

The Core of a Program

Sometimes a collection of books and journals just sits there and looks impressive. Not the DeGolyer Collection. It justifies itself in many ways.

By DUANE H. D. ROLLER

THE UNIVERSITY OF OKLAHOMA has established a program of teaching and research in one of the newest intellectual and academic fields, the history of science. The very core of this program is the rapidly expanding E. DeGolyer Collection in the History of Science and Technology. Only eight years old, the DeGolyer Collection is already one of the major national research collections in the history of science and is acquiring national fame.

Signor S. D'Agostino of the *Instituto Magistrale "Gaetani"* and the University of Rome spent several months in Norman using the Collection and studying the history of science program at the University

of Oklahoma with the intention of establishing a similar program when he returns to Italy. Professor Max Jammer of the Hebrew University, Jerusalem, Israel, came to the University for the express purpose of working in the Collection.

"Without the magnificent facilities of the DeGolyer Collection," Professor Jammer recently remarked, "my research in the history of physical concept formation would have been impossible."

The usefulness of the DeGolyer Collection is by no means restricted to the research work of visiting scholars and faculty members: graduate students and undergraduates alike find important books

here for their class work in many different subjects, and the Collection affords a new area of research for graduate students working toward advanced degrees.

This valuable pedagogic and research tool was established at the University by one of its graduates, E. DeGolyer, geophysicist, oil prospector, historian, book-collector and patron of learning. As men such as Leopold de Medici and Robert Boyle once simultaneously worked in and patronized the "new" science of their day, so Mr. DeGolyer contributed to the "new" history of science.

The project of developing the Collection has been an expensive one; its present

value is about twice the entire legislative appropriation for books at the University for a year; consequently, this program could simply not have been undertaken within the scope of the available public funds.

Mr. DeGolyer's contribution was by no means the only financial one, however. The Collection that bears his name is a merger of three sub-Collections—a *Core Collection* of the great classics of science, a *History of Geology Collection*, and a *Faculty Collection*—the first two of which were assembled by the donor, the third by the University.

The *Core Collection*, consisting of several hundred of the outstanding books of science since the beginning of printing, comprises the original gift to the University Library. Here are the most awe-inspiring books of the entire Collection. The *History of Geology Collection*, also constructed by Mr. DeGolyer, comprises some 1,500 volumes in that field, many of them exceedingly rare, principally from before 1859. While building these sub-collections, he simultaneously began to make funds available for the purchase of additional books selected by a University faculty committee.

These combined efforts had, by the summer of 1954, produced a library in the history of science totaling over 4,000 volumes. At that time regular courses in the history of science were established by the University and an historian of science was added to the faculty not only to teach those courses but to assist in building the DeGolyer Collection. The subsequent greatly accelerated program of acquisition of books makes it difficult even to state the size of the Collection, but at this writing it numbers approximately 15,000 volumes, or three percent of the total number of books in the entire University Library system.

IT IS OF COURSE NOT possible to characterize briefly 15,000 separate, individual items. There are, however, certain areas of history which are being particularly developed. First of all, the emphasis in both the Core Collection and in the books currently selected for purchase, is on the great books of science, the "crown jewels," as they have been called. Among these are a number of incunabula or books printed before 1500, in the first 60 years of printing with movable type. The oldest book in the collection is the *Study of the Universe* by Hrabanus Maurus, printed in 1467: Gutenberg was still alive then, and Columbus had not yet met Isabella.

Other DeGolyer Collection volumes

from the 1400's represent the then new attempts to gather accurate information on the characteristics and appearances of plants and minerals. These herbals and lapidaries seem very strange to us today, for they precede any of the modern classificatory schemes for botany or mineralogy, schemes which could only come into being after the herbals and lapidaries had provided the descriptions of the things to be classified.

Near the herbals in the Collection rooms is the first printed edition of Euclid's geometry, published in 1482. And next to the 1482 Euclid is a 1570 edition of this same work, but this time in English rather than Latin: indeed this is the first English edition of Euclid's book. This English version has "3-D" illustrations, for the editor, apparently believing that his drawings in perspective might not be clear to the reader, had the publisher paste into each copy paper figures which could be molded to form the three-dimensional figures. This 1570 Euclid was of course purchased as an important book in the history of mathematics; yet it inevitably is of value both to the student of perspective and to the student of the art of book construction. The entire Collection is unavoidably a collection on the history of the construction of books.

