

a year to build, and many months were occupied in testing and making preliminary trials." Success attended the experiment made on May 10th when hydrogen gas at a temperature of -205 degrees C. and under a pressure of 180 atmospheres "was allowed to continuously escape from the nozzle of a coil of pipe at the rate of 10 to 15 cubic feet per minute, in a vacuum vessel doubly silvered and of special construction, surrounded with a space kept below -200 degrees C." Under these conditions liquid hydrogen began to form in drops, until in five minutes there were about 20 c.c. of liquid hydrogen. Further liquefaction was prevented by "the solidification of the air in the pipes of the apparatus, closing the orifice of the hydrogen jet." It is thus evident that air freezes at a temperature higher than that at which hydrogen becomes a liquid.

Liquid hydrogen, according to Professor Dewar, is colourless and clear, with a high refractive index and a density evidently greater than that ascribed to it by theory, namely, .10 to .12. Its boiling point had not then been determined, but that it is excessively low was proved by immersing in the liquid hydrogen the closed end of a glass tube containing air. The tube as far as it was immersed became filled with solid or frozen air. A further experiment made by Professor Dewar in this connection was the liquefaction of helium (a recently discovered element) by placing in liquid hydrogen a sealed tube containing this hitherto considered permanent gas

This highly interesting and valuable paper goes on to state that chlorine was liquefied by Faraday in 1823, that sixty years afterwards, Wroblewski and Olszewski produced liquid air and that now fifteen years later the two last of the gaseous elements to baffle efforts at liquefaction had been obtained as static liquids.

Professor Dewar concluded by saying that "with liquid hydrogen as a cooling agent, a temperature could be reached within 20° or 30° of the zero of absolute temperature, and its use would open up an entirely new field of scientific enquiry. No-body could predict the properties of matter near that zero."

F. T. S.