



An Exhibition List
of works selected from
The DeGolyer Collection
in the History of Science
and Technology

SHOWN AT THE LIBRARY OF
THE UNIVERSITY OF OKLAHOMA
FEBRUARY 2 TO 14, 1953

UNIVERSITY OF OKLAHOMA PRESS
NORMAN

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THE BOOKS in this exhibition have been selected from the collection recently presented to the University of Oklahoma Library by Mr. E. DeGolyer of Dallas, Texas. Each book exhibited meets one or more of the following criteria: (1) it marks a significant turning point or advance in the history of science and technology; (2) it presents a basic philosophical outlook upon science which was an innovation at the time of its publication; (3) it is a rare or very early edition, and is therefore important as a collector's item.

This exhibition from the DeGolyer Collection in the History of Science and Technology is a sampling which will direct its viewers to the main body of the collection, and perhaps will also stimulate some appreciation of the importance which the University of Oklahoma attaches to the field of study represented by the collection. While examining original printings of such rare works as the *Dialogo* (1632) of Galileo, one can hardly fail to grasp, not only the informed zeal of the collector, but the highly important function that collecting has performed for the whole of society. It is expected that, as the work of collection continues, the DeGolyer Collection, already great, will grow into one of the most significant intellectual treasures of the Western World.

The history of the West is to a great extent a history of scientific progress, and a study of that progress reveals at least three fundamental factors of growth and continuation. The first of these, and perhaps the most common explanation of the origins of science, is that human beings under the compulsions of living—sheer biological survival—have solved many of their problems

through various technical inventions. The history of science and technology reveals instance after instance in which the practical problems of survival have motivated the development of scientific ideas and technical instruments. The invention of the lever, or of the wheel and axle for the movement or conveyance of heavy loads, and the invention of geometric measurement of distance for laying out buildings or surveying agricultural areas can be demonstrated as having occurred in Egypt or Babylonia several millenia before the Christian era. Urgent needs of warfare in the very practical struggle for political power and economic goods have stimulated the creation of many technical devices, and are still functioning in our day in exactly the same way that they have functioned through the centuries.

Careful students of science and its history have become aware, however, that there are other needs beyond those of the practical which operate in the origination and continuation of scientific activity. The generation as well as the attraction of ideas is irresistible. In any society there are minds which live on the frontiers of human thought and experience, and oftentimes much beyond those frontiers. To recognize this fact is not, however, to get at an even larger motivation implicit in the life of the mind—really the second of the fundamental factors in scientific progress. It is the desire for intellectual or philosophical security. "Man does not live by bread alone." The human being demands his own spiritual orientation and security over and above the satisfaction of bodily requirements. It is almost a commonplace to observe that men have accepted death as an alternative to the relinquishment of rational and religious ideals. Probably the abstract problems of science, theology, and general philosophy have seriously engaged human minds quite as long as the conscious concern for practical necessities and bodily comforts. Thus science, in relieving at least part of man's emotional and intellectual insecurity in his world, has helped him to approach a wiser and more dependable world-picture.

The search for aesthetic beauty, another spiritual value, is the third of the fundamental factors in scientific progress. It is not at all uncommon to hear scientists speak of a theory or of an experiment as "beautiful"; and this feeling can be observed at

work in the earliest of man's practical inventions. Even in the most primitive human societies, baskets are made not merely to carry objects necessary for life, but are designed and decorated as expressions of aesthetic value and magical symbolism. Ritualistic symbols, religious incantations, mystical and metaphysical conceptions about the nature of the world, all have been identifiably influential in the early development of the sciences. Witness the relation between astrology and astronomy, alchemy and chemistry, as well as Pythagorean mystical numerology and the development of mathematical and physical theory under Galileo. Even modern scientists, like Einstein, are inspired by metaphysical doctrines such as those of Spinoza. And metaphysics, in turn, has been profoundly affected by developments in science. Edna St. Vincent Millay has vividly expressed this deep and pervasive intimacy between rational inquiry and the profound aesthetic and metaphysical tendencies of the human mind:

*“O blinding hour, O holy, terrible day,
When first the shaft into his vision shone
Of light anatomized! Euclid alone
Has looked on Beauty bare. Fortunate they
Who, though once only and then but far away,
Have heard her massive sandal set on stone.”*

