

dition that it was underlaid by an impervious floor. This is generally the case with the soluble matters of the Salina group. If, however, the saliferous formation were underlaid by a porous sandstone, this would become the reservoir in which the leachings of the saliferous formation would be preserved. Thus the Conglomerate becomes in Ohio and Michigan the reservoir for the Coal-measures (Fig. 91). Borings for salt must necessarily extend to the formation in which the brine is accumulated. This is commonly designated the salt-rock; but it is not necessarily the mother-rock of the brine.

Such I believe to be a true account of the natural history of rock-salt and native brines. The phenomena of gypseo-saliferous formations seem incompatible with any other explanation. 1. The rocks composing these formations are regularly stratified, and furnish the usual indications of sedimentary origin. The beds of gypsum and of rock-salt, when existing, are entirely conformable with the argillaceous strata, and approximately coextensive with them. On this theory, having ascertained the existence of a brine formation on the west side of the State of Michigan, I successfully predicted its discovery on the east side. The extensive gypsum beds, also, of the east side were brought to light by a similar prediction based on the same theory; and I have evidence that the gypsum formation of Grand Rapids and Alabaster, on opposite sides of the state, is absolutely continuous beneath all the intervening region. 2. Gypseo-saliferous formations contain all the well-known constituents of sea-water. I do not consider it likely that these constituents would be associated in the same way in both cases, unless the one were the historical consequent of the other. 3. The order of arrangement of these constituents is the order of their solubility. When natural brines are operated upon for salt, the least soluble constit-