

of billows on the temperature of the surface water. 4th The temperature of currents which impel with an acquired velocity the waters of one zone across the immoveable waters of another zone. The region of water having the highest temperature no more coincides with the equator, than the region in which the waters reach their maximum of saltiness. In passing from one hemisphere to another, we find the warmest waters between  $5^{\circ} 45'$  of north latitude, and  $6^{\circ} 15'$  of south latitude. Perrius found their temperature to be  $82^{\circ} 3'$ ; Quevedo,  $83^{\circ} 5'$ ; Cherruca,  $83^{\circ} 7'$ , and Rodman,  $83^{\circ} 8'$ . I have found them in the South Sea, to the east of the Galapagos Isles,  $84^{\circ} 7'$ . The variations and the mean results do not extend beyond  $1^{\circ} 3'$ . It is very remarkable that in the parallel of warmest waters, the temperature of the surface of the sea is from  $3^{\circ} 6'$  to  $5^{\circ} 4'$  higher than that of the superincumbent air. Does this difference arise from the motion of the cooled particles towards the bottom, or the absorption of light, which is not sufficiently compensated by the free emission of the radiant caloric? As we advance from the equator to the torrid zone, the influence of the seasons on the temperature of the surface of the sea becomes very sensible; but as a great mass of water follows very slowly the changes in the temperature of the air, the means of the months do not correspond at the same epochs in the ocean and in the air. Besides, the extent of the variations is less in the water than in the atmosphere, because the increase or decrease in the heat of the sea takes place in a medium of variable temperature, so that the minimum and maximum of the heat which the water reaches are modified by the atmospherical temperature of the months which follow the coldest of the warmest months of the year. It is from an analogous cause, that in springs which have a variable temperature, for example, near Upsal, the extent of the variations of temperature is only  $19^{\circ} 8'$ , while the extent of the variation in air from the month of January to August, is  $39^{\circ} 6'$ . In the parallel of the Canary Islands, Baron Von Buch found the minimum of the temperature of the water to be  $68^{\circ}$ , and the maximum  $74^{\circ} 8'$ . The temperature of the air in the warmest of the coldest months, is, in that quarter, from  $64^{\circ} 4'$  to  $75^{\circ} 2'$ . In advancing towards the north, we find still greater differences of winter temperature between the surface of the sea and the superincumbent air. The cooled