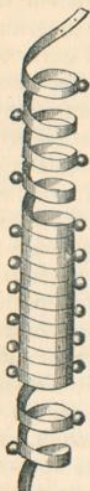


Edwards, he observes, have shewn that the nervous system of animals is composed essentially of agglomerated globular corpuscles.

If we examine, by the aid of a simple microscope, the pulpy matter of which the œsophageal ganglia of the great or vineyard snail (*Helix*

Fig. 18.



A spiral vessel, as found in the stems of *Solanum tuberosum*, and *Cucurbita Pepo*, with the adhering globules.

Fig. 19.



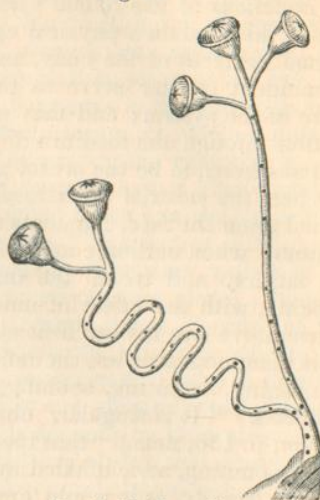
Globular cells of the œsophageal ganglia of *Helix pomatia* and *Limax rufus*.

Fig. 20.



Magnified view of the arm of a *Hydra*, (fresh-water polype) shewing the nervous corpuscles.

Fig. 21.



*Vorticella Convallaria*.

*pomatia*), or of the red slug (*Limax rufus*), is made up, it is seen to be composed of agglomerated globular cells, on the sides of which are numerous globular or ovoid corpuscles (fig. 19.) In form and chemical properties, says Dutrochet, these corpuscles

agree with those found in plants. Moreover, in the lower tribes of animals (the *Acrita*) we observe no nervous filaments; the nervous system consisting merely of the diffused or scattered corpuscles (as in the *Hydra* or fresh-water polype, fig. 20, and in *Vorticella Convallaria*, fig. 21; thus presenting another analogy between the nervous corpuscles of animals and the globular bodies of plants.

On these grounds, then, Dutrochet assumes that the little globules sticking to the cells and vessels of plants, and which are nothing but particles of amylaceous, ligneous, or resinous matter, are to be regarded as the scattered elements of a diffused nervous system.

#### 7. Parts affected by the remote action of Medicines.

The remote effects of medicines consist of alterations in the functions of one or more organs more or less distant from the parts to which these agents were applied. Although an alteration of function presupposes an organic change, yet the latter is not always obvious.

A medicine may affect a distant organ directly or indirectly. The stupor caused by opium is presumed to arise from the direct influence exercised by this drug over the cerebrum, since it cannot be otherwise

accounted for. The convulsions produced by strychnia are best explained, not by ascribing them to any direct influence of this agent over the muscles, but to an influence exercised over the excito-motory system, which is functionally related to the muscles.

Some medicinal agents confine their remote influence principally to one organ, and affect the general system only through the relations existing between the affected organ and the other parts of the body. This is remarkably the case with the substance just referred to,—strychnia. Other agents affect several organs, as arsenic and mercury. We can readily believe that some may affect the whole system, by altering the qualities of the blood. "In fact, when all the tissues thus receive a vitiated blood, is it not consistent with sound physiology to admit that their regular modes of vitality, nutrition, and secretion, must be more or less deeply modified? We must either admit this conclusion, or deny the influence which, according to every physiologist, the blood exerts over each solid. It may, then, happen that one or more organs are affected in a more decided manner than the rest, and there may thus be produced in them various lesions that are only accidental and secondary; but it is not in these lesions the origin of the affection lay; it is not on them all the symptoms depend; nor, lastly, is it to them alone we are to have recourse, to throw a light upon the true nature of the disease, as well as upon the treatment proper to be pursued."—(*Andral's Pathol. Anat.* by Drs. Townshend and West, vol. i. p. 663.)

The intimate relations existing between the different organs and functions, make it exceedingly difficult, and, in many cases, even impossible, to distinguish between the direct and indirect influence of a medicine. In the following examples of organs and functions affected by medicines, this distinction has not been attempted:—

1. *Nervous System*.—Opium causes sleep and stupor,—alcohol inebriates and disturbs volition,—aconite diminishes feeling,—conia paralyses,—strychnia and brucia convulse.

