lower than those liquid air supplies, lead becomes like steel. We have only to think of what happens to steel when raised to red heat to complete the analogy—it becomes yielding as lead is at ordinary temperatures. In liquid air, alcohol may be frozen first to an intensely cold syrupy mass, finally to a solid. And many other interesting phenomena appear as the temperature is lowered.

But the cold of liquid air is far from being the lowest limit. It is only about two-thirds of the way to absolute zero. How shall we go lower? For a long time hydrogen defied all attempts to liquefy it but Sir James Dewar finally succeeded. The history of cryogenic laboratories tells of some dramatic events. For example, at the meeting of the French Academy on the twenty-fourth of December, 1877, a letter from Cailletet read as follows:

"I have to tell you first, and without losing a moment, that I have just this day liquefied oxygen and carbon monoxide.

"I am, perhaps, doing wrong to say liquefied, for at the temperature obtained by the evaporation of sulphurous acid, about —29°, and at a pressure of 300 atmospheres, I see no liquid, but a mist so dense that I infer the presence of a vapor very near its point of liquefaction.

"I write to-day to M. Deleuil for some protoxide of nitrogen, by means of which I shall be able, without doubt, to see oxygen and carbon monoxide flow.

"P.S.—I have just made an experiment which sets my mind greatly at ease. I compressed hydrogen to 300 atmospheres, and after cooling down to —28°, I released it suddenly. There was not a trace of mist in the tube. My gases, carbon monoxide and oxygen, are therefore about to liquefy, as this mist is produced only with vapors which are on the verge of liquefaction. The prediction of M. Berthelot has been completely realized."

At the same meeting the following telegram was read:

"Geneva, December 22, 1877.

"To-day I liquefied oxygen at a pressure of 320 atmo-