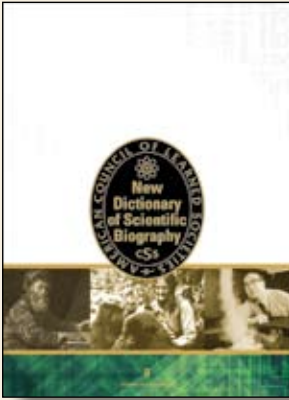


# New Dictionary of Scientific Biography



**“The last of its breed — A reference work that changed the history of science has now been brought into the 21st century with new entries and an online version.”**

— Robert P. Crease, Chairman of the Department of Philosophy, Stony Brook University.  
physicsworld.com, Institute of Physics Publishing

**Heritage and Pedigree**  
The original *Dictionary of Scientific Biography* (1970-1980; 1989), has been described as

**“Monumental.”** — Choice

**“The definitive biographical source for scientists...[it] will never become outdated.”** — Booklist

In December 2007, Charles Scribner's Sons released the first major reworking of this classic reference. The *New Dictionary of Scientific Biography* extends, complements and comments upon the original with nearly 800 completely new articles, 160 scientific illustrations and 500 photographs. Some 500 of these articles are devoted to scientists deceased since 1950 and not included in the original *Dictionary of Scientific Biography*, including Hans Bethe, Francis Crick, Richard Feynman, Stephen Jay Gould, Fred Hoyle, Mary Leakey, Konrad Lorenz, Barbara McClintock, Linus Pauling, Andrei Sakharov, B. F. Skinner and Edward Teller. There are also more than 75 articles on figures overlooked in the original *Dictionary of Scientific Biography* (from Chrysippus to Kinsey) and 225 “postscript” commentaries on important figures who have inspired new research and interpretation (from Archimedes and Aristotle to Darwin, Einstein and Oppenheimer).

The *New Dictionary of Scientific Biography* guarantees the permanent relevance of the original work and constitutes a huge expansion of its scope.

**COMPLETE 26 VOLUME eBook INCLUDES BACK-FILE OF THE ORIGINAL DICTIONARY OF SCIENTIFIC BIOGRAPHY!**

Through a special arrangement with the American Council of Learned Societies, Charles Scribner's Sons will provide not only the *New Dictionary of Scientific Biography* in eBook format, but also the entire digitized back-file of the original *Dictionary of Scientific Biography*. This comprehensive eBook includes the complete text of the 18-volume original, plus the *New Dictionary of Scientific Biography*. It will provide library patrons with the world's largest and most comprehensive collection of narrative scientific biographies.

By detailing the achievements and personalities behind the quest to understand the natural world, the *Complete Dictionary of Scientific Biography* sheds light on not just the history of science but the history of humankind.

**Chrysippus**

Chrysippus is also responsible for even more impressive work in the field now called semantics, in rhetoric, and in the theory of argument forms.

**Psychology.** From the beginning Stoic psychology was corporalist. The soul is made of pneuma that pervades the entire body, and the mind is a highly concentrated and refined form of this pneuma centered in the heart (in this respect following Aristotle rather than Plato). The perceptual and motor functions are carried out through what has become known as the circulatory system, which forms a network throughout the body. Functionally, the mind (called the commanding part, or *hegemonikon*) is fully unified. There is no division between a part responsible for reasoning and a separate locus of desire and perception. The Stoic theory was resistant to growing evidence from medical dissections (especially the discovery of the optic nerve) that the brain had a better claim to be the seat of thought and awareness. Chrysippus was more impressed by the importance of the network of arteries centered on the heart, which offered an explanation for the way the mind communicated with the entire body. Because the central nervous system was not yet understood, this consideration was hard to reject on scientific grounds. The Platonizing doctor Galen of Pergamum relied on dubious philosophical considerations in his support for the brain as the seat of thought, being most concerned to confirm the theory of Plato's *Timaeus* against Chrysippus, whose view continued to be the principal alternative to Plato's for many centuries. Galen also argued vigorously for the separation of the soul and the sharp separation of desire and cognition. Chrysippus's conviction that the mind was in the heart was wrong, though the reasoning behind the view was not unreasonable. But his claim that the mind is material and that cognitive, perceptual, emotional, and other functions are highly unified is more in keeping with modern scientific psychology than the medical tradition represented by Galen.

