

DeGolyer and the History of Science

By JESSE LEE RADER

The De Golyer Collection on the History of Science and Technology is made up of a growing accumulation of books which now numbers about eight hundred volumes. Even as a student on this campus, Mr. Everette De Golyer, '11ba, was active as a member of geological expeditions. After graduation, he was employed as a geologist with the Amerada Petroleum Corporation and is credited with bringing in a large oil field for that company in Mexico; later he was elected president of the company. When he retired from this work, he and his associates opened offices in Dallas, Texas; he is at present chiefly concerned with the appraisal of oil properties of all kinds. Mr. De Golyer has served on two commissions to which he was appointed by the President of the United States, serving on the first of them during World War II. A list of his achievements would reveal him as one of the most distinguished graduates of the University.

With such a background, his interest in collecting material on the history of science has been a natural and logical development of his intellectual interests. Collections of books on science in general are common enough, and exist in one form or another in several large libraries. But by concentrating time and money and thought on one subject, the history of science, Mr. De Golyer has built up a unique and distinguished library. An examination of the books themselves reveals a pattern of history extending from the cradle days of printing down to our own time. Since some of the books were printed before 1500, excellent examples of

incunabula appear on the shelves, and there are presented here the earliest scientific ideas in print, in a type which at the same time illustrates the early history of the art of printing.

To look through and examine carefully these eight hundred volumes is an inspiring experience. It is a stupendous conception to trace in its own literature the story of science from the time when man first thought of fire as something more useful than a bright light in a dismal world. Here one finds the life of Paracelsus, the complete works of Aristotle in the first Greek text, as well as the best modern translation; then follow such works as the first book of anatomy, by Vesalius (with the first and second editions), the first and second editions of Copernicus, the first book on architecture by Vitruvius, Edward Jenner's first book on smallpox, and the later discoveries of Pasteur.

In volume after volume one may find records of the superb daring of the early scientists; even a trifling acquaintance with the history of the Middle Ages, or indeed the Renaissance, brings home to us the obvious fact that this courage was no small thing. Here is the facsimile of the manuscript of Leonardo; in his legible handwriting is revealed the imaginative genius of the writer who gave to the world the first monograph on flying 10 centuries before the idea of flight by heavier than air machines had fought its way through arrogance, bigotry, and stupidity to the reality of the twentieth century. When Galileo was put in jail for saying that the earth moves, some vigor-

ously deny that he said, "it does move, none-the-less." Whether he actually used these words, at any rate he gave later evidence that his belief was unchanged. On another shelf we find a first edition of Galileo which has in the margin curious corrections of the text in a clear bold hand. In the front of this volume is tipped in a facsimile of a manuscript of Galileo; right by the side of this manuscript is a photostat of the handwriting from the book. There seems little doubt that the notes were written by Galileo himself. This being true, an association value is at once established far beyond a mere first edition. The story of the lives of these men is a record of constant struggle against the gravest odds. Vesalius was saved from immediate death by the intervention of the King; Copernicus dedicated his work on astronomy to Pope Paul III in the fear that his writing would be misunderstood by his friends and the Church. He begins his dedication to the Pope with these words:

I can easily conceive, Most Holy Father, that as soon as some people learn that this book which I have written concerning the revolutions of the heavenly bodies, I ascribe certain notions to the earth, they will cry out at once that I and my theory should be rejected. For I am not so much in love with my conclusions as not to weigh what others will think about them, and although I know that the meditations of a philosopher are far removed from the judgment of the laity, because his endeavor is to seek out the truth in all things, so as this is permitted by God to human reason. I still think that one must avoid theories altogether foreign to orthodoxy.

The above quotation is from the introduction to *De Revolutionibus coelestium, libri VI*, 1543, the year in which Copernicus died. His hesitation in publishing the conclusions of a lifetime was largely due to his fear of being misunderstood, a reticence reflected in the dedication just given.

In the same category is another work, the *Regiomontanus Calendarium* printed in 1476, just a few years after the invention of printing in Europe. This work is most notable because it is the first book with a title page, and the first book with an illuminated title page. Regiomontanus (known by at least two other names) was a friend of Copernicus, a relationship which resulted in the appointment of Copernicus to a professorship of mathematics, a subject in which he retained an interest until the end of his life.

The wisdom of the ages, hidden away in these rare volumes, reminds us once again that there is nothing new under the sun. Passing on to another shelf, we discover two books bearing the book plate ownership by Frederick R. Redgrave, unfortunately not the scholar who collaborated with Alfred Pollard in the authorship of the *Short Title Catalogue*. One of these titles, however, is a beautiful hand-illustrated copy

ABOUT THE AUTHOR

From 1908 until his retirement in 1951, J. L. Rader, '08ba, '13ma, served as University Librarian, Professor of Library Science, and Director of the School of Library Science, which he was instrumental in establishing in 1929. He owns a fine collection of first editions and other rare books, chiefly about the Southwest. In 1917 the University of Oklahoma Press published Professor Rader's South of Forty, From the Mississippi to the Rio Grande: A Bibliography. At present Mr. Rader is Professor of Library Science and Bibliographer. No one in the University is so well qualified to write an appreciative account of the DeGolyer Collection.



of the first edition of Euclid bearing on the title page the seal of the ownership of the Academy of Leonardo da Vinci. A record exists of a discussion by Leonardo of the principles of Euclid, but there is no evidence that he actually used this book. Since the book was near at hand, it is not too unreasonable to believe that Leonard handled this copy, even though the binding itself was added two hundred years after the book was printed.

