

I would suggest that in giving the composition of a color we write it like a chemical formula: for instance, "golden brown" might be indicated as follows, $R_{7.4}Y_{7.4}B_{3.2}$. As Lovibond* points out, many of these formulas are capable of reduction to simpler terms, but for all practical purposes it is, perhaps, as well to speak of them in terms of the primary colors accepted as standards.

The purposes for which the tintometer is now used are numerous and embrace almost every department of the arts. A few of these may be mentioned:

It has been found that the amount and kind of adulteration in most foods and commercial products, as well as the impurities commonly found in drinking-water and other fluids, can be determined by the deviation, measured by the tintometer, from the normal tint of the pure article. Instead of making a laborious and complicated chemical examination of the suspected compound, its color value is determined in a few minutes. Such a chromometric examination is usually found to answer all the purposes of a quantitative analysis. In this way the tintometer is now employed in England, and to some extent elsewhere, by all sorts of commercial houses, and it is also used with great success by the health departments of cities for the ready detection of impurities and adulterations in milk, water, beer, and other foods. The slightest departure from purity, whether in food or any other product, is at once shown by a measurable and corresponding variation in color.

The substitution of an exact color measurement for a chemical analysis is not new in physics. For example, the Bessemer process of converting iron into steel is almost entirely regulated by color changes observed in the furnace flame. It is exactly on this principle, except that the examination is made leisurely, that in a mixture or solution any departure from the standard, both as to kind and amount, is estimated by this instrument. When an exact color measurement has been made of a certain product (it matters not whether it be liquid or solid), the tintometer very readily shows whether a commercial sample is of equal purity.

To a limited extent chromometry has also been made use of for diagnostic purposes in medicine. In urinary analysis we have the Vogel scale of colors, where variations from the tint exhibited by normal urine are intended to indicate something of the chemical composition of that excretion.

The best example, however, of the use of a chromometer as an aid to medical diagnosis is the hemoglobinometer, by which color-

* Measurement of Light and Colour, p. 39.

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