One may now at the University of Oklahoma quite literally start from the beginning of the printed books in any field of natural science. Many of these are fifteenth and sixteenth century works: the first collected edition of Aristotle's works, published in the 1490's; the giant 1543 work on anatomy by Vesalius; the slim astronomy of Copernicus, also published in 1543. But the collection of "firsts" is by no means restricted to the early period: the seventeenth century is represented by five first editions of Galileo's works, by Newton's mighty *Principia*, and Boyle's *Skeptical Chymist* of which only a dozen copies are known. The DeGolyer copy of the first English translation of Galileo's most important book is one of two known copies of that work bearing the imprint date 1667. The eighteenth century is ushered in by Newton's *Opticks*, of 1704, and Stephen Hales' important publications in the mechanics of biology. Even the arrival of the "Atomic Age" is marked by a copy of the rare first edition of the Smythe report of the work of the Manhattan Project, published in 1945.

Here then are the landmarks, the books that characterize the major steps of science for the past 500 years.

Scientists have not confined themselves to publication in book form. From 1665,

when the first scientific journals were established, much important work has appeared in the form of articles in these journals. For a young university like the University of Oklahoma—young compared to the older scientific journals—it is not easy to acquire back files. They are often very difficult to locate, and when located they are certain to be extremely expensive, and yet of great importance. Thus the *Philosophical Transactions* of the Royal Society of London, published since 1665 and now comprising over 300 volumes, has been of such importance in the recording of scientific research that Thomas Huxley once remarked that if every book in the world except the *Philosophical Transactions* were destroyed, we would still have a reasonably accurate, though of course incomplete, record of what has gone on in science since the 1660's. The acquisition of such a monumental work is of tremendous value to the University. And acquisition of other important journals has gone on steadily: the complete *Histoire et Mémoires* of the French Academy of Sciences, from 1665 to 1947; the first German scientific journal, the complete *Acta Eruditorum*; the complete *Transactions* of the Royal Society of Edinburgh, and the *American Journal of Science* from its inception in 1819.

There is still a third area of sources of information concerning scientists and their work. These are the letters, diaries, book manuscripts that did not reach the printer, and similar unpublished material, often still in the hands of the scientist's descendants or perhaps in a museum or special library. For dozens of scientists there have been published *Opera* or Collected Works, in which is printed every known line written by them. These *Opera* are usually labors of love on the part of some group: for example the publication of the collected works of the seventeenth century Dutch mathematician and physicist Christiaan Huygens has just been completed. This project was undertaken by an organization formed for the purpose and required over half a century. The 22 large and beautifully prepared volumes of this set are printed upon paper especially made for this single purpose.

The large-scale purchase of such *Opera* is again beyond the usual means of the University Library. Yet the DeGolyer Collection has, during recent years, acquired the works of Isaac Newton, Johann Kepler, Tyghe Brahe, J. C. Maxwell, Louis Pasteur, Lord Rayleigh, Charles Bonnet, and dozens of other scientists.

First of all, then, the University Library is acquiring the fundamental publications of the natural sciences: the writings of the

scientists themselves, whether they be books, journal articles, or originally unpublished materials.

Neither science nor the history of science is a set of first editions, and the source materials for a study of the history of science must necessarily include many publications other than the crown jewels. A book freezes forever the words of the author, but that author may well publish a revised edition, or other books. Thus Mr. DeGolyer, in attempting to lay the foundations for a thorough study of the work of the great English geologist, Charles Lyell, has sought every one of the editions of Lyell's *Principles of Geology* that were published within Lyell's lifetime. Ten editions of this important work are now available in the Collection and others are enroute to us. In such collections of multiple editions the historians can follow the successive changes of mind that are reflected in the successive stages of the writings of such a scientist.

