Cyanine is solid, uncrystallizable, and analogous to an attractive matter; it is soluble in water and in alcohol and insoluble in ether; alkalies communicate to it a green tint. According to M. Morot, it contains nitrogen, as one of its constituents.

The result of my researches is, that cyanine becomes blue, and not green, under the action of alkalies, and that the green tint which we observe when we treat a red or blue flower by a salt with an alkaline reaction is owing to the xanthogene, which is found with cyanine, in nearly all flowers becoming yellow at the moment that the latter becomes blue.

The mixture of yellow and blue forms the green. Cyanine does not contain nitrogen as supposed by M. Morot; it is identical with the matter which M. Glénard has described under the name of *œnocyanine* and which he had obtained from wine. I shall show further on that it exists with other colouring matters which are found both in the flowers and fruits.

Some red flowers do not contain, xanthogene, thus these become of a pure blue or beautiful violet colour in contact with ammonia. I shall quote, among others, those of the red corn poppy.

Cyanine often exists in the young shoots of plants, and it is there sometimes accompanied by matters which are more especially found in flowers. It is thus that the young shoots of the roses of Bengal, which are coloured red, are odoriferous and sugary like the flowers themselves. The sugar and the volatile oil which gives the odour, disappear along with the cyanine in the progress of vegetation.

Some plants with red or rose-coloured flowers do not contain cyanine. I will cite the aloes, the flowers of which contain a colouring matter very analogous to *carthamine* and perhaps identical with it.

Yellow Flowers.—Chemists who have investigated yellow flowers have discovered in them two distinct substances, which they have designated under the respective names of *xanthine* and *xantheme.* These have been examined by MM. Frémy and Cloez; I shall refer to their Memoir for details as to their properties, and I shall only describe here my own observations. The result of my researches is, that xanthine assumes under the influence of concentrated chlorohydric acid a green colour resembling that of chlorophyll. This colour changes to a nearly pure blue, when we add to the solution some drops of nitric acid. When this liquor is agitated with ether, we divide it into two parts—one a yellow matter soluble in ether, and another of a pure blue colour which remains in the alcoholic liquor.

Xanthine is found abundantly in some fruits, and especially in those of the Cucurbitaceous family.

Some yellow flowers contain a colouring principle which is neither xanthine nor xantheme. This is found in a pure state in the flowers of *Crocus luteus*, we find it also in the stigmas of the officinal saffron, where it is associated with some other colouring matters. It consists also in the stigmas of *Crocus multifidus;* lastly I have found it at the base of the ovary of the plant known under the name of *Fabina.* I shall designate it *crocoxanthine*, a name which recalls its existence in all the species of the genus Crocus.

This matter is solid, uncrystallizable of a beautiful golden yellow colour; it is neither altered by acids nor bases, by which it is distinguished from xanthine, xantheme, and xanthogene. Crocoxanthine is soluble in water and alcohol, and insoluble in ether; it produces with some metallic oxides beautiful lake colours; it can be fixed upon fabrics; its dyeing power is remarkable.

Green colouring matter of Leaves.—If we compare the properties of xanthine which I have noticed above along with those that M. Frémy has recently attributed to chlorophyll, we are struck with the extreme analogy which these two colouring matters present, and are hence led to think that the blue colouring matter which M. Frémy believes he has isolated from chlorophyll does not pre-exist there, but that it has been