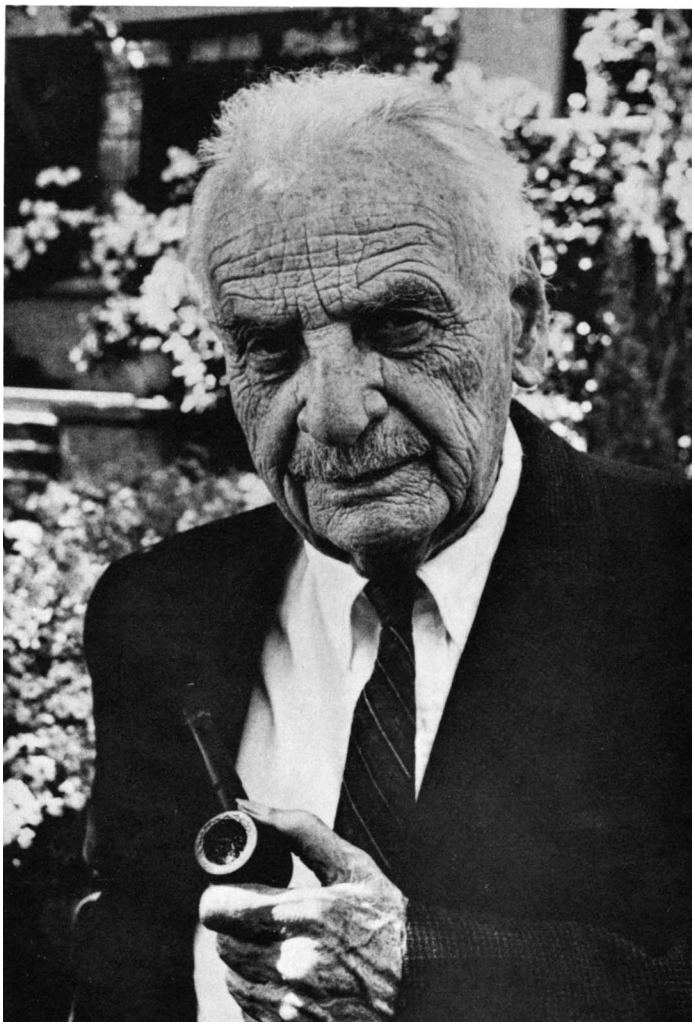
Sauer, Carl O. (1889–1975)

CARL ORTWIN SAUER was one of the most influential American geographers. Throughout his long and distinguished career, he shaped and fundamentally changed the field of cultural and anthropogeography in the UNITED STATES. Sauer was of German descent, and his ancestors were members of a German pietistic sect affiliated with the Methodists who had settled in Warrenton, MISSOURI, Sauer's place of birth.

After spending a few school years in Germany, he received an A.B. degree in 1908 from Central Wesleyan College in Warrenton. In 1915 Sauer obtained his Ph.D. from the University of Chicago, where he studied with R.D. Salisbury and Ellen Churchill Semple. The latter represented the American version of environmental determinism (also referred to as "environmentalism" or "geographic influences"), then the guiding principle of American geography. Although Sauer had enjoyed Semple's lectures at Chicago, he became increasingly dissatisfied with environmental determinism for it focused rigidly, solely, and in a Darwinian manner on the environmental influences on man.



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After eight years at the University of Michigan where he became a full professor, Sauer accepted an appointment as professor of geography at the University of California, Berkeley. During his Berkeley years (1923–57), he elaborated the geography often referred to as the Sauer School or the Berkeley School. Although until the 1930s he was sympathetic to regional studies and in his early career he had carried out some studies in this tradition, Sauer expressed growing dissatisfaction with regional geography. Sauer criticized regional studies for their sole focus on the characterization of an area and claimed that they had no value for problem formulation and development of solutions.

To be sure, Sauer neither denied determinism nor did he entirely discard the regional method. But he considered these ways of doing geography to be all too mechanistic and with only limited value for explanation and problem formulation. Subsequently, he came up with his own landscapist view of geography, which regarded time to be the most important dimension of geography.

