research. The library is not an ivory tower, although some buildings might lead to such a supposition. It is rather a house by the side of the road, in which students and faculty congregate to prepare for their lifework and to serve the ever-increasing demands of scholarship. The library is a service institution. The needs of a library

can be ascertained only by a study of the present and future needs of faculty and students, which in turn must be based, if a final analysis is to be made, on the needs of society or, in many cases, on the needs of a segment of society. All of us must give attention to the needs of the social groups which our particular colleges are to serve.

What are the external factors which will make possible a library equipped to support graduate instruction?

A requirement for an adequate library for graduate study which must have first consideration is a clear-cut definition of the fields which are to be covered by the college. Universities have an unusual opportunity to develop intensively certain fields both in pure and applied science and in the humanities. By limiting their fields, they can become outstanding in certain areas. No library now can be all things to all people. There is some possibility that in a given case we can build up an adequate library for research in a limited number of fields. If we make the mistake of adding to these definite fields all the areas of human knowledge, we shall be lost.

Some deans of graduate schools in large universities with annual incomes of many million dollars a year are now beginning to realize that even these great universities cannot offer graduate courses in all subjects or attempt to build up libraries to support such instruction. One of our wealthiest

universities reported through its librarian that it was not greatly concerned over the lack of certain periodicals in agricultural botany, as its interests were not greatly concerned with this field. Institutions with limited funds should restrict their graduate programs to a few definite fields. Many of us cannot hope for enough financial aid to support a library for graduate instruction in any great number of disciplines.

Specific Fields

The fields to be covered must be defined specifically. The terms history, agriculture, and home economics are too general and not sufficiently descriptive of research areas. If the fields in which the library is to be developed can be defined, for example, as human nutrition, soils, farm crops, and animal chemistry, the difficulty in building up adequate library service will be eased. For example, any extension of the graduate program of institutions now specializing in the pure and applied sciences or in education, into the wide range of fields of the humanities is, in my opinion, a selling of their birthrights and a sacrifice of the special contributions which these institutions can make. Institutions in a given area should agree among themselves on the particular fields which each should develop on a graduate level. Not every state needs a school of veterinary science or a library school; neither should all universities specialize in research in all fields of history. Librarians can be of great assistance in emphasizing to deans and faculties of graduate schools the impossibility of equipping any library to serve adequately research in all fields. Graduate instruction should be rigidly limited to disciplines which can be supported by the library, and no additional fields should be added until funds are available for the acquisition of

research publications and for the employment of a qualified library staff.

A second factor which is necessary in the development of a library for a graduate college is the presence on the faculty of men and women who understand research and are engaging in research activities. They may, or may not, possess advanced degrees. A doctor's degree does not always guarantee research ability. A person engaged in research will advise the librarian on the publications most needed in his discipline. Without the aid of experts in various areas any librarian is lost, for no librarian can be an expert even in the limited fields covered by those universities which have already restricted their programs. A small group of well-prepared research workers will bring to any college a definite interest in scholarship and research. Such men will set the standards for the whole college. Without them a satisfactory graduate program cannot be developed. Neither can a library suitable for research be built up.

Libraries vs. Faculty Interest

It has been my privilege to have observed for many years the equipment of libraries in relation to graduate programs in the pure and applied sciences. In conversations with faculty members of many institutions I have found that members of the faculty who knew the literature in their fields were the most insistent on the need for adequate library facilities. Furthermore, these men and women were considered by their presidents as the most valuable members of their faculties. In many large universities the development of the library book collections in certain areas correlates closely with the strength of individual departments. One president recently inquired why the library of his university was strong in some major departments and weak in others. The reply was obvious.

The ability and interest of a faculty member cannot be judged by the degrees he possesses. Too often some of us seem to have stopped our education on the day the doctor's degree was received. In studying lists of books compiled by members of the faculties of certain universities it was easy to discover when the education of some professors had ceased, for such lists did not include any publications issued in the years since the compilers received their degrees. Strong, active, and progressive faculty members are necessary in those areas in which graduate instruction is to be given. These faculty members will furnish a firm foundation for the development of the library. Most presidents know that it is impossible to retain indefinitely the services of scholars active in research unless adequate library facilities are available. Any tendency to the intellectual death of faculty members must not be encouraged by the lack in the library of the books and periodicals necessary for intellectual growth.

A third requirement is that adequate funds be available. The present condition of the library will affect the amount of funds needed. Unless funds are available for the building up of suitable collections for research it may be advisable to postpone the inauguration of graduate courses until such funds are obtainable. Financial restrictions present another reason for developing a graduate program slowly, with rigid limitations to definite fields.

Necessary Periodicals

Attempts at research without adequate library facilities will result in duplication and wasted effort. The accessibility of collections in neighboring institutions must be taken into account. It may not be necessary to purchase complete files of every periodical for which current subscriptions will be necessary but many complete files,

especially of scientific and technical periodicals, will be required. Also, complete sets of indexing and abstracting journals such as *Biological Abstracts*, *Nutrition Abstracts and Reviews*, *Zentralblatt für Bakteriologie*, *Parasitenkunde*, and *Infektionskrankheiten*, *Zoological Record*, American, British, and German chemical abstracts, etc., will be essential.

