
CHAP. I.PRELIMINARY OBSERVATIONS ON THE OBJECTS OF STUDY IN
THE HISTORY OF THE ARTICLES OF THE MATERIA MEDICA,
AND ON THEIR CLASSIFICATION.

THE subjects of inquiry, in the study of the articles of the *Materia Medica*, may be comprized under their Natural History, their Chemical History, and what may be more strictly denominated their Medical History.

The utility of NATURAL HISTORY in furnishing appropriate characters by which the productions of nature may be distinguished from each other, is abundantly obvious; and its application to the articles of the *Materia Medica* is under this point of view indispensable. From want of such characters, many of the remedies described by the ancient physicians cannot now be accurately ascertained; did we not possess them, *our* observations would in the progress of time be liable to the same inconvenience; and the accurate distinctions which the methods of natural history afford, are at present necessary to discriminate between substances which have a near resemblance to each other, or to describe with accuracy the remedies employed in different countries.

This subject has likewise been considered under a higher point of view. From attention to the characters of the articles of the *Materia Medica*, as they are objects of natural history, it has been supposed, that assistance may be derived

know precisely the primary operation of it, whence these effects arise, this might serve as the basis of its classification; but this being unknown, and the classification being established on these secondary operations, it must necessarily be placed under each of these classes, and under each its history is imperfect, as it must be limited to the operation which gives the character of the class under which it is arranged.

In a course of lectures this is inconvenient; the history of many important articles of the *Materia Medica* being placed under different divisions, frequently remote from each other. But in a treatise, to the different parts of which it is easy to refer, it is of less importance, and is more than compensated for by the other advantages of which this method of classification is possessed. And when the merits of two modes of classification are so nearly balanced, it is even of importance to exhibit the subjects connected with them under the points of view which each mode more peculiarly affords. It is this classification, therefore, which I have followed in the present work.

in the investigation of their virtues. In those artificial systems of classification, indeed, in which the arrangements are founded entirely on a few leading discriminating characters, the natural alliances which exist among bodies are often disregarded, and they are in no case particularly traced; the substances which are associated being placed together merely from possessing these characters, though they may at the same time differ widely in the general assemblage of their qualities. But in those natural methods of classification in which the arrangement is founded on the occurrence of a number of characters taken from what is essential to the substance, the gradations of nature are more strictly observed, and those bodies are arranged together, which, in their general appearance, nature, and qualities, have a close resemblance. It is the prosecution of this natural method that has been supposed useful in ascertaining the medicinal virtues of the productions of nature,—a supposition not unreasonable, since, where there exists a natural resemblance in structures and qualities, it is no improbable inference that there may be a resemblance in medicinal powers.

In the vegetable kingdom especially, this natural affinity has been industriously traced and applied to this purpose. Those vegetables which agree in their general structure, habit, and appearance, are thrown into what are named Natural Orders or Families; and experience has shewn, that the individuals composing many of these natural orders have a remarkable similarity in their effects on the system. In the subdivisions of the order, this analogy is not less striking, the different species having in general similar virtues. If, therefore, a new species of any of these genera be discovered, the discoverer may infer with some probability *a priori*, that it will possess virtues similar to those of the genus to which it belongs.

This criterion of the virtues of medicines, though undoubtedly so far just, is however liable to many exceptions. Many natural orders are composed of vegetables, which, though they agree in structure, have the most various and opposite qualities; and even in those in which there is the greatest similarity, there are important differences in the properties of many plants arranged under them. Even in the subdivision of the genus, there is often a remarkable difference in the properties of the species; and what sufficiently points out the deficiency of this method, different parts of the same plant have frequently opposite powers. Yet it is to be admitted, that with all these exceptions, Naturalists have often been led by such analogies to just conclusions respecting the virtues of plants; and in studying the vegetable part of the *Materia Medica*, attention is undoubtedly due to these natural distinctions.

A part of the Natural History of Medicines, of not less importance than their generic and specific characters, is the accurate description of their sensible qualities.

Such descriptions afford the most obvious method of distinguishing them, and in many cases also the most easy and certain criterion of their purity and perfection. A knowledge of these qualities is not less necessary in leading to their proper administration, since, from the peculiar qualities of taste, flavour, specific gravity, or consistence in any substance, one form may be better adapted to its exhibition than another.

It has also been imagined, that the sensible qualities of medicines, particularly their taste and smell, afford indications of their peculiar powers, and experience to a certain extent confirms this supposition. In the vegetable kingdom especially, it has been found, that substances which are insipid and inodorous rarely possess any important medicinal

virtue, and a number of such substances have justly been discarded from practice from attention to this circumstance: their insipidity having led to suspicion of their activity, and occasioned a more strict examination of the evidence on which their supposed virtues were said to be established. On the other hand, plants possessing much odour or taste, are in general active remedies; and those which resemble each other in these qualities, have often the same general medicinal powers: thus astringency is indicated by a styptic taste; bitters are tonic, aromatics are stimulating, and foetids narcotic.

There are, however, so many causes of obscurity and error in these indications, that they do not admit of very extensive accurate application. The different tastes and odours are so little reducible to precise definition or description, that few general rules can be formed from them; and even to the few that have been delivered on this subject, there are many exceptions. The most active vegetable substances too, have not these properties more peculiar than many others comparatively inert, and hence it is not often that much assistance can be derived from this criterion of the virtues of plants.

The CHEMICAL HISTORY of the articles of the *Materia Medica* forms another important general object of investigation.