Chrysippus's philosophical brilliance transformed Stoicism and made it into the most influential school for centuries, until the revival of Platonism and Aristotelianism displaced it—in time for those schools to become dominant in their influence on medieval and early-modern science. He was also a prolific author (though none of his 700 books has been preserved intact) and a skilled organizer of intellectual activity in his school, using his position as head to give it an agenda that long outlasted his own career.

**BIBLIOGRAPHY**  
Algra, Keimpe. *The Cambridge History of Hellenistic Philosophy*. Cambridge, U.K.: Cambridge University Press, 1999.

**Clark**

Clark features centrally in any general account of ancient Stoicism.

Bohner, Emil. *Chrysippe et l'ancien stoïcisme*. Paris: Presses universitaires de France, 1951.

Gosler, Richard. “Chrysippe de Soles.” In *Dictionnaire des philosophes antiques*, vol. 2, edited by Richard Goulet, 329–361. Paris: CNRS Éditions, 1994. The best summary overview is found here.

Inwood, Brad, ed. *The Cambridge Companion to the Stoics*. Cambridge, U.K.: Cambridge University Press, 2003.

Tiedeman, Teun. *Chrysippus On Affections: Reconstruction and Interpretation*. Leiden, Netherlands: Brill, 2003.

von Arnim, Hans, ed. *Stoicorum Veterum Fragmenta*, vols. 2–3. Leipzig, Germany: Teubner, 1903. The basic textual evidence is collected in this work.

*Brad Inwood*

**CHUNG YAO CHAO**  
see Zhao, Zhongyao.

**CLARK, JOHN DESMOND** (b. London, United Kingdom, 10 April 1916; d. Oakland, California, 14 February 2002), *palaeoanthropology, archaeology*.

Clark conducted groundbreaking research into the prehistoric archaeology of Africa and through his discoveries he convinced archaeologists of the importance of Africa for understanding world prehistory. During his long career he made significant contributions to the knowledge of human origins through his excavations; his efforts to develop archaeological institutions in Africa, and the students he trained.

**Education.** Desmond Clark first became interested in archaeology as a child growing up in Buckinghamshire. His father, a chemist with an interest in history, often took Desmond to see the ruins of hill-forts, monasteries, and castles. These interests were later encouraged by Clark's mathematics teacher at Monkton Combe School in Bath. In 1934, Clark entered Christ's College, Cambridge University, where he studied history and then archaeology and anthropology with Miles Spence and Graham Clark. Under their tutelage Clark learned the basics of Palaeolithic archaeology, the importance of artifact typology, and the role of the environment in shaping material culture and human behavior. While at Cambridge, Clark also spent two seasons excavating an Iron Age hill camp at Maiden Castle under the guidance of archaeologist Mortimer Wheeler, keeper of archaeology at the Museum of Lon-

NEW DICTIONARY OF SCIENTIFIC BIOGRAPHY 123

**Clark**



*John D. Clark. AP IMAGES.*

don, who taught Clark rigorous excavation methods and the importance of keeping careful records. During his last year at Cambridge Clark became engaged to Betty Cable Baume, who was studying modern languages at Newnham College, and they married in 1938.

Clark received a BA in anthropology and archaeology with First Class Honors in 1937 but quickly found that there were few university or museum positions available in Britain. However, late that year he received an offer from the governor of Northern Rhodesia to become curator of the David Livingstone Memorial Museum and secretary of the Rhodes-Livingstone Institute for Social Anthropology in Livingstone, near Victoria Falls in Northern Rhodesia (later Zambia). Clark accepted and arrived in Livingstone in January 1938. At the time the museum consisted of early maps of Africa, cultural artifacts, and documents belonging to David Livingstone. Clark quickly began to put the museum's collection of archaeological and ethnological material in order and prepared a handbook for the collection.

