

apparatus. When a messenger is sent down the line and strikes the water-bottle, the lid is released, and the weight draws both lid and cylinders down, claspings the apparatus together and closing it hermetically. The right-hand figure shows the water-bottle closed and ready for hauling up. The Nansen thermometer is seen in the left-hand figure, and is—as mentioned above—a thin delicate instrument, fitted inside a strong protective glass-tube in order to withstand the enormous pressure of the deep sea. The Pettersson-Nansen water-bottle is so well insulated that the temperature of the water-sample is not influenced from without, even when being hauled up from a depth of 1000 metres. But the temperature is lowered slightly, in consequence of the reduction of pressure during the process of hauling up, as has already been mentioned. This circumstance asserts itself quite appreciably in the case of the insulating water-bottle when used at great depths. The water-bottle is, however, fitted with a frame for carrying a reversing thermometer, so that a double determination may be made. During the “Michael Sars” Expedition we very often employed the insulating water-bottle, and took temperatures both with the Nansen thermometer and with the Richter reversing thermometer simultaneously. As an example, an observation made at Station 101 in 1400 metres may be mentioned: after correction the Nansen thermometer read 4.45° C., the Richter thermometer 4.59° C., that is 0.14° C. lower in the first case than the second. The water in the water-bottle should, according to the calculation by Lord Kelvin’s formula, have been cooled 0.12° C.; granting that the determinations

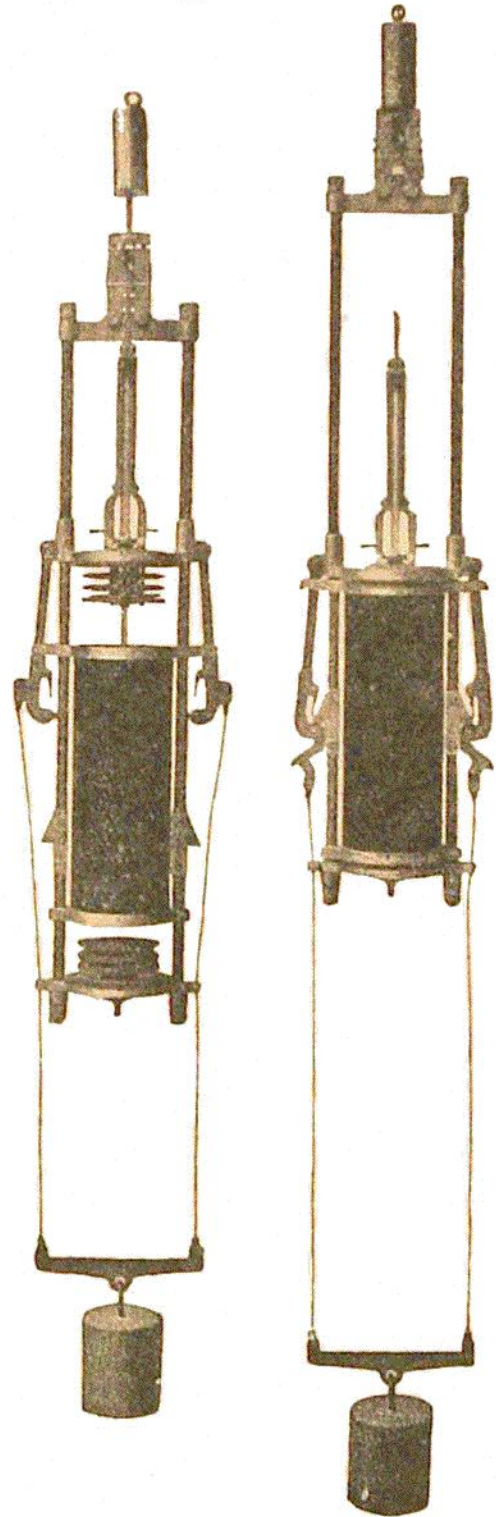


FIG. 162. — PETERSSON - NANSEN WATER-BOTTLE.

Shown open in the left-hand figure, and closed in the right-hand figure.