As an expression of these fundamental factors, the history of science is a record of the inventive imaginations of great men moved by abstract, metaphysical, religious, and aesthetic ideals as much as by practical demands. The very existence of this collection and its incorporation into a great university library demonstrates the existence of a strong intellectual and spiritual urge for an effective philosophical-cultural orientation toward the problems of the complex world of today. Undoubtedly the study of the history of science and technology will develop information of some practical and economic use. However, the major value of the DeGolyer Collection and of the educational activities the University of Oklahoma is enabled to organize around its materials lies in a fresh opportunity to develop among students a sense of sheer intellectual accomplishment, an understanding of the impact of science and technology on Western society, and an orientation

of science in relation to the realm of aesthetic and spiritual values, ideas, and aspirations. In this light, the study of the history of science and technology is one of the best avenues through which a university can move to preserve and to extend the growth and progress of science itself. As the University of Oklahoma assimilates the intellectual treasures of the DeGolyer Collection to its educational programs, its graduates will grow steadily in their grasp of the best in the scientific tradition of Western life. By this growth, Oklahoma and the nation will prosper apace, their democracy enriched by wiser social leadership and a more sanguine science and technology.

C. W. BERENDA

Check List of the Exhibition

☞ General Works

- HRABANUS MAURUS, ca. 776-856
Opus de universo. [Weidenbach near Cologne, 1467]
- PETRUS, COMESTOR, 12th century
Scolastica historia. [Strassburg] 1485
- ARISTOTELES, 384-322 B.C.
Opera (Greek). Venice, 1495-98. 5 vols. in 6
- PACCIOLI, LUCA, ca. 1445-1514
Divina proportione. Venice, 1509
- BEDA, VENERABILIS, 673-735
De natura rerum et temporum ratione. Basel, 1529
- BACON, ROGER, ca. 1214-1294
Perspectiva. [Frankfort] 1614
- BACON, FRANCIS, 1561-1626
[*Novum Organum*]. London, 1620
- ROYAL SOCIETY OF LONDON
Philosophical transactions, vol. 1- London, 1665-
- CHAMBERS, EPHRAIUM, ca. 1680-1740
Cyclopaedia; or, An universal dictionary of arts and sciences.
London, 1728. 2 vols.
- Encyclopédie, ou dictionnaire raisonné des sciences, des arts, et des métiers, par un société de gens de lettres. Mis en ordre & publié par m. Diderot . . . & quant à la partie mathématique, par m. d'Alembert*. Paris, 1751-80. 34 vols.

☞ Philosophy

- BACON, FRANCIS, 1561-1626
Of the advancement and proficiencie of learning. Oxford, 1640
- BOYLE, ROBERT, 1627-1691
Some considerations touching the usefulness of experimental natural philosophy. Oxford, 1663-71. 2 vols.
- NEWTON, ISAAC, 1642-1727
Philosophiæ naturalis principia mathematica. London, 1687
- LOCKE, JOHN, 1632-1704
An essay concerning humane understanding. London, 1690
- KANT, IMMANUEL, 1724-1804
Critik der reinen vernunft. Riga, 1781

☞ Astronomy and Mathematics

- MUELLER, JOHANNES, REGIOMONTANUS, 1436-1476
Kalendarium. Venice, 1476
- EUCLIDES, fl. ca. 300 B.C.
Elementa geometriæ. Venice, 1482
- COPERNICUS, NICOLAUS, 1473-1543
De revolutionibus orbium coelestium. Nürnberg, 1543
- ARCHIMEDES, ca. 287-212 B.C.
Opera (Greek). Basel, 1544
- PTOLEMAEUS, CLAUDIUS, fl. 121-151 A.D.
Geographia universalis, vetus y nova. Basel, 1545
- GALILEI, GALILEO, 1564-1642
Siderius nuncius magna. Venice, 1610
(Presentation inscription by the author)
- NAPIER, JOHN, 1550-1617
Mirifici logarithmorum canonicis descriptio. Edinburgh, 1614
- KEPLER, JOHANN, 1571-1630
Harmonices mundi. [Augsburg] 1619

GALILEI, GALILEO, 1564-1642

Dialogo. Dove ne i congressi di quattro giornate si discorre sopra i due massimi sistemi del mondo Tolemaico, e Copernicano. Florence, 1632

LAGRANGE, JOSEPH LOUIS, 1736-1813

Mécanique analytique. Paris, 1788
(Bound with his *Théorie des fonctions analytiques*)

LAPLACE, PIERRE SIMON, 1749-1827

Traité de mécanique céleste. Paris, an VII [1798]-1825. 5 vols.

