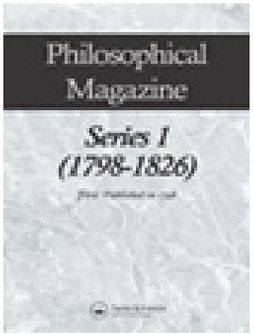


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# LXII. On vegetable wax, &c

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man, he informed me, that he could introduce this extended scale of 59 *Notes on a Grand Piano Forte;* using movable bridges, for producing the sharpening of one or of two commas, of an improved construction, that for such small alterations, would be free of the evils formerly produced by Mr. Clagget's movable bridges, for changing sharps to flats, &c.; but he has no inclination to embark in such a speculation, unless some Nobleman or Gentleman would *order such an Instrument.* Mr. Liston informs me, that this was one of the first applications of his principles, that occurred to him; but that on application to Mr. Stoddard, he dissuaded him from thinking of applying them, on any Instrument but the Organ.

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## LXII. *On Vegetable Wax, &c.* *By* R. Mac-Culloch, *M.D. Woolwich. Communicated by the Author.*

It is now well known that wax is a vegetable product, as well as the result of an animal process in bees and other insects, and the wax of various plants has been successively examined by different chemists. Some slight differences have been observed in the several varieties, but they are not sufficient to lead us to consider them as different species; rather, like the generality of the resins, to be varieties of one common substance. To those already described there is still to be added one, which as far as I know has not yet been noticed. This is a substance held in solution in the essential oil of the rose (the attar of roses) and in that of lavender. I have not searched among the other oils, but it will probably be found in some of them. All the varieties of these two oils do not however contain it; it is frequently absent in the oil of lavender, although but rarely in that of the rose.

I am not acquainted with the circumstances under which this variation occurs. When these oils are cooled below a certain point, a portion of this matter is deposited in the form of minute crystals, giving them an appearance somewhat similar to that which the fixed oils assume on freezing. On the addition also of alcohol it is separated in the form of minute brilliant scales, and by this method I obtained the portion which I examined. It is equally separated by water, which, if enough be used, dissolves the whole of the oil, and leaves it in a pure state. It is thus that it is collected in the pipes of the stills in which rose-water is made, as it is volatilized in combination with the oil, and precipitated

tated by the action of the water which is condensed in the worm. That with which I made the following experiments was procured from lavender; but it seemed to differ in no respect from that which I have procured from the oriental attar of roses, or from the distillation of rose-water.

Although I have called it wax in consideration of its vegetable origin, it bears in fact a much nearer resemblance to spermaceti in its general properties. Like that, its feel is greasy, and it is deposited in a crystallized mass at the bottom of the vessel, just as that substance is deposited from the oil of the Cachalot whale.

The few comparative experiments which follow, will show its nature more completely. Having but a very small quantity, I could not conveniently determine its specific gravity; but it is much lighter than either wax or spermaceti, since it swims in sulphuric ether. It crystallizes from its solutions in resplendent scales, and in this property it approaches rather to spermaceti than wax. Its colour is white, and its texture flaky. It is fusible at 96°, while wax is only fusible at 120°, and spermaceti at 102°. This account of the fusibilities of wax and spermaceti differing from that commonly received, which states them at 142° and 133° respectively, it is necessary to say that the mode which I took to determine this temperature, and to which I was compelled by the scantiness of my materials, was by causing them to melt on hot water in which a thermometer was immersed, and noting the heat at the moment of congelation. In boiling alcohol it dissolves readily and in as large proportion as spermaceti, more readily and in larger proportion than wax; and it is deposited again on cooling. The three substances seemed equally soluble in boiling ether, which however dissolves less of them than alcohol does. Its habits with the other compound inflammables, and with the alkalies, resemble those of wax and spermaceti, and afford no distinction.

It is volatilized without apparent change in a temperature considerably lower than spermaceti, and I need not add, that its vapour is equally inflammable. I had no adipocire with which to compare it.

Considering these circumstances, we may perhaps regard it as a vegetable concrete oil, resembling spermaceti rather than wax, yet differing from it in the characteristic circumstances of superior volatility and inferior specific gravity, and bearing a relation to essential oils similar to that which spermaceti does to the fat ones.

LXIII. *On*