IX. Experiments on a new Colouring Subflance from the Island of Amsterdam in the South Sea. Made by Mr. Peter Woulfe, F.R. S. at the Desire of Sir John Pringle, Bart. P.R. S.

Redde, Feb. 2, HIS fubstance is of a light bright orange colour; has a peculiar, though not a ftrong, fmell; and, when handled, gives a yellow ftain to the skin, which does not readily wash out with soap and water. Put on a red hot iron, it fmoaks, melts, and catches fire, leaving a caput mortuum. When boiled with water, it gives the liquor only a flight yellow tinge, which is but little heightened by the addition of a fixed alkaly; therefore the colouring part of this substance is infoluble in water. Oil of vitriol put to it becomes of a red orange colour; but, when the acid is drained off, the residuum appears purple. Annotto, treated in the same manner, gives a blue colour. Spirit of wine, æther, fixed and volatile alcalies, as also soap, dissolve the colouring part of this fubstance. To determine the quantity of colouring matter which it contains, two drams were digested in a mattrass, with four ounces of rectified spirit of wine; the solution being filtered asfumed a rich deep yellow colour, like a strong folution of faffron or gumbouge with the fame spirit; what re-Vol. LXV. mained

mained in the filter was digested a second time, with four ounces of fresh spirit of wine, and the liquor filtered; this folution was much weaker than the first. The undiffolved part remaining in the filter after this fecond folution was digested, a third time, with four ounces of fresh spirit; but the solution was now quite weak, and of a very pale yellow colour. The residuum being now deprived of its colouring portion, was flowly dried, when it appeared of a very pale yellow colour, felt as foft as starch between the fingers, and weighed forty two grains; fo that two thirds nearly of this colouring fubstance are foluble in spirit of wine; the undissolved part is not soluble in water, acids or alkalies. Put on a red hot iron, it fmoaks and catches fire without melting, leaving a caput mortuum, and gives a smell similar to that arising from common vegetable matter. The first folution in spirit of wine, after standing twenty-four hours, deposits some of its colour in the form of minute spiculine crystals, of an orange colour. The fecond and third folutions let fall none of their colour. The first folution, dropped on paper, tinges it of a bright orange colour, the fecond gives a lively yellow colour, and the third a pale yellow. The first folution, sufficiently diluted with spirit of wine, makes a bright yellow ftain on paper, no way inclining to an orange, but exactly refembling that made by the fecond folution; hence it feems probable, that an orange colour is only a deep yellow. Vitriolic æther readily diffolves the colouring part of this fubstance, and affords folutions of nearly the fame colour as those made with **fpirit** 

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spirit of wine. Oil of turpentine dissolves but a small portion of it, and acquires only a pale yellow colour. A folution of fixed alkaly in water, digefted with this fubstance, disfolves a large portion of its colouring part, and the folution is of a brownish yellow colour. Volatile fpirit of sal ammoniac. feems to dissolve a larger portion of it than the fixed alkaly, and the folution is of a reddish orange colour. A folution of foap in water, boiled with this fubstance, likewise dissolves its colouring part. All the foregoing folutions, except that in oil of turpentine, which was not tried, die filk, cloth, and linen, of various shades of yellow and orange; but these colours are discharged, by boiling the dyed substances for some time in foap and water. This colour can, therefore, be of use only in dying filk and wool, for which purpose we are already furnished with good dyes. Few colours go fo far in dying as this new fubstance, and none dye fo fpeedily, especially when foap and water are used as the folvent; for a dip or two will dye cloth or filk of a lively yellow colour, when put into the mixture whilst hot. Soap and water may be perhaps used with advantage, as the folvent for feveral other colours.

From the foregoing experiments it appears, that this colouring fubstance, upon which they have been made, is of the refinous kind, and has a good deal of affinity with annotta.