AN IMPORTANT WORK in science represents a change in the current point of view. An adequate study of a change of viewpoint requires knowledge not only of the new viewpoint but also of the old. One of the kinds of books needed for research in the history of science is therefore encyclopaedias and textbooks of all eras, in which contemporary views are recorded. In the textbooks that a scientist studied in school one can often find the ground from which he began, and hence can see more clearly the scope of his achievements.

Naturally, histories of science and histories of special science or even special fa-

cets of special sciences are important to research in the history of science. Broad histories, such as Nørdenskiöld's *History of Biology* or Cantor's *History of Mathematics*, are of tremendous value in giving the reader a quick survey of a particular portion of science of interest. More specialized research tools, such as bibliographies of the writings of scientists, technical handbooks in both history and science, biographies of individual scientists, and scholarly journals of the history of science comprise an essential portion of the Collection.

And, finally for research purposes, there are many books that in themselves are more concerned with general intellectual and cultural history than specifically with the history of science. Mr. DeGolyer realized from the beginning the importance of knowing that the scientist is a human being and that he does not live in an ivory tower: thus on the shelves of the Collection will be found the first editions of such works as Locke's *Humane Understanding*, Descartes' *Discourse on the Method*, and Frazer's *Golden Bough*, works that enable the historian of science to understand the primary subject of his studies—human beings of various eras. Science is primarily concerned with ideas, but ideas are the intellectual creations of man, who in turn is heavily influenced by the society in which he lives, so that the historian of science necessarily has a strong interest in general intellectual history.

To this point we have been discussing primarily the research characteristics of this important portion of the University of Oklahoma Library. Research is of course es-

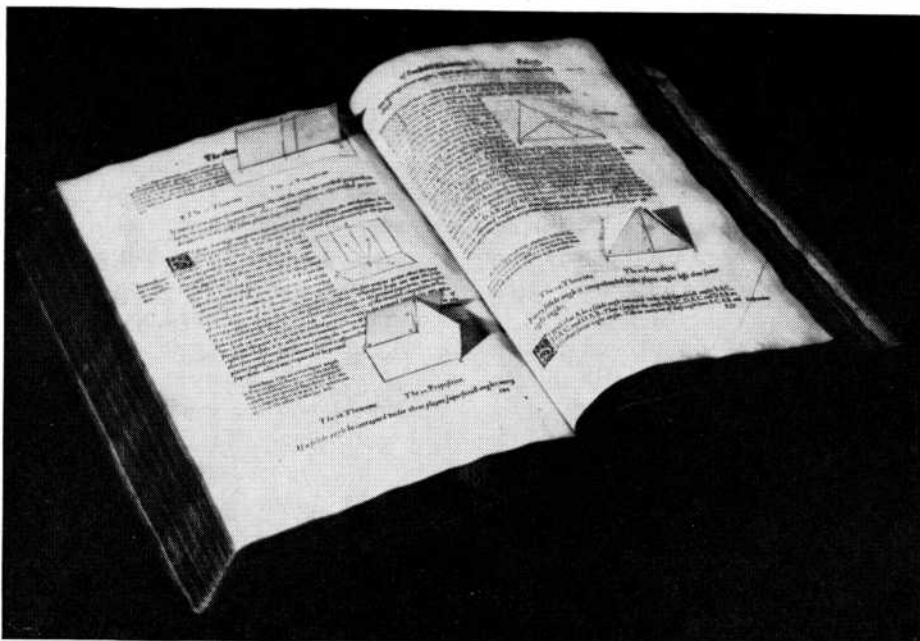
THE SUBJECT AND THE AUTHOR

Much has been written about the University's famed DeGolyer Collection during the eight years in which it has rested and grown in Bizzell Library. But with the death of Everette L. DeGolyer, '11geol, last December 14, the Collection's significance came back into sharp focus. This article, a comprehensive look at that significance, was written by a man who probably knows the Collection best, Dr. Duane H. D. Roller, curator of the Collection, assistant professor of history of science, and chairman of the faculty research committee at the University.

essential to a university, and one of a university's important functions is to provide the materials for advanced investigation and, by means of its research facilities, to attract to, and keep fine scholars in, its faculty. The DeGolyer Collection is a research tool of great value in many fields other than the history of science: scholars working in other fields of history, in philosophy, in English, and in the sciences all find research facilities at the University of Oklahoma enhanced by the existence of the Collection. But at the same time, the important function, indeed the very *raison d'être* of the University, is teaching.