GAUSS, KARL FRIEDRICH, 1777-1855

Disquisitiones arithmeticae. Leipzig, 1801

§ Physics

STEVIN, SIMON, 1548-1620

Die beghinselen de weegconst . . . Die weeghdaet . . . Die beghinselen des waterwichts. Leyden, 1586
(Three works in one volume)

GILBERT, WILLIAM, 1540-1603

De magnete, magneticisque corporibus, et de magno magnete tellure. London, 1600

GALILEI, GALILEO, 1564-1642

Discorsi e dimostrazioni matematiche. Leyden, 1638

SCHOTT, GASPAR, 1608-1666

Mechanica hydraulico-pneumatica. Herbipoli, 1657

PASCAL, BLAISE, 1623-1662

Traitez de l'équilibre des liqueurs, et de la pesanteur de la masse de l'air. Paris, 1663

ACCADEMIA DEL CIMENTO, FLORENCE

Saggi di naturali esperienze. Florence, 1666

BOYLE, ROBERT, 1627-1691

A continuation of new experiments, physicomachanical, touching the spring and weight of the air. Oxford, 1669; London, 1682.
2 parts

- GUERICKE, OTTO VON, 1602-1686
Experimenta nova (ut vocantur) magdeburgica de vacuo spatio.
 Amsterdam, 1672
- HUYGENS, CHRISTIAAN, 1629-1695
Horologium oscillatorium sive de motu pendulorum. Paris, 1673
- HUYGENS, CHRISTIAAN, 1629-1695
Traité de la lumière. Leyden, 1690
- FRANKLIN, BENJAMIN, 1706-1790
New experiments and observations on electricity. London, 1754-
 62. 3 parts (Parts I and II are third edition)
- GALVANI, LUIGI, 1737-1798
De viribus electricitatis in motu musculari. Modena, 1792
- VOLTA, ALESSANDRO, 1745-1827
*On the electricity excited by the mere contact of conducting sub-
 stances of different kinds.* London, 1800
 (From: Royal society of London, *Philosophical transactions*, vol.
 19, pt. 2, pp. 403-31)
- GALVANI, LUIGI, 1737-1798
Opere edite ed inedite. Bologna, 1841-42. 2 vols.
- HELMHOLTZ, HERMANN LUDWIG FERDINAND VON, 1821-1894
Über die erhaltung der kraft. Berlin, 1847
- HERTZ, HEINRICH RUDOLPH, 1857-1894
Ueber sehr schnelle electrische schwingungen. Leipzig, 1887
 (In: *Annalen der physik und chemie*, neue folge, band 31, pp. 421-
 48)
- EINSTEIN, ALBERT, 1879-
Zur elektrodynamik bewegter körper. Leipzig, 1905
 (In: *Annalen der physik*, 4. folge, bd. 17, pp. 891-921)

☞ Chemistry

- JABIR IBN HAIYAN, AL-TARASUSI, fl. 8th or 9th century
De alchimia. [Strassburg] 1529
- BACON, ROGER, ca. 1214-1294
Speculum alchemiae. Nürnberg, 1541
 (Bound with nine other tracts on alchemy)

- BACON, ROGER, ca. 1214-1294
De mirabile potestate artis et naturae. Paris, 1542
 (Bound with: Coelestinus, Claudius, *De his que mirabiliter eveniunt.* 1542)
- LAVOISIER, ANTOINE LAURENT, 1743-1794
Traité élémentaire de chimie. Paris, 1789. 2 vols.
- DALTON, JOHN, 1766-1844
On the absorption of gases by water and other liquids. Manchester, 1805
 (Contains the first table of atomic weights. Reprinted from: Manchester literary and philosophical society, *Memoirs*)
- HARE, ROBERT, 1781-1858
A compendium of the course of chemical instruction in the Medical department of the University of Pennsylvania. Philadelphia, 1827
- DAVY, HUMPHRY, 1778-1829
Collected works. London, 1839-40. 9 vols.
- KIRCHOFF, GUSTAV ROBERT, 1824-1887
Untersuchungen über das Sonnenspectrum und die Spectren der chemischen Elemente. Berlin, 1861-63. 2 parts
 (From: K. Akademie der Wissenschaften zu Berlin, *Abhandlungen*, 1861, 1862)
- GIBBS, JOSIAH WILLARD, 1839-1903
On the equilibrium of heterogeneous substances. New Haven, 1875-78
 (From: Connecticut academy of arts and sciences, *Transactions*, vol. III, pp. 108-248, 343-524)

☞ Botany

- The grete herball, whiche geveth parfyt knowlege and understanding of all maner of herbes.* London, 1526
- FUCHS, LEONHARD, 1501-1566
De historia stirpium. Basel, 1542
- GESNER, KONRAD, 1516-1565
De raris et admirandis herbis. Tiguri, 1555

- GREW, NEHEMIAH, 1641-1712
The anatomy of vegetables begun. London, 1672
- MALPIGHI, MARCELLO, 1628-1694
Anatome plantarum. London, 1675-79. 2 vols.
- MALPIGHI, MARCELLO, 1628-1694
Opera omnia. London, 1686
 (Bound with his *Opera posthuma.* 1697)
- HALES, STEPHEN, 1677-1761
Vegetable staticks. London, 1727-1733. 2 vols.
- LINNÉ, CARL VON, 1707-1778
Systema naturae; ed. 10., reformata. Holmiae, 1758-59. 2 vols.
- [DARWIN, ERASMUS] 1731-1802
The botanic garden. London, 1791
- VRIES, HUGO DE, 1848-1935
Die mutationstheorie. Leipzig, 1901-03. 2 vols.

