

Let, however, physicians, priests and kings, say what they will, the pipe, the cigar, and the snuff-box, have become the common solace of mankind, notwithstanding all the fierce opposition waged against tobacco by emperors, popes, and sultans, who in the form of edicts, bulls, denunciations, the knout, and death itself, have opposed its use in vain. It is indeed supposed by many, that the custom of smoking had long been prevalent among the Chinese and East Indians, before it was introduced into Europe.

It is chiefly for its soothing and tranquilizing effect on the mind, that tobacco smoking is indulged in. Both Dr. Pereira and Dr. Christison, agree that no well-ascertained ill effects have been shown to result from the national practice of smoking"—(*Treatise on Poisons*) Dr. Prout was of a different opinion, and as has been already stated, Sir Benjamin Brodie and Sir Charles Hastings, M.D., both agree that it is deleterious. "Generally of the physiological action of tobacco upon the bulk of mankind, and apart from its moral influence, it may be received as characteristic of this substance among narcotics:"

First, that its greater and first effect is to assuage and allay and soothe the system in general.

Second, that its lesser and second or after effect, is to excite and invigorate, and at the same time give steadiness and fixity to the powers of thought.*

The chemical constituents of tobacco have been well described by Professor James F. Johnson, from whose work, before referred to, the following abstract is taken:—

The active substances or ingredients of tobacco or tobacco smoke, those by which all its varied effects are produced are three in number: a volatile oil, and a volatile alkali, which exist in the natural leaf—and an empyreumatic oil, which is produced during the burning of the tobacco in the pipe.

1. *The Volatile Oil*.—When the leaves of tobacco are mixed with water and submitted to distillation, a volatile oil or fat comes over in small quantity. This fatty substance congeals or becomes solid, and floats on the surface of the water which distils over along with it. It has the color of tobacco, and possesses a bitter taste. On the mouth and throat it produces a sensation similar to that caused by tobacco smoke. When applied to the nose, it occasions sneezing; and when taken internally, it gives rise to giddiness, nausea, and an inclination to vomit. It is evidently one of the ingredients, therefore, to which the usual effects of tobacco are owing; and yet it is remarkable that from a pound of leaves only two grains of this fatty body are obtained by distillation. Upon such minute quantities of chemical ingredients do the pecu-

liar action and sensible properties of some of our most powerful medicinal agents depend!

2. *The Volatile Alkali*.—When tobacco leaves are infused in water made slightly sour by sulphuric acid, and the infusion is, subsequently distilled with quicklime, there comes over mixed with the water a small quantity of a volatile, oily, colorless, alkaline liquid, which is heavier than water, and to which the name of *nicotin* has been given. It has the odor of tobacco, an acrid, burning, long-continuing tobacco taste, and possesses narcotic and very poisonous qualities. In this latter respect it is scarcely inferior to prussic acid, a single drop being sufficient to kill a dog. Its vapor is so irritating, that it is difficult to breathe in a room in which a single drop has been evaporated. The proportion of this substance contained in the dry leaf of tobacco varies from 2 to 8 per cent.*

So far as experiments have been made, the tobaccos of Havana and Maryland contain 2 per cent., that of Kentucky 6, that of Virginia nearly 7, and that of France from 6 to 8 per cent. It is rare, however, that a hundred pounds of the dry leaf yield more than 7 pounds of *nicotin*. In smoking a hundred grains of tobacco, therefore—say a quarter of an ounce—there may be drawn into the mouth two grains or more of one of the most subtle of all known poisons. For as it boils at 482° Fah., and rises into vapor at a temperature considerably below that of burning tobacco, this poisonous substance is constantly present in the smoke. From the smoke of a hundred grains of slowly-burning Virginia tobacco, Melsens extracted as much as three-quarters of a grain of *nicotin*; and the proportion will vary with the variety of tobacco, the rapidity of the burning, the form and length of the pipe, the material of which it is made, and with many other circumstances.

3. *The Empyreumatic Oil*.—But besides the two volatile substances which exist ready formed in the tobacco leaf; another substance of an oily nature is produced when tobacco is distilled alone in a retort, or is burned, as we do it, in a tobacco pipe. This oil resembles one which is obtained in a similar way from the leaf of the poisonous fox-glove (*digitalis purpurea*) It is acrid and disagreeable to the taste, narcotic and poisonous. One drop applied to the tongue of a cat brought on convulsions, and in two minutes occasioned death. The Hottentots are said to kill snakes by putting a drop of it on their tongues. Under its influence the reptiles die as instantaneously as if killed by an electric shock. It appears to act nearly in the same way as prussic acid.

The oil thus obtained consists of at least two substances. If it be washed with acetic acid (vinegar) it loses its poisonous quality. It contains, therefore, a harmless oil, and a poisonous alkaline substance which

* "The Narcotics we indulge in," by James F. Johnson (*The Chemistry of Common Life*).

* The reader may recollect the great sensation produced in 1851 by the trial of the Comte de Bocarmé at Mons, and his subsequent execution, for poisoning his brother-in-law with *nicotin*.