

machinery used by Mr. Tripler of New York in his researches are by no means complex.

The plant of the latter consists of one sixty horse power engine which drives a triple compressor. The air in the first cylinder being compressed to one hundred pounds pressure per square inch; in the second cylinder to eight hundred pounds; in the third cylinder to two thousands pounds per square inch.

The air is then passed through cooling pipes surrounded by water in order to dissipate the heat generated during compression. It then passes through copper coils enclosed in a cylinder packed with some non-conducting material which prevents the heat of the atmosphere from reaching the coils.

At the terminus of each coil is a needle-point opening through which the air escapes and thereby allowed to expand to a pressure of fifteen atmospheres. The expanding air produces a sufficiently low temperature to convert one-third of the air into a liquid which is collected in the bottom of the cylindrical jacket and can then be drawn off through a tap as just so much water. By this means Mr. Tripler is able to obtain liquid air fifteen minutes after starting.

It is said that the first ounce of liquid air obtained in an English laboratory cost \$3,000, yet by this process of Mr. Tripler the cost has been so greatly diminished that one gallon can be had for \$4.

Liquid air when once obtained cannot be confined with any safety unless by special precaution. It boils at -191° C. and when we think that eight hundred cubic feet of air is condensed into one cubic foot of liquid, an equivalent of 12,000 pounds pressure per square inch to produce, a faint idea can be had of the amount of latent energy stored up. Upon evaporation of the liquid when in confinement only 10,000 pounds pressure is realized.

From this fact can be readily seen the great advantage gained by this method of converting mechanical energy into a transferable form and then using it at some distant point for a motive power.

It can be dipped up by a cup, handled and poured as easily as water, but when it is thus treated evaporation takes place at a very rapid rate. Large quantities, six to ten gallons, have been shipped from New York to Boston and to Washington by simply placing the liquid into a milk can which is protected from the