The opinion seems to have been early adopted by those who cultivated chemistry with a view to its application to medicine, that those substances which act in a similar manner on the living body must be composed of the same principles, and that therefore chemical analysis may be a successful method of investigating their medical virtues;—an opinion not altogether unreasonable. The properties of any compound depend on its chemical composition; they originate from that composition, and are altered by every varia-

tion which it suffers. The medicinal powers of such substances must, in common with their other qualities, depend on the same cause; and it is not unreasonable to presume, that where similar powers exist, they arise from similarity of composition, either with regard to the constituent principles, or to the peculiar mode in which these are united.

Confiding in the justness of these conclusions, the chemists, about the beginning of the 17th century, bestowed much labour on the analysis of the different vegetables used in medicine. Above 500 plants were analyzed; but this labour led not to a single useful result; and had even the analysis been performed with all those essential precautions, which it was impossible that the state of Chemistry at that period could have furnished, the nature of it was such, that it could afford no useful information. The plants subjected to analysis were exposed to heat, and the products collected; but as these products do not pre-exist in the vegetable, but are formed by new combinations of its elements, and as these elements are in all vegetables nearly the same, no connection can be traced between them and the qualities of the substance from which they are obtained. It was found accordingly, that the most inert and the most poisonous vegetables afforded the same products; and if the experiment were now to be repeated with all the advantages of the rigorous methods of Modern Chemistry, no information of any value to the physician would be obtained. Similar proximate principles of different plants, though possessed of different medicinal powers, would give similar results; or if any difference were observed, it would be impossible to connect this with the difference in their powers. Nor can we expect from the chemistry, at least of our times, to be able to discover on what chemical principle, or what peculiarity of combination, the medicinal virtues of any active vegetable

depend; for although these, in common with other qualities, may arise from chemical composition, yet the varieties of combination from which they may be supposed to derive their origin, are too minute to be detected by our modes of analysis.

The pretensions of Modern Chemistry, as applied to *Materia Medica*, are therefore more humble, but they are also more just. By discovering those proximate principles of vegetables in which their active powers reside, and enabling us to separate them from each other, or from other inert and noxious matter with which they may be mixed, it allows us to apply them with much more advantage: it determines how far in every case such operations are useful: whether the principles thus operated on are altered by these operations, and by what means such alterations, if injurious, may be obviated. Similar advantages are obtained from its application to the few products of the animal kingdom that are employed in medicine; and those belonging to the mineral kingdom can be used with much more advantage and discrimination, when their nature has been ascertained by analysis, than when we are left to collect their virtues from experience.

By the combinations which Chemistry regulates, it furnishes us with many remedies which owe to these combinations their sole power, and which are equally active with many of those afforded by nature. Lastly, it has taught us the proper methods of administering these substances. Many of them exert a mutual action, combine together, or decompose each other; and were such facts which Chemistry discovers not precisely known, important errors would frequently be committed in their mixture and administration.

The last object in the study of the *Materia Medica*, that to which the others are subservient, is their *MEDICAL HIS-*

TORY, or the investigation of the virtues and uses of remedies. This comprehends several important subjects of inquiry.

There belongs to it the consideration of the action of these substances on the system in its healthy state; since, when this is ascertained, it leads to their application to the treatment of disease. It may in general be affirmed, though the principle is not without exception, that substances which do not act sensibly on the body in a healthy state, will not prove active remedies; and that, on the contrary, every substance which is capable of producing any important change in the system, must be more or less extensively adapted to the removal of morbid affections.

Another subject of inquiry, scarcely less important, relates to the mode in which remedies act, and by which they produce their peculiar effects. It is not sufficient merely to have ascertained by the evidence of experience the virtues of certain remedies in certain cases. It is of importance, farther, to arrange the facts thus collected; to institute some comparison between remedies possessed of nearly the same general power, and so far as can be done, to investigate their mode of operation, with the view of extending their application, and of administering them with more precision.

Lastly, with regard to what may be more strictly termed the medicinal powers of remedies, there are a number of subjects of consideration of importance. It is necessary to take notice of the applications for which each individual article is distinguished; the forms of disease to which it is adapted; the circumstances that may influence its operation, or in certain cases render its exhibition doubtful or improper; the cautions necessary in its use; the dose in which it is given; the usual and proper forms of exhibition; and the effects of the combinations of remedies with each other.

These observations point out the subjects to which the at-

tention is principally to be directed in the study of the articles of the *Materia Medica*.

Very different systems have been followed, according to which these substances are arranged. Two methods are superior to the others, and are possessed of undoubted advantages,—one in which the classification is founded on the natural distinctions of the substances arranged, the other in which it rests on their medicinal powers.

The latter classification appears more systematic, and more conformable to the object of the study itself, than any other. These substances are subjects of inquiry, merely as possessed of certain medicinal properties: they ought to be classed, therefore, it might be concluded, on principles conformable to this: and by founding the classification on this basis, some important advantages are obtained; we are enabled to place together the remedies which are possessed of similar virtues, to deliver the theory of their operation, to compare the powers of the individual substances arranged under the class; and by a reference to this generalization, to point out more distinctly their degrees of activity, and the peculiarities which may attend the operation of each.

The principal difficulty which attends it, is one arising perhaps from our imperfect knowledge of the laws of the animal economy, and of the operation of remedies, in consequence of which we cannot always assign their primary action, but are often under the necessity of arranging them from their more obvious, though secondary effects. Hence, as many substances are capable of producing various effects of this kind, and are employed in medicine to obtain this diversity of effect, the same substance frequently requires to be considered under different classes, and under each its history is incomplete. It may be capable of acting, for example, as an emetic, as a cathartic, and as a diuretic: did we