either side it is 45° or less. Further, where the Gulf Stream strikes the submarine slopes of the British Islands, it gives the same temperature to the bottom in depths of 60 fathoms or less to 600 or 700 fathoms; and a similar cold wall exists against the polar waters of the Norwegian sea.

But through the breadth of the oceans, owing to the polar movement equatorward, the waters at a depth of 600 fathoms, or 3600 feet, have almost everywhere a temperature near 40° F., or from 42° to 39½° F.; and at 500 fathoms, from 42° to 45°. Further, at 1000 fathoms, the temperature is usually between 36° and 40°, and 32° to 36° at 2000 fathoms and below to the bottom. The deeper part of the north Atlantic has a bottom temperature of 35° F. (about 34·3°–35·6°), while in the south Atlantic it is 31°–34° because the south Atlantic has a more open polar connection (Carpenter). In both the north and the south Atlantic the area of greatest bottom cold is very large in the western half of the ocean and small in the eastern, the ratio being nearly 4 to 1. In the Pacific, the Challenger Expedition found bottom temperatures of 34·6° to 35·4° in both the north and south Pacific, with 40° F. between 450 and 600 fathoms. In the arctic seas the bottom temperature of 28° F. has been observed as the extreme.

Adjoining seas, like the Caribbean and the Mexican, have for their minimum temperature the temperature of the bottom waters of the straits connecting them with the ocean, which, in the case of the seas mentioned, is 39½° F. In the Mediterranean Sea, which has *no inflowing cold waters*, the temperature below 600 feet is at all depths 54° to 56° F. The inflow at the Straits of Gibraltar is of surface Atlantic waters, and, in consequence of the very abundance of evaporation from its surface, the amount of it is more than that of the outflowing, more saline and therefore heavier, Mediterranean waters.

Atmospheric Currents and Temperature. Moist Regions and Deserts.

(1) **Heat-conditions of the atmosphere.** — The amount of heat absorbed by the atmosphere from the sun's rays depends largely on its density or the barometric pressure. It is therefore greater at the sea level, where the pressure has a mean of 29·8 to 30 inches, than at any elevation above it over the land. It is least at the tops of the mountains, and greatest in depressions below tide level, like that of the Dead Sea, 1390 feet below, and the Caspian, 84 feet below. The land surface receives and gives out heat, and is an important source of heat to the air which derives in this way two thirds of its temperature, the rest being due to absorption of the sun's rays. The waters of the ocean also absorb heat, but this takes place slowly; the heat largely becomes latent, and it is also distributed below by convection; hence, under the same exposure, it gives much less heat to the atmosphere than a land surface. Moreover, lands in the colder latitudes and at heights become covered with snow, while the ocean has no ice-covering except near coasts in polar latitudes.