LIQUID AIR AND ITS POSSIBILITIES.

(Second Best Scientific Article in Competition.)

THE liquefaction of air seems, indeed, to be a wonder, but to the scientist such is no longer the case. To him it is not a new venture into nature's realm of mysteries hence the question, why has it not been made known to the public? Simply because more promising forces have taken precedence and this has been laid aside until a more convenient time to study its nature, or until a more urgent need demanded it.

The cheapest, quickest, safest, and most convenient means to obtain an end are the ones that will always take the preference. We find such to be the case with electricity in its great strides of late years, and again we find water as a motive force replacing steam because of the greatly decreased cost in the production of the former and the efficient transference of same by means of electricity. Electricity in its turn now finds an auspicious rival for this purpose in the form of liquid air.

Prof. Faraday, that prince of experimenters, was among the first to convert what are ordinarily called gases into a liquid form. He succeeded in this by bringing a pressure to bear upon the gas, but when he attempted to liquefy gases having a critical temperature less than 100° C. he was no longer successful. Repeated failures to liquefy these gases led to naming them permanent gases.

Suppose we could prevent a bulk of confined steam from falling below 100° C., its boiling point. Then no matter how much pressure is applied to this vapor a transformation into its liquid state cannot be accomplished. But on the other hand if a lowering of temperature is affected a liquid will result at once. Now then think of air or any gas in exactly the same relation, compress it at ordinary temperature to whatever tension you will, no liquid will result; but cool it to its critical temperature and a liquid will be obtained in the same manner as was the water from our steam.

This fact Faraday failed to observe, hence his failure in not liquefying more of the so-called permanent gases. Dr. Andrews