of nitrous acid by burning, are abſolutely deciſive; principally becauſe they have not been ſufficiently re­peated or proſecuted, nor carefully enough examined in all their circumſtances. ”

On this theory it is obvious to remark, that our author has omitted to mention the moſt active part of the compoſition of ſalts, namely elementary fire. Of this both acids and alkalis undoubtedly contain a great quantity in a very active ſtate, as is evident from their performing the effects of fire when applied to certain ſubſtances; nay, from their actually burſting into flame when mixed with ſome kinds of oils. For an explana­tion of the reaſon of which, ſee Heat, and the various detached articles relative to that ſubject. Whatever doubts we may have of the power of mere water com­bined with mere earth to affect the organs of taſte, we can have none that the element of fire is capable of ſo doing; and from the very taſting of theſe ſubſtances, we may be aſſured, that whatever gives that peculiar ſenſation to the tongue which we call *acid* or *alkaline,* gives alſo the other properties of the ſalt, whatever they may be. In alkalis, no doubt the greateſt part of the compoſition is earth; but from what has been ſaid on Quicklime, it appears, that mere earth, by the artificial action of fire alone, acquires all the properties of ſalt, that of cryſtallizing *per* *ſe* excepted: it ſeems pro­bable therefore, that, in the more perfect operations of nature, the ſame materials are uſed; only the propor­tions are ſuch, that the ſubſtance is more ſoluble, and its cauſticity greater, than even quicklime itſelf. With regard to acids, the earthy parts ſeem to be fewer; and in all probability the moſt conſiderable ingredient in their compoſition is water: but in what manner this element is united to that of fire ſo as to produce the peculiar phenomena of acids, cannot be explained.

The acid of tartar (the pureſt part of which, or that ſaline ſubſtance which firſt cryſtallizes by evaporation in the veſſels in which it is purified, is called *cream oſ tartar),* and alſo all other concrete vegetable acids ana­logous to it, when mixed with various other ſubſtances, form compounds, generally called *tartareous ſalts,* or *ſo­luble tartars,* becauſe they are diſſolved by water more eaſily than the acid of tartar itſelf. Acetous ſalts, that is, all ſalts containing the acid of vinegar, are alſo com­bined with various baſes, and form ſaline ſubſtances of different names; the principal of which are, the acetous ſalt of copper, called *cryſtals oſ Venus, or oſ verdigris,* by the chemiſts, and *diſtilled* or *cryſtallized verdigris* in commerce; the acetous ſalt of lead, commonly called *fait* or *ſugar oſ lead;* and the acetous mercurial ſalts. Sugar is an eſſential vegetable ſalt, of a pleaſant ſweet taſte, containing a vegetable acid combined with earth and oil.

Potaſh is a fixed vegetable alkali, extracted from the aſhes of wood. Concrete volatile alkalis are generally called *volatile ſalts;* although this name is ſometimes alſo given to the volatile ſalt of amber, which is not an alkaline but an acid ſalt. Borax is a neutral ſaline matter, whoſe origin, whether animal or vegetable, is as yet unknown, its components being not ſuſſiciently exa­mined. It is ſoluble in water, and very nearly as cryſtallizable as alum. When borax is expoſed to the fire, it firſt bubbles and foams very much, but afterwards it melts into a clear glaſs. When acids are combined with the alkaline part of borax, a ſubſtance of a Angular nature is ſeparated from it, commonly called *ſedative ſalt.* Although this ſubſtance acts as an acid in borax, by ſaturating its alkali, yet it has no acid taſte, nor doth it turn the tincture of heliotropium to a red, as other acids do. It is the property of borax to facilitate conſiderably the fuſion of metals, of earths, and other minerals. Some ſpecies of ſtones and earths cannot be vitrified at all, except they are mixed with borax. For this pro­perty borax is commonly uſed as a flux (that is, a ſub­ſtance which facilitates the fuſion of other bodies) in various manufactories; but eſpecially in ſoldering me­tals, and in aſſaying ores. Phoſphoric ſalts are combi­nations of alkaline, earthy, and metallic ſubſtances with the acid obtained from the phoſphorus of urine. Beſides the above-mentioned ſalts, there are ſeveral others to be met with in the writings of the chemical and me­dical authors; but, as they are of little conſequence, we ſhall omit any account of them.

Some new neutral ſalts have been formed by the de- phlogiſticated marine, or, according to the new theory, the oxygenated muriatic acid. — This was firſt taken notice of by M. Berthollot, and the diſcovery is thus illuſtrated by Dr Dollfuſs, in Crell’s Annals for the year 1788, vol. i. p. 319.

“In the month of November 1786 (ſays he), whilſt I was preparing to tranſlate Higgins’s experiments reſpecting the acetous acid, I found the following amongſt the numerous obſervations which that work contains, p. 180. ‘The acid elaſtic fluid which iſſues, when two

pounds of manganeſe are mixed and diſtilled with two or three of ordinary ſpirit of ſea-ſalt, may all, except **a** ſmall portion of phlogiſtic air, be condenſed in a ſolution of fixed vegetable alkali; and the ſolution thus im­pregnated yields a conſiderable quantity of nitre, which cryſtallizes in the ordinary form, and detonates on red- hot coals. The ſolution at the ſame time yields rege­nerated ſea-ſalt. ’ The part of this propoſition which relates to the form of the cryſtals and to their detona­tion is ſuſſiciently plain; but that I might have a ſtill more complete conviction on the ſubject, I repeated the experiment upon a ſmall ſcale.

“For this purpoſe I put into a vial an ounce of pul- veriſed oxyd (*calx)* of manganeſe with an ounce and a half of muriatic acid, and by means of a bent tube I directed the vapour into another vial, which contained a ſolution of vegetable alkali. I then diſtilled by the gentle heat of a ſmall lamp. From the vial containing the alkali went a ſecond tube, for the purpoſe of car­rying off the air which I hoped to obtain by this proceſs.

“As ſoon as the oxygenated muriatic acid appeared, ſome air eſcaped through the tube, which ſhowed all the properties of common atmoſpheric air; and as ſoon as all the air which the vials contained previous to the diſtillation had been expelled, no more ſuch air appear­ed. The vapours of the oxygenated muriatic acid were abſorbed by the ſolution of vegetable alkali, without the extrication of the ſmalleſt portion of carbonic acid (fixed air) from the alkali. As ſalt as the alkali, which adhered to the ſides of the glaſs, abſorbed the acid va­pour, priſmatic cryſtals appeared; and many more, which I obtained a few hours afterwards, were formed in the liquor. Although theſe cryſtals detonated in the lire, they had a taſte very different from that of nitre. It was extremely pungent, and was rendered ſtill