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The young man's book of amusement

Halifax, 1848

To find the Specific Gravity of Solids

urn:nbn:de:bsz:31-100120

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mersed in a vessel containing cold water, the motion of the currents will be also reversed: the particles next to the sides of the glass are thrown into currents, directed downwards, whilst the particles in the centre form a current upwards. The equilibrium of these two currents will also be restored, when the equalization of temperature of the water within, and that without, has been effected.

To render the experiment more decisive, the lower part of the water may be coloured by tincture of cabbage, or red ink, leaving the upper part uncoloured. If heat be then applied to the bottom part of the glass, the coloured part of the water gradually ascends, and uniformly tinges the whole fluid.

Mode of Attracting Water.

Hang a quantity of wool, tied loosely together, down into a deep well, about five or six yards from the water; leave it in that position through the night, and its weight will, in the morning, be greater by one-fifth than it was the evening before. The additional weight will have been caused by the accession of particles of water from the humid atmosphere.

To find the Specific Gravity of Solids.

Hang the substance by a hair to one end of the

beam, weigh it first accurately in air, setting down with a pen the weight in grains and decimal parts; then place under it a glass vessel, pouring water in till it be filled to within three quarters of an inch from the brim. And immerge the body in the water, suspended by the horse hair to the hook at the bottom of the water scale. In this proceeding, we must take care that the same weights that balanced the body in air be in the opposite scale, and likewise the proper *balance water weights*, and that no air-bubble adhere to any part of the substance in the water, which will render it apparently lighter. The *opposite* scale to that which contains the substance will now greatly preponderate; weights should therefore be put into the scale till the equilibrium be restored.

The pen will now finish the operation. Divide the weight in air by the loss in water; that is, divide the number of grains in the large scale by those in the small one, and the quotient will shew the specific gravity, or how many times heavier the substance that was weighed is than water. If the weight in the small scale be *subtracted* from that in the other, it will shew the *respective gravity* of the weighed substance, or the weight with which it will be evenly balanced in water.

Table of Specific Gravities.

Refined gold	19.640
English guinea	18.888
Mercury	14.019