CULTURAL GEOGRAPHY

Henceforth, landscape was studied and observed from a historical and genetic perspective. Thus, Sauer's geographical studies were driven by an interest in historical processes and sequences and, moreover, by the aesthetic qualities of landscape. A central role was ascribed to the influences of culture as a shaping force, cultural processes and cultural products as agents of transformation of nature or as elements that give character to area. Sauerian geography of this kind was referred to as landscape morphology, culture history, and also CULTURAL GEOGRAPHY.

In his research, Sauer was predominantly concerned with rural areas, especially in MEXICO and South America. Furthermore, he was interested in geographical aspects of the life of prehistoric and native peoples. He had great respect for both rural and native life and showed no objections to moralist ethical evaluation: Sauer was distinctively critical of the destructive exploitation of land and life and showed a skeptical attitude toward applied geography in the service of profit economy. Part of Sauer's work was regarded as a "silent spring" of the ecological movement.

In the study of geography, Sauer stressed the importance of geographical inquiry based on observation. He was a fierce opponent of quantitative methods in geography and considered fieldwork and archive work as the main components for the practice and study of geography and was never tired of stressing the importance of independence and self-determination of the researcher. Until his death in 1975, Sauer was a resolute advocate and protector of the privileged status of geography as an unspecialized discipline with interdisciplinary character.

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scale

SCALE IS A FUNDAMENTAL component of geographic events and processes. Climate change occurs at global scales, while human diseases such as measles occur at essentially local and regional scales. Many geographic processes also occur across multiple scales, and more important, some processes behave differently at various scales. Consequently, an explicit statement of scale is required to understand and compare these geographic processes.

One of the fundamental and frequently encountered constructions of scale is related to maps and the measurement of linear distances from them. Because maps are smaller in physical size than the areas on the earth that are mapped, each map must state the ratio or proportion between measurements on the map and on the Earth. This ratio is referred to as the map scale and is a key element for measuring accurate distances on the map.

Given that the map scale is related to the transformation process between the Earth and the flat map, scale construction is a complex task. Nevertheless, there are four basic formats for depicting the scale of a map. These formats are the representative fraction, the verbal statement, the graphic or bar scale, and the area scale.

The representative fraction (RF) is commonly stated as a ratio of two numbers separated by a colon. As an example, the representative fraction 1:10,000 means that each unit of measurement (millimeters, centimeters, feet, miles, etc.) on the map corresponds to 10,000 units of measurement (millimeters, centimeters, feet, miles, etc.) on the surface of the Earth. The unit of measurement for the numerator and denominator of the RF ratio must be identical.

Another way to depict map scale is to use a verbal statement of the relationship between linear distances on the map and the surface of the Earth. The statement "one centimeter represents 100 meters" is an example of a verbal statement of scale. The graphic or bar scale uses a subdivided line to mark off systematic distances on the map and their equivalent distances on the surface of the Earth. The map units (kilometers, meters, miles, feet, etc.) are clearly stated near the graphic scale and one end of the bar is usually further subdivided to allow more detailed measurement of distances. The area scale is a graphic depiction that provides information about how much area on the surface of the Earth is represented by a unit area on the map.

In some cases, a map scale may not be evident on the map. Fortunately, the map can still be useful. An estimate of the scale can be determined as follows: select two fixed points for which you know their separation distance in the real world, measure the map distance between these two fixed points, and then divide the map distance by the real world distance for the fixed points to obtain the representative fraction.

The selection of an appropriate map scale must give consideration of the intended purpose of the map, the target audience, and the geographic events being depicted. Geographers use the term *small scale* to mean that the map shows a large section of the Earth and hence only generalized surface features. On the other hand, a *large scale* map shows a limited amount of the Earth's surface and hence depicts a large amount of detail.

Scale also has an effect on the amount of distortion embedded in the map. These distortions come about because it requires greater effort to flatten out larger curved sections of the Earth so that they can fit on a flat map. For maps showing large sections of the Earth (small scale map) the potential for distortion is great. For maps showing a limited section of the earth (large scale map), the distortion is not as great. Thus, measuring distances on continental and global maps should be