

the others at first, giving off the surplus carbonic acid dissolved in the first eighth of the distillate. The amount of carbonic acid coming off then fell very low, gradually increasing, however, until a half had been distilled over, when the amount coming off again reached a maximum, the quantity then diminishing, but rarely entirely disappearing as the contents of the retort approached dryness. It is clear, then, that in the sulphates of magnesia and lime we have an agent capable of retaining carbonic acid in the way in which we see it in sea-water; whether there may be other agents present, capable of doing the same work, will be brought to light when the subject has been more fully investigated. An independent set of experiments were made on the variation with pressure of the coefficient of absorption for carbonic acid of a solution containing 1.23 per cent. of crystallized sulphate of magnesia, kept at a constant temperature of 11° C. The result was, that at 610 mm. pressure the sulphate of magnesia solution dissolved sensibly the same quantity of carbonic acid as the same volume of water would have done; in other words, their coefficients of absorption were identical. Below 610 mm. that of the saline solution was the greater; above 610 mm. the reverse was the case. The curve, however, is not a straight line, and it appears to cut that of water again at a pressure of about 800 mm.

The facts above related naturally suggest to the chemist the question, what is the body formed when sulphate of magnesia and carbonic acid meet each other in solution?

It is clear that, besides the carbonic acid dissolved, there is some retained by a stronger bond, and which is only liberated when the concentration has proceeded a certain distance. Is the decomposition caused by the loss of water, or by the rise of boiling-point? The difference between the boiling-points of the solution, when it has just ceased to give off the merely dissolved carbonic acid, and when the retained gas is being given off in greatest quantity, does not exceed 1° C.; and it is difficult to believe that the compound should remain practically intact at 101° and decompose rapidly at 102°. Again, if the compound is decomposed by the water alone, we should expect, that the