in every integrant molecule of matter: that if we conſider this force as not ſatisſied, and conſequently as a ſimple tendency to combination, it is the greateſt poſſible in an integrant molecule of matter perfectly inhi­bited, or attached to nothing; and is the ſmalleſt poſſible, or none, when it is ſatisfied by its intimate combi­nation with other parts capable of exhauſting all its ac­tion; its tendency being then changed into adheſion.

“Hence we may infer, that the integrant parts of the earthy principle have eſſentially, and like all the other parts of matter, a force of tendency to union, or of coheſion in union, according to their condition; that as this earthy principle has a much more conſiderable denſity or ſpecific gravity than all other ſimple bodies that we know, we may probably preſume that its pri­mary integrant molecules have a more conſiderable force of tendency to union, in the ſame proportion, than the integrant parts of other principles; that con­ſequently when they cohere together, and form an ag­gregate, their aggregation muſt alſo be ſtronger and firmer than that of any other body. Accordingly we ſee, that the pureſt earthy ſubſtances, whoſe parts are united and form maſſes, ſuch as, for inſtance, the ſtones called *vitrifiable,* are the hardeſt bodies in nature. We are no leſs certain, that as the tendency of the parts of matter to unite is ſo much leſs evident as it is more exhauſted and ſatisſied in the aggregation, the parts of the earthy principle being capable of exhauſting mu­tually all their tendency to union, we may thence in­fer, that every ſenſible maſs oſ pure earthy matter muſt appear deprived of any diſſolving power; of taſte; in a word, of tendency to union from the firmneſs of its aggregation. But we may alſo infer, that when theſe primary integrant parts of the earthy principle are not united together in aggregation, then, reſuming all the activity and tendency to union which are eſſential to them, they muſt be the ſtrongeſt and moſt powerful of all ſolvents.

“Theſe being premiſed, if we ſuppoſe again, with Stahl and the beſt chemiſts, that, in the combination of the ſaline principle or of vitriolic acid, the parts of the earthy principle are united, not with each other, as in the earthy aggregation, but with the primary parts of the aqueous principle, each to each, we may then eaſily conceive, that the primary integrant parts of the wa­ter, having eſſentially much leſs tendency to combina­tion than thoſe of earth, the tendency of theſe latter to union will not be exhauſted, but ſatisſied only partly, by their combination with the former; and that conſe­quently a compound muſt reſult, the integrant parts of which will have a ſtrong diſſolving power, as vitriolic acid is.

“We may ſee from hence how much miſtaken che­miſts are, who, conſidering earth only in its aggrega­tion, or rather not attending to this ſtate, and not diſtinguiſhing it from that ſtate in which the parts of this ſame earth are ſo ſeparated from each other by the interpoſition of another body, that they cannot touch or cohere together, have conſidered the earthy principle as a ſubſtance without force or action, and have very improperly called that a *paſſive principle,* which of all other is the ſtrongeſt, moſt active, and moſt powerful.

“However this general theory of ſalts may conform with the moſt important phenomena of chemiſtry, we muſt acknowledge, that it can only be propoſed as a ſyematical opinion, till it be evidently demonſtrated

by the deciſive means employed in chemical demonſtra- tions, namely, by decompoſition and recompoſition: thus, if we could reduce vitriolic acid to earth and wa­ter, and make that acid by combining together theſe two principles, this theory would ceaſe to be a ſyſtem, and would become a demonſtrated truth. But we muſt confeſs, that this theory is leſs ſupported by experiment than by argument, from the many difficulties that are inevitable in ſuch inquiries. For on one fide, we know that the ſimpler bodies are, the more difficult is their decompoſition; and on the other ſide, the ſtronger the aggregation is, the greater is the difficulty of making it enter into a new combination. Thus, as vitriolic acid is very ſimple, ſince it is a compound of the firſt order, it ought ſtrongly to reſiſt decompoſition; and as the aggregation of pure earth is the firmeſt that we know, it cannot eaſily be made to enter as a principle into a new combination with water to form a ſaline matter. The following are the principal experiments which have been made relative to the ſubject.

“Firſt, We ſeem to be certain, from many proofs, that all ſaline ſubſtances, comprehending thoſe that con­tain vitriolic acid, as vitriolated tartar, Glauber’s ſalt, and other vitriolated ſalts which are ſufficiently fixed to ſupport a perfect drying, or rather calcination, being alternately diſſolved, dried, and calcined a number of times, are more and more diminiſhed in quantity, and that earth and water are ſeparated from them each ope­ration. But alkaline ſalts appear to be ſtill more ſuſceptible than any other ſaline matter of this kind of decompoſition.

“Secondly, When nitre is burnt in cloſe veſſels, ſo that we may retain not only all that remains fixed after this burning, but alſo what exhales in vapours, as in the experiment of the clyſſus of nitre, we have a proof which ſeems deciſive, that the mineral acid of this ſalt, which is not very far from the ſimplicity of vitriolic acid, is totally decompoſed and reduced into earth and water. For if we examine the fixed reſiduum in the retort, we find that it is only the alkali that was con­tained in the nitre, charged with a ſuperabundant earth, which is ſeparable from it by ſolution and filtration. And if the liquor in the receiver, formed by the vapours condenſed there, be examined, which ought to be ni­trous acid; if this acid had not been deſtroyed, we find, that, ſo far from being acid, it is only pure water, ſometimes even charged with a little fixed alkali, which had been raiſed by the force of the detonation. Thus ni­trous acid is made to diſappear in this experiment, and in its place we find only earth and water.

“Thirdly, The phenomena of limeſtone, which by calcination and extinction in water acquires ſaline pro­perties that it had not before its attenuation by fire and its combination with water; and alſo the experi­ment of Beccher, who aſſerts, that if a vitrifiable ſtone be alternately made red-hot, and extinguiſhed in water a number of times, it may be ſo attenuated that it ſhall be like a ſaline gelatinous matter; theſe, I ſay, ſhow that ſaline matters are actually formed by the inti­mate combination of the very attenuated parts of earth with thoſe of water. We find in the writings of Beccher and Stahl, and particularly in the *Specimen Beccherianum* of the latter author, many other obſervations and experiments tending to prove the ſame propoſition; but we muſt confeſs, that none of the experiments we have mentioned, excepting that of the decompoſition