

"3. The temperature is also higher in this gas than in a vacuum ; and the denser the gas employed, the higher the temperature.

"4. Hydrogen, therefore, conducts heat like a metal.

"5. In all other gases the final temperature, as shown by an enclosed thermometer, is lower than in a vacuum ; and the denser these gases become, the lower the temperature falls.

"6. It must not be concluded from this, however, that the gases in question do not conduct heat at all ; but only that their powers of conduction are so feeble, as to be unable to overcome the opposition offered by their substance to the transmission of heat.

"7. The striking conductivity of hydrogen is not only manifested when the gas is entirely free, so to say, within itself, but also when the enclosing vessel is filled with eider-down or other flocculent matters by which the free motion of the hydrogen is more or less hindered.

"8. All gases, including hydrogen, offer a certain opposition to the passage of heat-rays ; and the denser the gas, the greater this opposition.

"9. Of all gases, atmospheric air, (and its constituents) offers the least opposition to the passage of heat.

"10. The transmission of heat varies according to the source from which the heat comes. The rays which proceed from boiling water exhibit the greatest variation as regards their passage through different gases.

"11. Of all colourless gases, Ammonia transmits the least heat. Next to this stands Olefant gas.

"12. The action of rays of heat, like those of light, may be increased by the employment of a tube.

"13. The nature or condition of the inner surface of the tube affects the transmission of these rays.

"14. The character of this surface changes also the conditions under which the rays are transmitted through different gases.

"15. It follows consequently, that rays reflected from different surfaces are transmitted through gases with different degrees of facility.

"16. The rays transmitted from different sources of heat always pass through hydrogen gas with greater difficulty than through atmospheric air.

"17. The high temperature indicated by a thermometer placed in hydrogen gas into which heat is transmitted from above, does not