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A TREATISE
ON
MATERIA MEDICA AND THERAPEUTICS.

SCHEMA.

PART I.—*Modes in which Medicines are introduced into the Organism.*

PART II.—*The Actions and Uses of Remedial Agents:*

Those used to promote constructive metamorphosis.

Those used to promote destructive metamorphosis.

Those used to prevent septic decomposition.

Those used to modify the functions of the nervous system.

Those used to cause some evacuation from the body.

PART III.—*Topical Remedies.*

In this scheme the action of the medicine is followed from its introduction into the stomach, to its exit through the organs of excretion. Some remedies are used solely or chiefly for their influence on the primary assimilation; as, for example, pepsin, the simple bitters. Other remedies, with or without affecting the function of digestion, modify the process of assimilation, either promoting the construction of tissue, or the retrograde or destructive metamorphosis. Iron may be taken as a typical example of the one, and mercury of the other mode of action on the function of assimilation. The therapeutical application of these remedies is based in this conception of their physiological action.

In the group of remedies used to prevent septic decomposition are included those having a destructive action on the minute organisms, or germs of disease. These agents have, also, distinct anti-pyretic effects, and a relation probably exists between the anti-ferment action and the power to reduce febrile heat. As substances having the reactions and toxic activity of alkaloids, and known as *ptomaines*,

are produced in the course of the putrefactive decomposition of the human body, and as *alkaloids*, closely related to those formed in the tissues of plants, are developed in the course of infectious diseases, there can be no doubt of the importance of this class of remedies. We are, however, yet in the infancy of our knowledge, but sufficient has been acquired to amply justify the construction of such a class of remedies.

A large group of remedial agents is used not to influence the metamorphosis of tissue, but simply to modify the functions of the nervous system, of which morphine and strychnine may be taken as types. It is true that probably no medicinal agent modifying function does so without affecting structure; but, in the present state of our knowledge, we are, in respect to some of them at least, unable to designate the tissue-changes which they induce.

To the class of evacuants belong emetics, cathartics, anthelmintics, and diuretics. These remedies are either so irritant as to excite speedy action for their expulsion, or they are eliminated by the organs on which they appear to have a selective effect. When the movement for their expulsion or elimination terminates, as a rule their action ceases. Some of these irritant emetics and cathartics, acting locally merely, might be classed with topical remedies, but such an arrangement would destroy the continuity of the subject.

Topical remedies act upon the part to which they are applied. Absorption is not necessary to, and indeed hinders the local effect; hence, any systemic impression produced by them is accomplished through the agency of the nervous system. Some of the most important of their therapeutical effects are due to the influence of the peripheral excitation on the nervous centers in anatomical connection therewith. A superficial neuritis may excite extensive secondary lesions in the spinal cord. The vaso-motor and trophic systems are peculiarly impressionable to peripheric irritation, and hence, through the intermediation of this nervous apparatus, important changes may be wrought by slight counter-irritation.

PART I.

ROUTES BY WHICH MEDICINES ARE INTRODUCED INTO THE ORGANISM.

I.

THROUGH THE EXTERNAL INTEGUMENT.

By this tissue medicines are applied in the following modes:

- Enepidermatic.
- Epidermatic.
- Endermatic.

ENEPIDERMATIC.—In this method, the medicament is placed in contact, only, with the epidermis, and friction, to hasten absorption, is not employed. Although the epidermis opposes a strong obstacle to absorption, it does not entirely prevent diffusion into the blood, as numerous facts show. The skin may be considered a colloidal septum. The rate and degree of absorption of any medicine will depend, in large part, on its power of diffusion. Various circumstances influence this—for example, the chemical position of the agent to be diffused. On one side of the colloidal septum—the skin—lie the blood-vessels, containing an alkaline fluid. An acid fluid on one side of the dialysing membrane, and an alkaline fluid on the other, are conditions most favorable to diffusion. Experiments are wanting on this point, but it is a reasonable presumption that solutions of medicinal substances, acid in reaction, will find their way most readily into the blood.

Besides the epidermis, the sebaceous matter of the skin offers more or less positive obstruction to cutaneous absorption. Medicinal substances in solution in water, therefore, very slowly permeate the skin to enter the vessels. Waller, who has made very careful experiments, has ascertained that alkaloids dissolved in chloroform are readily transferred through the skin into the blood, and produce characteristic phenomena, while “alcoholic and aqueous solutions are either not at all, or very slowly, absorbed.”