Maps

Graphic representation of part or all of the Earth's surface. Maps are usually printed on a flat surface using various kinds of projections based on land surveys, aerial photographs and other sources.

Summary Article: Maps

from *Encyclopedia of Environment and Society*

MAPS ARE GRAPHIC representations of the natural world and of culture and society. General definitions of maps typically include references to “simplified depictions of space” or “flat representations of some part of the earth’s surface” that include “graphic representation of features.” Maps are, however, a much more complex phenomenon. Maps are among the most successful forms of visual communication invented by humankind and arguably a critical element of human cognition. Maps are a key way of recording and illustrating information. They enable people to visually comprehend how space is organized. The power of maps to shape opinions, communicate ideas, and influence decision making has ensured their central role in economic and political life for millennia. Maps find uses in a wide variety of areas such as: environmental management, humanitarian aid, urban and regional planning, logistics, travel, trade, business, and war.

In addition to providing basic information about the relative location of places, maps help people to identify complex spatial relationships and distributions. In this way, maps assist humans to imagine, conceptualize, and make decisions about their environment. Maps relate to many aspects of everyday life and can be a central tool in the decisions people make about their mobility. They can be casual aids to navigation, high technologies essential to the function of modern life, or priceless cultural artifacts that have changed the ways in which people see the world and interact within it. Originally, maps were made almost exclusively by skilled scientists and draftsmen known as cartographers, but recent innovations in information technology and publishing has ensured that maps can now be created and used by a much broader constituency of people.

Maps are incredibly diverse in their forms and purpose and have changed dramatically over time and between societies. Throughout history, the production of maps was controlled by powerful elites, monarchies, or the state. Special mapping agencies, such as the British Ordnance Survey, were established to survey national territories. The development of new mapping technology was often closely associated with the military. For instance, satellite data, which first emerged from space surveillance technology developed during the cold war, is now commonly used in map production.

**Gerardus Mercator**

One of the most famous mapmakers was Gerardus Mercator, a cartographer whose family had previously come from Germany and settled in Flanders, now a part of Belgium. He was originally known as Gerard de Cremer and went to the University of Louvain to study humanities and philosophy.
During this period Mercator started to have some doubts over Biblical stories about the creation of
the universe. He grew interested in geography and made friends with Gemma Frisius, a leading
theoretical mathematician, physician, and astronomer. Frisius arranged for him to work with a
cartographer in Louvain, and in 1535–36 Mercator helped produce a terrestrial globe; in 1537 he also
worked on a celestial globe.

As soon as Mercator had finished the second globe, his italic lettering and skill as an engraver
encouraged him to try his hand at maps. His first piece of work was a map of Palestine, which he
completed in late 1537, and in 1538 he followed this with a map of the world that he transposed
onto a flat surface with a double heart-shaped projection. He later worked on other maps, but in
1544 he was arrested and charged with heresy. Mercator was released after seven months in jail and
returned to making maps. In 1552 he moved to Duisburg in the Duchy of Cleve, where he helped
establish a grammar school and drew up its curriculum. He also set up his own cartographic workshop
and hired engravers. Mercator started producing a map of Europe, and then a number of maps of
other parts of the continent.

It was during this period that he developed his technique of the “Mercator projection.” This
appeared for the first time on his map of the world, which was published in 1569. Mercator then
produced more maps, and even an atlas. He died on December 2, 1594, at Duisburg.

HISTORY

The work of mapmakers from the ancient to the modern world—among them Ptolemy, Mercator,
Muhammad al-Idrisi, Zheng He, John Speed, and Mason and Dixon—has emerged as a major area of
study for geographers and historians. While some of the oldest maps can been seen on Babylonian clay
tablets dating from about 2400 b.c.e., it was the ancient Greeks who made the first clearest advances
in cartography in terms of technique and geographical range. These advances were preserved and
developed further in the Arab world during the so-called Dark Ages.

In the West, the production of maps grew quickly during the Enlightenment. New techniques in land
surveying, navigation, geometry, projection, graphic design, and printing technology eventually facilitated
cheaper and wider circulation of maps, atlases, and globes. Indeed, cartographic knowledge was one of
the basic building blocks of societal progress during this period. Between the 14th and 17th centuries,
mapmakers were heavily influenced by European voyages of discovery during an “age of
reconnaissance.”

Early European cartography involved mapping seas, coastlines, and new found lands. Maps from this
time are cherished for their artistic qualities, and often depict fantastic images of beasts and sea
creatures, as well as elaborate cartouches celebrating the cartographer’s patron. As well as assisting
navigation, early European maps supported both facts and myths about faraway places, new worlds that
the majority of people would never witness first-hand. Increased demands for accuracy from
 navigators, however, ensured that maps became increasing reliable and realistic representations of the
world. In terms of European expansion, maps also proved to be important tools in the exploitation of
natural resources, the development of trade, and the governance of colonies. The growth of literacy,
travel, and tourism during the 19th and 20th centuries also created new roles for maps and ensured
their continuing relevance to modernizing societies.

MODERN MAPS

https://search.credoreference.com/content/topic/map
Over time, cartography became more scientific and standardized, while at the same time maps became more specialized and thematic. This trend continues in the present day where we see maps for almost everywhere in the world and specialized to assist almost every economic and social activity. There are currently many classifications of maps. For example, orthophoto maps identify land features using photographic images; physical maps identify the earth's landforms and bodies of water; political maps identify boundaries that divide one political entity from another; relief maps identify relief data using contour lines and shading to evidence the elevation; raised-relief maps are three-dimensional portrayals of physical features; road maps assist travelers in moving from one location to another; online road maps often calculate different routes and distances; and thematic maps—such as heritage or tourist maps—provide an artistic element and entertainment and are often commercial products. Other types exist, and some fall into more than one category.

In recent years, the production of maps has been revolutionized by the emergence and development of Geographical Information Science (GIS), which links hi-tech computer mapping with spatial analysis. GIS is used for managing, storing, retrieving, analyzing, and displaying spatially referenced data. Because GIS systems digitize data, it can be manipulated into easily accessible and aesthetic forms. Broad areas of application include mapping environmental data, land use, social phenomena, and economic activities or attributes. GIS can be used from the scale of satellite images of countries to the scale of small towns. Typical categories of plotted information include densities and clusters, rates, and single point distributions of both social and natural phenomena.

Maps continue to evolve as the nature and use of this information technology develops. Maps can be found in mobile navigation systems, e-commerce internet sites, and in the technology supporting advanced mobile phone services. Map production has become a significant area of business, as companies with investments ranging from real estate to telecommunications appreciate the value of an exact knowledge of the geography of their markets. Maps are increasingly also produced by community-based groups with interests in issues related to heritage, identity, and environment. These new uses illustrate the ongoing significance of maps in shaping both the human imagination and man's relationship to the environment.

SEE ALSO:
Exploration, Age of; Geographic Information Science; Geography; Global Positioning Systems (GPS).

BIBLIOGRAPHY
• Peter A. Burrough; Rachael A. McDonnell, Principles of Geographical Information Systems (Spatial Information Systems) (Oxford University Press, 1998).

Gavin J. Andrews
McMaster University
Denis Linehan
University College Cork

APA

Chicago
APA

Chicago

Harvard

MLA