**The Africa Years.** When Clark arrived in Livingstone there were only a few archaeologists who were investigating African prehistory: Ashley John Hilary Goodwin, Clarence van Riet Lowe, and Neville Jones had begun to work out the sequence of archaeological artifacts and periods of southern Africa, while further north in Kenya Louis and Mary Leakey were searching for evidence of the earli-

est humans in Africa. Rhodesian Man had been discovered at a mining site called Broken Hill in 1921, attracting worldwide attention, and Palaeolithic artifacts had been found in the Old Terrace Graves of the Zambezi River. Clark conducted excavations of these Zambezi River deposits in collaboration with geologist Basil Cooke in 1938, and together they began to unearth a sequence of stone industries and fossils at the site. Clark also learned of excavations conducted at Mumbwa in the Kafue Valley by Italian scientists in 1930 and decided to reinvestigate the site in 1939. These careful excavations disclosed a remarkable archaeological sequence stretching from the Middle Stone Age to the Iron Age that Clark used to illustrate the impact of palaeoenvironments on early human behavior. The results of these researches, published in 1942, were not only significant for their detail but also for the careful drawings of artifacts that Clark's wife Betty prepared.

World War II interrupted Clark's career, and in 1941, he joined the Field Ambulance Unit of the Northern Rhodesia Regiment. He was sent to Ethiopia and Somalia and saw action against the Italians, but conditions were such that Clark had frequent opportunities to search for prehistoric artifacts, and by the end of the war he had accumulated an extensive knowledge of the archaeology of the region, which led to the publication of *The Prehistoric Cultures of the Horn of Africa* in 1954. While in Nairobi, where the headquarters of the British East Africa Command was located, he visited Louis and Mary Leakey to discuss African prehistory and to conduct a small excavation. Clark was discharged from the army in 1946 and returned to Livingstone to resume his duties there. His wife Betty had run the museum during his years away and continued to serve as its secretary after his return. The decision had recently been made to separate the Rhodes-Livingstone Institute, which was moved to the capital Lusaka, from the museum, which was renamed the Rhodes-Livingstone Museum and opened with a new building in 1951.

During his travels across Africa before and during the war, Clark became aware of the growing threat to archaeological sites by settlement, farming, treasure hunting, and other activities. In order to insure the preservation of archaeological sites, Clark established the Northern Rhodesia National Monuments Commission and served as its first secretary. With the end of the war, it was also easier for scientists across Africa to travel, attend meetings, and organize new institutions. Clark regularly attended meetings of the South African Archaeological Society, but it was the organizing of the first Pan-African Congress on Prehistory by Louis Leakey that brought the greatest number of researchers together and did the most to encourage archaeology in Africa. The meeting was held in Nairobi in 1947 and was attended by archaeologists, geologists, and

124 NEW DICTIONARY OF SCIENTIFIC BIOGRAPHY

4,400 pp in 8 vols.  
Now Available. 2007.  
ISBN 978-0-684-31320-7 (0-684-31320-0).  
Order #GML04208-188095.  
**U.S. \$995.00/8-vol.set.**  
**Complete Dictionary of Scientific Biography** in 26 volumes  
Now available. 2007.  
eBook ISBN 978-0-0684-31559-1. (0-684-31559-9).  
Order #GML04208-233444.  
Please call for eBook.

GAD04208

# RELATED TITLES



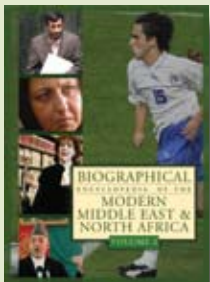
## American Men and Women of Science, 24th Edition

Includes significant players in the physical, biological and related sciences. Each edition includes biographical entries on approximately 120,000 living scientists, providing birthdate; birthplace; field of specialty; education; honorary degrees; current position; professional and career information; awards; memberships; research information; and addresses for each entrant, where available.

Now Available. 2007.  
ISBN 978-1-4144-0647-3  
(1-4144-0647-9).

Order #GML04208-225622. U.S.  
**\$1,115.00.**

eBook ISBN 978-1-4144-0974-0  
(1-4144-09745).  
Order #GML04208-225956.  
Please call for eBook pricing.



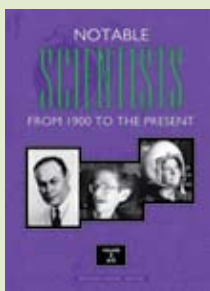
## Biographical Encyclopedia of the Modern Middle East and North Africa

Illuminates the lives of the most influential and controversial figures in the region who came to prominence during the twentieth and twenty-first centuries. It includes more than 300 alphabetically arranged leader profiles. Features include sidebars, a timeline, maps and portraits, along with subject, nationality and ethnicity indexes.