☞ Zoology

- ARISTOTELES, 384-322 B.C.
De animalibus. Venice, 1476
- WOTTON, EDWARD, 1492-1555
De differentiis animalium. Paris, 1552
- SALVIANI, IPPOLITO, 1514-1572
Aquatilium animalium historiae. Rome, 1554
- GESNER, KONRAD, 1516-1565
The history of four-footed beasts and serpents. London, 1658
- HOOKE, ROBERT, 1635-1703
Micrographia: or, Some physiological descriptions of minute bodies made by magnifying glasses. London, 1665
- STENO, NICOLAUS, 1638-1686
Elementorum myologiae specimen seu musculi descriptio geometrica. Florence, 1667
- REDI, FRANCESCO, 1626-1698
Esperienze intorno alla generazione degl' insetti. Florence, 1668

PERRAULT, CLAUDE, 1613-1688

Mémoires pour servir à l'histoire naturelle des animaux. Paris, 1676
(Bound in contemporary French red morocco, with the arms of Louis XIV)

WILLUGHBY, FRANCIS, 1635-1672

Ornithologiae. London, 1676

LEEUWENHOEK, ANTHONY VAN, 1632-1723

Observations concerning various little animals. London, 1677
(From: Royal society of London, *Philosophical transactions*. Bound with 13 other separates by Leeuwenhoek from the same journal, various dates from 1676 to 1703)

WILLUGHBY, FRANCIS, 1635-1672

De historia piscium. Oxford, 1686

DARWIN, ERASMUS, 1731-1802

Zoonomia; or, The laws of organic life. London, 1794-96. 2 vols.

CUVIER, GEORGES, 1769-1832

Le règne animal distribué d'après son organisation. Paris, 1817. 4 vols.

DARWIN, CHARLES ROBERT, 1809-1882

Journal of researches into the natural history and geology of the countries visited during the voyage of H. M. S. Beagle round the world. London, 1845
(Second edition. Presentation inscription by the author: "With the author's compliments as a most trifling acknowledgment of the instruction derived from Mr. Youatt's work, and in admiration of his never-tiring zeal in the cause of humanity.")

WALLACE, ALFRED RUSSEL, 1823-1913

The geographical distribution of animals. London, 1876. 2 vols.

Medicine

VESALIUS, ANDREAS, 1514-1564

De humani corporis fabrica. Basel, 1543

AVICENNA, 980?-1037

Compendium de anima. Venice, 1546

- HARVEY, WILLIAM, 1578-1657
Anatomical exercises. London, 1653
- JENNER, EDWARD, 1749-1823
An inquiry into the causes and effects of the variolae vaccinae.
London, 1798
- BIGELOW, HENRY JACOB, 1818-1890
Insensibility during surgical operations produced by inhalation.
Boston, 1846
(In: *Boston medical and surgical journal*, vol. xxxv, no. 16, pp.
309-17)
- PASTEUR, LOUIS, 1822-1895
Études sur le vin. Paris, 1866
- PASTEUR, LOUIS, 1822-1895
Études sur la maladie des vers à soie. Paris, 1870

🌀 Engineering and Technology

- VITRUVIUS POLLIO, MARCUS, fl. 10 A.D.
De architectura. [Rome, 1486]
- AGRICOLA, GEORG, 1494-1555
De re metallica. Basel, 1561
- BRANCA, GIOVANNI, 1571-1645
Le machine. Rome, 1629
- DAVY, HUMPHRY, 1778-1829
On the safety lamp for coal miners. London, 1818
(Inscribed by the author)
- RONALDS, FRANCIS, 1788-1873
Descriptions of an electrical telegraph. London, 1823
- CARNOT, SADI NICOLAS LÉONARD, 1796-1832
Réflexions sur la puissance motrice du feu. Paris, 1824
- CALVERT, FREDERICK CRACE, 1819-1873
*Lectures on coal-tar colours, and on recent improvements and
progress in dyeing & calico printing.* Manchester [1863]

MORSE, SAMUEL F. B., 1791-1872

Samuel F. B. Morse; his letters and journals. Boston, 1914. 2 vols.

LEONARDO DA VINCI, 1452-1519

I manoscritti e i disegni di Leonardo da Vinci, pubblicati dalla Reale commissione vinciana sotto gli auspici del Ministero dell' educazione nazionale. Rome, 1923-38. 3 vols. in 6