The orderly parts of a suit are theſe: 1. The original *writ.* 2. The *proceſs.* 3. The *pleadings.* 4. The *issue* or demurrer. 5. The *trial.* 6. The *judgment,* and its inci­dents. 7. The proceedings in nature of *appeals.* 8. The *execution.* See theſe articles.

SULLY. Sec Bethune.

SULPHAT, in the new chemical nomenclature, de­notes a compound of the ſulphuric acid with ſome other ſubſtance.

SULPHUR, a well known ſubſtance, which is yellow, taſteleſs, hard, brittle, and when rubbed becomes electric. Its ſpecific gravity is from 1,9 to 2,35. According to Bergman, it gently evaporates at 170, melts at 185, and flames at 302 of Fahrenheit. It burns with a blue flame, and a diſagreeable ſuffocating ſmell ; in cloſe vessels it ſublimes without decompoſition, or only a decomposition pro­portionable to the quantity of air they contain ; when melt­ed it becomes red, but recovers its colour on cooling@@. It is inſoluble in water, though by long trituration it is ſaid water will take up ſome of it, but it is rather diffuſed than diſſolved in it ; neither can ſpirit of wine unite to it, except when both are in a vaporous ſtate, and then 72 parts of ſpirit of wine take up 1 of sulphur ; it is ſoluble in hot oils, and alſo in fixed alkalis, both in the dry and liquid way ; it is decompoſed by boiling in concentrated nitrous acid, partly decompoſed and partly diſſolved by the vitriolic and oxygenated muriatic acid. See Chemistry-index.

Sulphur was formerly ſuppoſed to conſiſt of ſulphuric acid and phlogiſton, in the proportion of 60 parts of the former to 40 of the latter ; but by the new fyſtem which is now generally adopted, ſulphur is reckoned a simple ſubſtance, and the ſulphuric acid a cqmpound of ſulphur and oxygene or vital air. This concluſion is founded on the following facts : 1. Sulphur does not burn unleſs vital air have acceſs to it. 2. During combuſtion it abſorbs vital air from the atmoſphere. 3. The ſulphuric produced by the combuſtion of ſulphur is equal in weight to the ſulphur employed and the quantity of air that has been conſumed.

Sulphur is found ſometimes pure, and ſometimes in com­bination with other subſtances. Of pure ſulphur there are ſeven varieties. 1.@@ Tranſparent ſulphur, in eight-ſided cryſtals, with two truncated pyramids. It is generally depoſited by water on the ſurface of calcareous ſpar. Cadiz ſulphur is of this kind. 2. Tranſparent ſulphur in irregular fragments. Such is the ſulphur of Switzerland. 3. Whitiſh pulverulent ſulphur, deposited in ſiliceous geodes. In Franche Compté there are flints full of ſulphur. 4. Pul­verulent ſulphur depoſited on the ſurface of mineral waters, ſuch as thoſe of Aix-la-Chapelle. 5. Cryſtalline ſulphur that has been ſublimed, found in the neighbourhood of volcanoes. 6. Pulverulent ſulphur ſublimed from volcanoes, found in abundance at Solfatara in the vicinity of Naples. 7. Sulphur in ſtalactites, formed by volcanic fires.

Sulphur is alſo found united with different ſubſtances, as with metals, when it is called *pyrites ;* a ſhort account of which may be ſeen under the article Pyrites. Sometimes it is combined with calcareous earth, as in fetid calcareous stones and ſwine-ſtone. It has lately been diſcovered, that ſulphur is formed by a natural proceſs in animals and vege­tables beginning to putrefy. It is found on ſtable-walls and in privies. It is alſo extracted from vegetables, from dock-root, cochlearia, &c. M. Deyeux obtained it from the white of eggs. It has been alſo procured from horſe- dung.

The ſulphur uſed in Great Britain is generally brought is a pure ſtate from volcanic countries, where it abounds in an inexhauſtible quantity. It is well known, however, that ſome of the metallic ores in this country abound with it ; but from the common mode of purifying them, the ſulphur is diſſipated and loſt. Dr Watſon has ſhown, in a paper on lead-ore in the Philoſophical Tranſactions, that not leſs than 700 tons are annually diſſipated in the various lead-mines of England.

It is extracted from pyrites in the following manner in Saxony and Bohemia. The pyrites is put in ſmall pieces into earthen tubes : one of the tubes is placed on a fur­nace, and the other passes into a ſquare veſſel of caſt iron containing water. The ſulphur is diſunited by the heat from the pyrites, and paſſes into the veſſel ; but it is then very impure. It is afterwards melted in an iron ladle, when the earthy and metallic particles are depoſited by their weight, and the ſulphur being light riſes to the top. It is then poured off into a copper boiler, where it is farther pu­rified, and afterwards poured into cylindrical moulds of wood, from which it receives the ſhape in which it is uſually ſold.

When melted ſulphur is gently heated, it flies off in a yellow powder, which is called *flowers of ſulphur.* The ope­ration is performed in this manner : Common ſulphur in powder is put into an earthen cucurbit, to the top of which a number of earthen pots inſerted in one another is fixed, known by the name of *aludels.* The cucurbit is then heat­ed till the ſulphur become liquid : it then riſes and attaches itself to the tides of the aludels.

Sulphur combined with an alkali is called *hepar ſulphuris, liver of sulphur,* becauſe it reſembles in colour the liver of animals. In the French nomenclature it is called *ſulphure,* and by thoſe Britiſh chemiſts who have adopted the new ſyſtem *ſulphuret.*

Water decompoſes the ſulphuret. The ſulphur is preci­pitated by acids, when a particular gas is extricated com­monly called *hepatic gas,* or, what is more expreſſive of its compoſition, *ſulphurated hydrogenous gas.* The fetor of this gas is inſuſſerable, and is fatal to animals. It communicates a green colour to ſyrup of violets, and burns with a light­blue flame. It acts on metals and metallic oxides, eſpecially thoſe of lead and biſmuth, which it ſoon blackens. lt is decompoſed by vital air ; and accordingly, when it comes into contact with atmoſpheric air, a portion of the ſulphur is ſeparated. For this reaſon ſulphureous waters do not contain genuine liver of ſulphur.

The mineral acids act differently on ſulphur. If the ſul­phuric acid be boiled on ſulphur, the acid acquires an am­ber colour, and a ſulphureous ſmell ; the ſulphur melts and ſwims like oil. When cooled, it concretes into globules of a greeniſh hue ; but a ſmall portion of the ſulphur is dissolved in the acid, which may be precipitated by an alkali. The flaming red nitrous acid acts powerfully on ſulphur. When poured upon melted ſulphur, it occaſions detonation and inflammation. The common muriatic acid produces no effect upon it ; but the oxygenated muriatic acid acts upon it with force.

Sulphur unites readily with all metallic ſubſtances, ex­cepting gold, platina, and zinc ; at leaſt we have not found the means of uniting it with theſe directly, and without ſome intermediate ſubſtance. The degrees of affinity with which ſulphur combines with thoſe metals to which it may be readily united are different ; for it not only unites more eaſily and abundantly with ſome than with others, but it alſo quits thoſe with which it has a leſs affinity, to unite with others to which it has a ſtronger affinity.

The affinities of ſulphur, according to Mr Geoffroy’s table, are, fixed alkali, iron, copper, lead, ſilver, regulus of antimony, mercury, and gold ; and, according to Mr Gel­lert’s table, they are, iron, copper, tin, lead, ſilver, bismuth,

@@@[mu] Kirwan's Minerology.

@@@[mu] Fourcroy's Chemistry.