The Geological Survey is making a geologic map of the United States, which necessitates the preparation of a topographic base map. The two are being issued together in the form of an atlas, the parts of which are called folios. Each folio consists of a topographic base map and geologic maps of a small area of country, together with explanatory and descriptive texts.

THE TOPOGRAPHIC MAP.

The features represented on the topographic map are of three distinct kinds: (1) Inaccessible features, such as surface, relief, as plateaus, plains, valleys, hills, and mountains; (2) distribution of water, called drainage, as streams, lakes, and swamps; and (3) the works of man, called cultures, as roads, railroads, boundaries, villages, and cities.

Relief.—All elevations are measured from mean sea-level. The heights of many points are accurately determined, and those which are most important are given on the map in figures. Contour lines are drawn to represent the actual surface of the earth, and the structure-section map shows their underground relations, as far as known, and in such detail as the scale permits.

KINDS OF ROCKS.

Rocks are of many kinds. The original crust of the earth is composed of igneous and sedimentary rocks, and all other rocks have been derived from them in one way or another. Some rocks have been altered by heat and pressure, and other bodies of water are also shown in blue, by appropriate conventional signs.

Ocean.—The works of man, such as roads, railroads, and towns, together with boundaries of townships, counties, and States, and artificial details such as churches, schools, and cemeteries.

Scales.—The area of the United States (excluding Alaska) is about 9,325,000 square miles. On a map of one-fifth the size of the United States, this surface would cover 3,085,000 square inches, and to accommodate it the paper dimensions would need to be about 240 by 180 feet. Each square inch of ground surface would be represented by a square inch of map surface, and one linear mile on the ground would be represented by a linear inch on the map. This relation between distance in nature and corresponding distance on the map is called the scale of the map. In this case it is 1 mile to an inch. The scale may be expressed also by the fraction, of which the numerator is a length coarser, and the denominator the corresponding length in nature expressed in the same unit. Thus, on a map of 30 inches to the mile, the scale would be 1 mile to an inch expressed by \( \frac{1}{30} \) mile to the inch. Both of these methods are used on the maps of the Geological Survey.

These scales are used on the atlas sheets of the Geological Survey; the smallest is \( \frac{1}{2} \) mile to an inch and the largest is \( \frac{1}{63,360} \) mile to an inch. The scale is commonly expressed by a fraction, of which the numerator is a length coarser, and the denominator the corresponding length in nature expressed in the same unit. Thus, on a map of 30 inches to the mile, the scale would be 1 mile to an inch expressed by \( \frac{1}{30} \) mile to the inch. Both of these methods are used on the maps of the Geological Survey.

On the scale of 1 mile to an inch, the entire map would cover 3,085,000 square inches, and to accommodate it the paper dimensions would need to be about 240 by 180 feet. Each square inch of ground surface would be represented by a square inch of map surface, and one linear mile on the ground would be represented by a linear inch on the map. This relation between distance in nature and corresponding distance on the map is called the scale of the map. In this case it is 1 mile to an inch. The scale may be expressed also by the fraction, of which the numerator is a length coarser, and the denominator the corresponding length in nature expressed in the same unit. Thus, on a map of 30 inches to the mile, the scale would be 1 mile to an inch expressed by \( \frac{1}{30} \) mile to the inch. Both of these methods are used on the maps of the Geological Survey.

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Fig. 1.—Ideal sketch and corresponding contour map.
The formations of any one period, excepting the Pleistocene and the Archean, are distinguished by their underground relations. These are the relations of the different beds to one another as they are seen in the section under the assumption that the beds are parallel.

In scientific classifications of rocks, the Pleistocene and the Archean are distinguished by their underground relations. The distinction is based on the fact that the Pleistocene and the Archean are the oldest and youngest periods respectively.

The Pleistocene is the period of the last ice age, and the Archean is the oldest period in the geologic time scale. The Pleistocene is characterized by the presence of glaciers, while the Archean is characterized by the absence of landmasses.

The Pleistocene is the most recent period in the geologic time scale, and it is often referred to as the Quaternary period. The Quaternary period is characterized by the presence of glaciers, and it is often referred to as the ice age period.

The Archean is the oldest period in the geologic time scale, and it is often referred to as the Archean eon. The Archean eon is characterized by the presence of a primitive Earth, with the first landmasses and the first oceans.

The Pleistocene and the Archean are the most important periods in the geologic record, and they are the periods that are used to distinguish the different rock types and formations.

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Information Concerning
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can be had on application to
The Director, U. S. Geological Survey,
Washington, D. C.