Another field of science represented is anatomy. As has been said, Andreas Vesalius gave to the world the first work on human anatomy, in Switzerland in 1543. He is called by some the "greatest anatomist," and very early became interested in medicine, a study in which he was not helped by the current Galenic teachings and the labors of Paracelsus. In France human dissection was in such disfavor that he transferred his operations to Italy, where dissection was covertly permitted if not openly countenanced. From the beginning of his studies, the young Fleming looked with extreme disapproval on the teachings of his day, and he consequently started a series of entirely independent investigations based upon his own observations. The results were published to the world in *De Humani Corporis Fabrica*, the first comprehensive and systematic study of human anatomy.

Included in the collection also are treatises in large number on botany, among them one of the earliest and rarest of herbals. Slowly the early herbals changed from mere pictures, more or less beautiful, of the flowers, to the making of fine hand-colored flower prints which were tied in with the newer conception of the use of the plants themselves in the treatment of disease. One of the finest examples of these early herbals is a marvelous copy of Leonard Fuch's book on plants, illuminated with hundreds of hand-colored plates. This copy likewise contains portraits of the author as well as of the illuminators. The flower fuchsia, we remember, derives its name from the author of this work.

Of unusual significance in the history of science is the work of William Gilbert who was, with the doubtful exception of Bacon, the most distinguished scientist living in the reign of Elizabeth. He was the court physician, but Elizabeth finally settled a pension on him which enabled him to devote his time to scientific studies. His work in chemistry is thought to have been important, although most of it has been lost. His research on magnetism (the first of its kind) was of sufficient value, as Hallam states, "to raise a lasting reputation for its author." As usual, at home his ideas were not favorably received, but he seems

to have made a lasting impression on the men of the continent. Bacon admired the man but not his theories; and on the other hand, Galileo expressed esteem for the work as well as for the author. Gilbert was the first to discover that the earth was a great magnet; he was apparently the first to give the name "pole" to the magnetic needle, although he seems to have reversed the directions as these are now understood. The terms "electric force," "electric emanations," and "electric attractions" first appeared in his work. Dr. Priestly called him the "Father of Electricity." This first book on electricity was printed in Latin under the title *De Magnete, magneticisque corporibus*. It was not translated into English until 1893, exactly two hundred and ninety-three years after its first publication.

The works of Aristotle have appeared in many editions, yet it is still an unusual occurrence for one to see the very rare first edition, in the original Greek text, printed in the beautiful type designed for the press of Manutius Aldus, while on an adjoining shelf stands the complete English edition, prepared under the editorship of W. D. Ross and published by the Oxford University Press.

In examining these books, one finds the names of many world famous printers and designers: Erhard Ratdolt, for example, whose printer's mark invariably more than hinted at his own skill and artistic merit as printer and designer of books; Manutius Aldus, who was without doubt one of the world's great printers; and Leonardo da Vinci, whose designs were used in the illustrations of some of the books in the De Golyer Collection. We may note, in passing, that in the office of Aldus, placed conspicuously over the door, was this legend: "Whoever thou art, thou art earnestly requested by Aldus to state thy business briefly and to take thy departure promptly. In this way thou mayest be of service even as was Hercules to the weary Atlas, for this is a place of work for all who may enter."

Only a few of the outstanding books in the collection can be mentioned in this short article: Jenner and his first book on smallpox, Pasteur's studies employing some of the same theories, Robert Hooke's *Micrographia*—to add a few invaluable titles along the road of scientific progress.

At the University, however, a course is being planned on the history of science which will use the De Golyer Collection as a basis. It is a very generous act on the part of Mr. De Golyer to offer his books for the use of a steadily growing Graduate College and for our students. The presence of such books available for use by anyone should stimulate further thought and research in the broad and fascinating reaches of science.

Books

Bibliography of Linguistic, Ethnographic and Literary Materials.

By Members of the Summer Institute of Linguistics. Glendale, California, 1951. Twenty cents.

Since 1935, the Summer Institute of Linguistics has sent to the Indian tribes of Mexico, Peru, and the U. S. A. numerous investigators to work on the analysis of the linguistic structure of the languages of these areas. The present bibliography lists the published results of their work, both of a linguistic type (with a few ethnographic and general items) and of a type designed to collaborate with the educational officials of these countries in promoting the intensive efforts which the governments therein have under way to educate the native populations.

The bibliography lists a total of 381 published articles by 113 authors dealing with 40 languages.

Work of the Institute

In the summer of 1934, the Summer Institute of Linguistics was founded by Mr. W. Cameron Townsend, its present General Director, and Mr. L. L. Legters with two regular students at Sulphur Springs, Arkansas. Since then, branch institutes have been established in Saskatchewan, Canada, and near Melbourne, Australia. Since 1942, the principal sessions have been held on the campus of, and affiliated with, the University of Oklahoma. In 1951 there was a combined total of 350 students in the three institutions, with a total of approximately 2,500 during the last sixteen years. The courses are given in intensive sessions of from eleven to twelve weeks, concentrating on techniques of descriptive linguistics for hitherto unwritten languages.

Students taking the first summer's work have about fifty class contact hours in general phonetics, learning to analyze and to produce sounds; a like number in phonemics, learning how to reduce languages to writing and studying the system of sounds; similar periods of time for morphology, analyzing how the parts of words are put together; and syntax, for the structure of sentences. A further period of fifty hours contains a miscellaneous assortment of hours in which the linguistic student is given methods for preparing literacy materials, an introduction to lexical and translation problems, a brief series of lectures designed to orient the beginning linguist on anthropological attitudes, and so on.

The final ten days of the course are devoted entirely to work with informants, in which the students try out, usually with some Indian language of Oklahoma, the