In affording better research facilities the DeGolyer Collection inevitably assists teaching. This is not only a matter of the factors mentioned in the previous paragraph; only two days before this article was written an instructor was able to assign his class the task of examining the great eighteenth century French encyclopaedia of Diderot and d'Alembert—because it is in the DeGolyer Collection. Science teachers can and do send students to examine the original writings of the men who created the ideas being discussed in class. Even the exhibition of rare books at last summer's Semi-centennial Exposition surely had some inevitable educating effect.

The research facilities previously described are naturally open to students, and are of course of particular value to those working in the history of science and related fields. Those concerned with the selection of books for addition to the Collection have given conscious effort to the development of materials for research by



The Collection's copy of Euclid's Mathematics has "3-D" illustrations which fold out from pages. It is valuable both from a history of science standpoint and as an example in bookmaking art.

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graduate students. The fine collection of Lyell's works is one example; William Gilbert's book on cosmology is probably a very important book in the development of seventeenth century astronomical theory, and since it has never been subjected to thorough study, a copy was acquired as a deliberate "setting-up" of a thesis problem for a graduate student; a very fine block of works in eighteenth century electricity is being built for the same purpose; dozens of other examples could be cited.

Since the inception of the formal, classroom courses in the history of science three years ago, some 450 students have taken such courses, and the Collection is available for their use. Therein they find those books containing reading assignments in the history of science courses. But they also find biographies of scientists, histories of science, modern English translations of the classics of science, and books with titles reflecting the modern impact of science, such as *Men and Volts*, *The Atomic Submarine*, *Report on the Atom*, *Space Travel*, *American Chemical Industry*, *Science and Social Needs*, *Rats, Lice, and History*, and *Modern Science and Modern Man*.

A common question asked about the DeGolyer Collection is: "How does this compare with other special collections in the

history of science, at other universities?" This is really an unanswerable question, for there is no other collection quite like this, although a number of universities have excellent facilities for research and teaching in the history of science. Probably the best answer is that the University of Oklahoma is acquiring outstanding facilities in this field, matched only by a half dozen or so other institutions in the entire country, and that the continuing growth of the DeGolyer Collection promises to make the University of Oklahoma world-famous in this area of study—a fame that is not transient but that will be with us for as long as the University is here.

TRIUMPH OF S. VESTAL

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might call me along with a lot of the other retired teachers back in service to replace younger men needed elsewhere. But I hope that no such emergency will arise in my time, though I will be perfectly willing to serve if such a thing should happen.

"One of my old friends, William Henry Jackson, the famous western photographer, published his autobiography called *Time Exposure* at 97 years of age. In that book he had two chapters: one, 'I Retire,' and the one following, 'I Go to Work.' I like that spirit and hope that I share it. And indeed all the men in my family of whom I have any record died in the harness. I cannot

understand how anybody could be so behind-hand with his projects that he could be stopped even by retirement, so long as he retains a measure of health and spirit.

"Some years ago I made an estimate of the number of students who had sat in my classes since I first began to teach. It runs into thousands, and that's a rough estimate. Half of those people have changed their names, and I do not profess to be able to remember the names of all of my pupils, and no doubt many of them have forgotten me. But I think I would recognize most of them if they turned up. And if I have done any of them any good, it is very gratifying, for the teacher's great reward is in the success and affection of his former students.

"Working with writers is a rewarding experience. They are, as a class or as a group, most obliging, friendly, and accessible, willing and eager to help others over the bumps in their own profession, and leading exciting lives themselves of trial and error, triumph and disappointment, as all free-lance writers must. A free-lance writer, a professional writer, watches the postman coming down the street with keen interest. He may bring a contract, a big check, an assignment, or a returned manuscript, a rejection, a disappointment. So you see that my life after retirement will not be dull. Nobody who watches the postman coming in such a spirit will ever be bored."



This room on the first floor of Bizzell Library houses the DeGolyer Collection. Here students can inspect scientific volumes centuries old and extremely rare. The volumes make the University's history of science facilities top-notch and matched by only a few other institutions.