2. *Circulating System*.—The frequency and force of the circulation is increased by the agents termed excitants, calefacients, or stimulants, but diminished by sedatives. Prematural heat is reduced by refrigerants. (On the influence of asafetida, digitalis, and senega, on the functions of the heart, see *Continental and British Medical Review*, Vol. I. p. 27.)

3. *Respiratory System*.—The frequency of respiration is diminished by narcotics. Emetic tartar and corrosive sublimate, used as poisons, inflame the lungs. Expectoration is promoted by the agents termed expectorants.

4. *Digestive System*.—Salivation is produced by mercury. The power of deglutition is diminished or destroyed by belladonna, when employed in poisonous quantities. Vomiting is caused by emetics. Digestion is promoted by condiments and the bitter tonics, but checked by opium. Purging is effected by cathartics,—constipation by opium and vegetable astringents. Mercury and aloes are believed to stimulate the liver.

5. *Secreting and exhaling organs*.—Mercurials and the alkalis increase the activity of all the secreting and exhaling organs. The oleo-resins and balsams stimulate the mucous surfaces. Opium diminishes the mucous secretions. Diuretics promote the secretion of urine,—diaphoretics the cutaneous exhalation,—sialogogues the flow of saliva,—emmenagogues the catamenial secretion,—expectorants the bronchial secretions, &c.

6. *Lymphatic System*.—Iodine, bromine, mercury, and the alkalis, are presumed to increase the activity of the lymphatic system.

7. *Muscular System*.—The tone of this system is promoted by cinchona. Strychnia convulses, conia paralyses the muscles.

8. *Sexual System*.—The sexual feelings are supposed to be excited by phosphorus. The catamenial discharge is promoted by emmenagogues. Parturition is assisted by ergot of rye.

9. *The Urinary organs*.—Diuretics increase the secretion of urine. Alkalis and acids alter the qualities of this fluid. Opium diminishes the contractility of the ureters and bladder. Cantharides irritate the bladder. The oleo-resins affect the urethra, and cure blennorrhagia.

#### 8. *Of the nature or quality of the actions induced by Medicines.*

Medicinal agents may increase, diminish, or alter the vital actions, and, consequently, may be arranged in the three classes of stimulants, contra-stimulants or sedatives, and alteratives.

a. *Stimulants*.—In a therapeutic sense, says Müller, (*op. cit.* p. 62.) a stimulant is an agent which vivifies the organs, and renovates their composition. "Besides the vital stimuli before alluded to, there are other agents which, under certain conditions, exert a local, vivifying, and strengthening influence: they produce this effect by restoring the composition of the organ by their ponderable or imponderable influence, or by so changing its composition that the renovation by the general vital stimuli is facilitated. All this, however, depends on the state of the diseased organ; and the cases in which the so-called stimulant and tonic remedies have really their supposed effect, are very rare."

Many other agents are called stimulants, although they have no renovating influence, and do not vivify except by exciting re-action, and which, by long-continued operation, destroy, instead of restoring, the powers of the system.

b. *Contra-stimulants, or sedatives*.—These are agents whose action is the reverse of that of stimulants.

c. *Alteratives*.—These are neither stimulants nor contra-stimulants merely. They produce some unnatural or morbid change in the organic textures, and consequently occasion alteration of function. This class includes nearly the whole of the articles comprising our materia medica.

BRUNONIAN THEORY.—The theory of Dr. John Brown supposes that all living beings possess a peculiar principle, termed *excitability*, and which distinguishes them from inanimate bodies. The agents which support life are termed *exciting powers*; and these acting upon the *excitability*, maintain life; in the language of Brown, produce *excitement*. Whatever can modify the excitability, and produce a greater or less degree of excitement, are termed *stimulant powers*: these are either universal or local. When the exciting powers act moderately, *health* is produced: when they act with too great energy, they cause *indirect debility*: when with too little, they produce *direct debility*. According to this doctrine, all medicines are stimulants, and differ from each other in little more than the degree in which they exert their stimulant power: moreover, they cannot cause exhaustion (of the excitability) except by an excessive action; in other words, by producing previous over-excitement.—(*The Works of Dr. John Brown*, by Dr. W. C. Brown, 1804.)