explanation of the temperature of deep waters, and of the molten condition of rocky matter erupted from volcanoes. But we know that boiling and melting points, under the enormous pressure experienced within the earth, are materially higher than at the surface. There is much reason also, to argue, on theoretical grounds, that the rate of increase of temperature continually diminishes at any considerable depths. But, though the depth may be quite uncertain at which a rock-melting temperature would be reached, we have the demonstration that such temperature exists at some depth.

Movements of temperature beneath the earth's surface are slow. Many instances are known of permanent ice preserved in caverns. At Brandon, Vermont, permanent frozen gravel exists at a depth of sixteen feet. In the Caucasus, masses of ice lie buried permanently in the moraines, one of which is 1,500 feet distant from any glacier, and others are a mile below the termination of the glacier. In Siberia and in northern America, the earth remains permanently frozen at a depth of two or three feet. At Yakutsk, in eastern Siberia, the earth is frozen to a depth of 700 feet. As these and other occurrences of permanent ice are not attributable to any climatic influences now existing, they must be the records and evidences of more rigorous climates in the past. In other words, the climate of the present is still contending with temperatures whose effects are lingering in protected situations long after the climates have become ameliorated. It has been demonstrated that an ice-cap resting several thousand years over any considerable portion of the surface, would so reduce the subjacent temperature of the earth that for many centuries after the disappearance of the ice, a *decrease* of temperature would be discovered in penetrating downward. Even centuries later, so much cold would still remain within the earth, that the rate of increase of temperature would be less than if the ice-cap had not existed; and after 3,600 years, that rate would be only half the normal rate.

Masses of lava are singularly poor conductors of heat. A lava stream has been found still burning a century after its