A study is being made of the most important periodicals in various fields of science. The method used is to count the citations to periodicals as noted in articles in certain research journals. So far, the fields of chemistry and botany have been covered. In chemistry, 89 per cent of the citations were to periodicals, 6 per cent to books, 3 per cent to patents, 1 per cent to theses, and 1 per cent to miscellaneous unpublished material. Forty-five and five tenths per cent of the citations were to periodicals published ten years before the publication of the article in which the citations were made, and 33.3 per cent were made to periodicals published over twenty years before the citations were made. Comparable figures were obtained in the study of botanical periodicals. We might conclude from this that, for research, chemical periodicals are far more valuable than books and that we cannot ignore the necessity of complete sets of certain periodicals. The occasional reference in research articles made to these earlier volumes can, in some cases, be satisfied through interlibrary loans, but research chemists usually desire immediate reading of articles at the time a project is being developed. Furthermore, they need to examine many articles not cited, since only an examination can disclose whether an article will cover the exact points under review. The statement sometimes made that files of periodicals published before 1920 are not necessary will not be accepted by research chemists.

Periodicals and Binding Funds

Adequate provision must be made for binding. The amount required for subscriptions to scientific and technical periodicals and for binding will far exceed the amount required for the purchase of books, insofar as scientific and technical collections are concerned.

There is a definite need that a library budget be prepared each year. The faculty, the library committee, and the librarian must know how to plan the book purchase program. Unfortunately, many colleges in certain sections of the country do not yet budget their funds insofar as the library is concerned.

Any study of higher educational institutions in some Southern and Western states would seem to make clear the need for some form of federal aid. These states do not have incomes sufficient to support education on a graduate level as at present organized. Various checklists of library holdings have shown a great disparity between universities of the North and those of the South, with the possible exception of Texas and North Carolina. There seems to be a clear justification for some means of equalizing educational opportunities throughout the country. Any comparable study of the libraries in institutions of higher education will show the difficulties of maintaining a high level of graduate instruction in certain regions.

A fourth requirement for the development of a library to support graduate instruction is a sympathetic understanding on the part of the college president. Fortunately, there has been in recent years an indication that college and university presidents are paying much greater attention than formerly to the development of their libraries, especially in the South. Discussions at meetings of presidents and deans of graduate colleges in regard to the

organization and development of library resources have greatly increased. Much credit is due to library leaders in the South who have been encouraging this movement.

Adequate Staff Needed

The need for an adequate library staff in the development of a graduate program demands more consideration than can be given in this paper. It is presupposed that an active research faculty and an understanding president will see that an adequate library staff is appointed. There are some neglected areas of librarianship which deserve special attention in any consideration of the library in relation to a graduate program. Unfortunately for a large group of universities which have restricted their graduate programs to the pure and applied sciences, most librarians have specialized in the humanities. Well-qualified librarians for this group of institutions cannot be found. College students who have specialized in science and to whom adequate fellowships for graduate work are available, are reluctant to attend library schools.

There is another factor which affects the service a well-equipped library can render to the graduate program in pure and applied science. In most institutions the science departments have separate departmental libraries. Usually the university library houses collections in the humanities and in sociology but not the collections in pure and applied science. The head librarian and many members of his staff are not familiar with the requirements of scientific research nor with the bibliographical tools that make such research possible. The librarians in the departments of pure and applied science too often are poorly paid and do not have the qualifications which would enable them to give satisfactory service to research. With certain exceptions, neither the universities

nor the library schools are training and educating librarians qualified to take charge of scientific and technical libraries.

Some remedies are beginning to be developed. The basic need is for adequate compensation for the library specialists who have majored in the sciences. Some library assistants who have specialized in the humanities and who are now on the staffs of the larger institutions are taking courses in certain fields of science to enable them to qualify as specialists. The possibility of developing internships in scientific and technical libraries for librarians interested in scientific fields should also be studied. Some articles are appearing in the scientific press urging the need for well-qualified librarians in the various scientific fields. There has arisen during the last few years a considerable demand for librarians of special scientific collections who have a knowledge of language and who could assist research workers by abstracting and by limited amounts of translating, in addition to the bibliographical services usually rendered.¹ The qualifications are a specialization in one of the sciences during undergraduate years, adequate proficiency at least in German (probably Russian will be necessary in future years), and at least an elementary knowledge of scientific literature and bibliography. If universities and library schools can develop a curriculum designed to satisfy this need, the contribu-

tion scientific libraries can make to research will be greatly enhanced. In the meantime, younger library assistants who are interested in this neglected field of librarianship will have an opportunity to qualify by study at their own universities while still holding salaried positions.²

Science and Research

The history of the last few years has emphasized the importance of scientific research. In too many of the libraries of our research institutions, science has been the neglected orphan. The development of a graduate program which is to embrace instruction in the pure and applied sciences must include much consideration of the relationship between scientific bibliography and research. Many studies are now under way but they are being conducted for the most part by scientists rather than by librarians. It is to be hoped that even our larger university libraries will increase their attention to the specialized bibliographical needs of the scientists on their faculties.

To summarize, the five factors which make possible library service adequate for a graduate program are: (1) rigid limitation of fields, (2) active scholars on the faculty, (3) adequate funds, (4) sympathetic understanding of administrators, and (5) an adequate library staff with at least a superficial knowledge of the fields to be covered by the graduate program.

¹ Shorb, Lura, and Beck, Lewis W. "Opportunities for Chemists in Literature Service Work." *Journal of Chemical Education* 21:315-18, July 1944.

² Soule, Byron A. "Training for Efficient Service." *Journal of Chemical Education* 21:371-72, August 1944.