temperature above which it is not possible to liquefy its vapour by pressure.

Substance	Boiling Point	Freezing Point	Critical Temperature
Methyl chloride	—23	—91.5	141.5
Ethlyene	—101.5	—169	10.1
Nitrogen	—195	—213	—149
Oxygen	—181	—220	—119
Air	—190	—210	—140.7
Hydrogen	—252.7	—257	—238
Helium	—268.8	?	—267.8
Ammonia	—33.5	—75.5	132.3
Water	100	0	374
Mercury	357	—39	1270

We see that we have a great variety of liquids which we may use for reduction of temperature in this way. Of course the temperature must be lowered to a point below the critical temperature before the gas may be liquefied by pressure. Then, when it is liquefied, if the pressure be lowered, the temperature may be reduced even to the freezing point of the liquid, perhaps a little lower. Liquid helium boiling under reduced pressure reaches the temperature —271.85°, or only a little over a degree above absolute zero.

3. Cooling of gases by Adiabatic Expansion. If a gas be compressed or expanded in a chamber which is impervious to heat, no heat can flow into or out from the gas and the process is called adiabatic. When a gas expands adiabatically it is doing work and is cooled. In the French liquid air machine, invented by Claude, this principle is utilized. The air is first strongly compressed. This compression raises the temperature to a very high point, the compression being practically adiabatic. So the heat produced must be removed by circulating cold water around the pipes through which the air passes. The compressed air is expanded in a small motor and it emerges from the motor reduced in temperature. This cooled air passes back to the compressor through pipes surrounding the pipe bringing the compressed air to the motor so that the new air reaches the motor somewhat reduced in