(*f*) NESSLER'S Test. If Mercuric Iodide (HgI_2) be dissolved in Potassic Iodide (KI) a clear, colorless solution is formed; if, after the addition of an excess of sodic (NaOH) or Potassic (KOH) Hydrate, this be poured into a liquid containing ammonia (even the smallest trace—say $\frac{1}{100}$ of a grain to $\frac{1}{2}$ pint of water) a brown precipitate, or, if the quantity of Am. be small, a yellow color will be produced, thus:

$2\ HgI_2 + 3\ KOH + NH_3 = 3\ KI + 2\ H_2O + N\ Hg_2\ I,\ H_2O$, and it is to this latter product, Tetra Mercur-Ammonia Iodide, that the color of the precipitate is due.

(9). Ammonia Chloride, NH_4Cl, forms with Platinum Chloride, PtCl, a white crystalline precipitate $=(NH_4\ Cl)_2\ Pt\ Cl_4$

LATENT HEAT.

PROFESSOR Maury has given the following explanation of Latent Heat.

If we take a cubic foot of ice and place it over a lamp capable of giving out just 1° of heat a minute, in a few minutes the ice begins to melt. The temperature of the ice is then 32° F. If we allow the lamp to burn under the ice for 143 minutes, at the end of that time all the ice will be melted, but the thermometer placed in the water immediately afterwards will show the temperature to be still 32°. What has become of the 143° of heat which the lamp must have given off? It has converted the ice into water and is *concealed* in the water. Heat in this form is therefore called *latent*. It is called sensible heat as it comes from the lamp. If we allow the lamp to burn under the water obtained from the melted ice for 967 minutes longer, the water will then have been converted into vapor and 967° more of sensible heat will have been changed to latent heat. In the whole operation of converting the ice to vapor, therefore, about 1100° of heat have become latent. If we were to reverse the process and convert the vapor so formed into ice again, about 1100° of latent heat would become sensible heat. This result takes place when a cubic foot of hail stones is formed.

The one operation is called evaporation the other precipitation.

It is very easy to understand what is meant by latent heat and since heat is the motive power of the world it is of the greatest importance that its nature and effects should be understood at the commencement of the study of Physical Geography.

One of the great questions in Physical Geography is the distribution of heat and moisture over the surface of the earth. We know that owing to unequal temperature there is a constant circulation of the atmosphere between the colder and warmer regions of the earth. The winds, evaporation, unequal temperature, the rotation of the earth and other causes produce the ocean currents which interchange the waters of the polar and equatorial regions. The currents in the ocean and in the atmosphere carry the superfluous heat and moisture from the Torrid Zone to the North and South and bring in return cold water and the cold dry atmosphere.

Professor Maury says that between the equator and the parallels of 25° North and South there are 112,000,000 sq. miles of water. In this region