Ready November 2007.  
ISBN 978-1-4144-1889-6  
(1-4144-1889-2).

Order #GML04208-230220. U.S.  
**\$275.00.**

eBook ISBN 978-1-4144-1888-9  
(1-4144-188-4).  
Order #GML04208-230219.  
Please call for eBook pricing.



## Notable Twentieth-Century Scientists, 2nd Edition

The 1,289 scientists profiled represent this century's most prolific and productive contributors in all of the applied and physical sciences, both living and deceased, and from around the world.

Now Available. 2000.  
ISBN 978-0-7876-1751-6 (0-7876-1751-2)  
Order #GML04208-044401.  
**U.S. \$518.00.**

## Notable Women Scientists

Covers 500 women from antiquity through the present, and a wide range of disciplines, including agriculture, astronomy, biology, botany, chemistry, computer science, earth science, ecology, engineering, mathematics, medical sciences, physics, technology and zoology.

Now Available. 1999.  
ISBN 978-0-7876-3900-6 (0-7876-3900-1)  
Order #GML04208-113696.  
**\$140.00.**

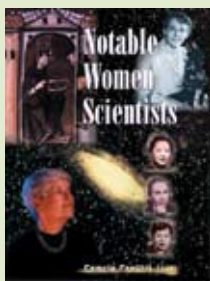
## Encyclopedia of World Biography, 2nd Edition

This 17-vol. authoritative set is entirely revised and updated — the first complete revision in 25 years. It includes 40 percent more subjects than the 1973 set, approximately 400 new entries — with more multicultural coverage, thousands of high-resolution photographs, updated entries and bibliographies, easy-to-use page format, a multi-access, consolidated index and much more.

Now Available. 1997.  
ISBN 978-0-7876-2221-3  
(0-7876-2221-4)  
Order #GML04208-111736.

**U.S. \$1,485.00.**

eBook ISBN 978-0-7876-9124-0  
(0-7876-9124-0).  
Order #GML04208-195344.  
Please call for eBook pricing.



This symbol denotes titles that are also available in eBook format. No special readers or equipment needed. Please contact your Gale Representative for eBook orders. eBooks are a one-time purchase of content, providing you rewards of ownership and an archival copy. A separate annual access fee entitles you to convenient hosting and technical services.

### FOUR EASY WAYS TO ORDER IN THE U.S. AND CANADA

- MAIL**  
Gale  
P.O. Box 9187  
Farmington Hills, MI  
48333-9187 USA
- CALL**  
1-800-877-GALE (press 2)  
**FAX**  
1-800-414-5043
- ONLINE**  
[www.gale.com/customer\\_service](http://www.gale.com/customer_service)  
**Outside the U.S. and Canada:**  
Go to [www.gale.com/world](http://www.gale.com/world) for a listing of Sales Offices and Distributors.

Qty.	Title	Order Number	Price
	<i>New Dictionary of Scientific Biography</i>	GML04208-188095	<b>\$995.00</b>
	<i>American Men and Women of Science, 24<sup>th</sup> Edition</i>	GML04208-225622	<b>\$1,115.00</b>
	<i>Biographical Encyclopedia of of the Modern Middle East and North Africa</i>	GML04208-230220	<b>\$275.00</b>
	<i>Notable Twentieth-Century Scientists, 2<sup>nd</sup> Edition</i>	GML04208-044401	<b>\$518.00</b>
	<i>Notable Women Scientists</i>	GML04208-113696	<b>\$140.00</b>
	<i>Encyclopedia of World Biography, 2<sup>nd</sup> Edition</i>	GML04208-111736	<b>\$1,485.00</b>



<b>BILL TO:</b>	Institution _____	<b>SHIP TO:</b>	Institution _____
	Address _____		Address _____
	City/State/Prov. _____		City/State/Prov. _____
	ZIP/Postal Code/Country _____		ZIP/Postal Code/Country _____
	Attention _____ Name Title/Department		Attention _____ Name Title/Department
	Phone (____) _____		Phone (____) _____
Fax (____) _____	Fax (____) _____		
E-mail _____	E-mail _____		