An essay on the comparative merits of artificial and natural classification, as applied to diseases of the skin ... / [John Paget].

AN

ESSAY

ON THE COMPARATIVE MERITS

OF

ARTIFICIAL AND NATURAL CLASSIFICATION,

AS APPLIED TO DISEASES OF THE SKIN.

BY

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Sentio autem nostræ artis incrementum in his consistere, ut habeatur historia, sive morborum omnium descriptio quoad fieri potest graphica et naturalis; praxis seu methodus circa eosdem stabilis ac consummata.

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This essay was written for a prize proposed by M. Le Baron Alibert at the Hospital of St Louis, August 15, 1832. It was to be written in any European language, to be finished within forty days, and to be delivered in with the name of the author, sealed. This essay was fortunate enough to succeed against several competitors, French, German, and Italian.

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AS APPLIED TO DISEASES OF THE SKIN.

(From the Edinburgh Med. and Surg. Journal, No. 115.)

Part I.—Classification as applied to Natural History.

When M. Alibert first proposed, as the subject of the prize essay at the Hospital of St Louis, the comparative merits of the artificial and natural modes of classification, it occurred to me that it would be vain, and almost presumptuous, for any but a Frenchman to treat on a subject so peculiarly French. The country which gave birth to Jussieu, and Decandolle, Lamarck, Geoffroy St-Hilaire, and Blainville, and fostered the genius of Cuvier, may justly claim the distinction of having led all Europe in the march of natural science, and of having dictated the true laws by which she ought to be guided in its pursuit. In

this department, it must be confessed, that France is without a rival. The talent of her philosophers, developed and encouraged by the extent and liberality of her scientific institutions, has placed her on a throne to which none can as yet contest the right.

How then shall a stranger venture on ground so truly national was the first thought naturally suggested by the announcement of the title of this essay. A moment's consideration, however, was sufficient to convince me that it would be at least worth the trial, were it but to prove, that foreigners are not unmindful of their neighbours' improvements,—not unwilling to adopt them—and not forgetful to acknowledge the source whence they have derived them. It is true, that we are only beginning to follow the footsteps of our teachers ; but we already perceive the truth of the principles they have laid down, and appreciate the advantages to be derived from their application.

Had further inducement been required, a sentiment of obligation for the kindness and liberality of the author of the prize, would afford a sufficient stimulus for every foreigner to use his best exertions to fulfil his wishes and intentions.

Origin and Progress of Natural and Artificial Classification. —In discussing the relative advantages of various kinds of classification, and of the propriety of their application to diseases of the skin, we cannot avoid the necessity of referring to Natural History. It is, in fact, to natural history that all classification owes its origin. The human mind, on entering on the study of a subject so vast in extent, comprising as it does a knowledge of the nature, habits, and formation of every natural object of which this earth is formed, or by which it is inhabited, seems to have been lost in the immensity of the space to be traversed, and to have sought some natural divisions, which, like the eras in history, might afford a resting-place for the imagination, and a point from which it might again set out on this never-ending pursuit. So forcibly has this feeling prevailed, strengthened indeed by that love of order which exerts so powerful an influence over the philosophic mind, that there is scarcely a single observer of nature, from Aristotle to Cuvier, but has attempted, by some species of arrangement, to facilitate the study of his favourite science. The true principles of classification were for ages unknown, and the foundations of the ancient arrangements were often placed on no surer basis than convenience in the disposition of a cabinet,—the alphabetical order of a list of names,—or the geographical relations of the objects it comprised. It was not till after the revival of literature that any advance was made in natural classification. Like every other

science, it seems to have sunk with the fall of Rome, and to have remained buried as it were beneath that cloud of darkness and superstition which for so many centuries obscured the destinies of Europe.

In 1583, Cesalpinus attempted an arrangement of plants, according to the structure of their flowers and fruits. A century later, our countryman, Ray, advanced a step further, and applied the same principles to zoology, in his Synopsis on serpents and quadrupeds; but it was not till Linnæus arose that we had any thing really deserving the name of method in natural history. This great genius, embracing the whole natural world in the grasp of his intellect, divided and subdivided, collected and united, arranged and named every object with which he was acquainted; in short, laid the foundation of a method in natural history, which has served as the ground-work of all that later naturalists have accomplished.

Linnæus first conferred on natural history the inestimable boon of an accurate and appropriate terminology, without which no science can make any considerable advancement towards perfection. In naming such objects as were hitherto unknown or unnamed, he applied to them with peculiar felicity appellations expressive of some important or prominent character,—a rule which it would have been well had his followers been equally rigid in observing. The method or system of classification proposed by Linnæus was partly artificial, and, although possessing many excellencies, yet, in common with every other, founded on similar principles, it is liable to many serious objections. No one was more sensible of its imperfections than its author himself. "*Primum et ultimatum in botanice quæsitum est methodus naturalis*," are the words in which he leaves his opinion of the prior importance of a natural method; and his Natural Families will ever remain a testimony of his just appreciation of the true end and object of classification.

Before proceeding further, it may be well to define accurately the signification attached by naturalists to the terms empirical, artificial, and natural arrangements, by which the different species of classification are distinguished, and to the use of which we shall have frequent occasion to recur. By an empirical arrangement, is understood one derived from characters independent of, and foreign to, the objects it comprises. An alphabetical arrangement is of this kind. An artificial method or system, as it has been called, is one derived from characters inherent in the object, but having regard to only one part of its organization: such is in Botany the arrangement of Tournefort, drawn from the *Corolla*, or of Linnæus, from the organs

of generation in plants. In a natural classification, to which the term *method* has been more peculiarly applied, reference is made to the sum of the most important and constant characters, to the assemblage of the organization studied in all its details.

Bernard de Jussieu may be said to have been the first who succeeded in submitting any part of nature to this third or natural method of classification. This original naturalist effected, after much study, an arrangement of the plants in the garden of the Trianon, according to their natural relations, and thus nearly finished the great work which Linnæus had left undone.

To Antoine Laurent de Jussieu, however, the nephew of the former, must be attributed the glory of having first laid down with philosophical precision the principles and laws of natural classification, and of having, by this means, placed it on a sure and certain basis. Commencing with the observation of individuals, and arriving at general conclusions only after innumerable particular examinations; joining those objects which presented natural affinities and relations, and separating those deficient in these respects; remarking closely the characters on which these resemblances depended, and the importance of the organs from which they were derived, Jussieu was enabled to lay down principles of classification which will probably remain in science as long as classification itself shall be an object of research. He has been ably seconded by many followers, among whom the name of Decandolle will be always distinguished by every lover of botany.

What Jussieu has done for botany, Cuvier, by following the same strictly Baconian method of investigation, has effected for zoology. Cuvier has not laboured singly in this great field of observation. Lamarck dedicated himself to the *Invertebrata*, particularly the lower orders; Latreille to the insects; Blainville to the zoophytes; and Geoffroy St-Hilaire to the philosophical anatomy of the whole animal kingdom. The light they have thrown on these branches of natural history, is as great as might have been anticipated from the combination of talent devoted to them.

I need scarcely enter into a detailed comparison of the different merits of natural and artificial methods, as applied to natural history. On this subject there is but one opinion; the very announcement even of the intention implied in their formation declares the relative utility of each. In the artificial, it is to afford an easy and direct means of discovering the name of any object which may present itself,—in other words, to furnish an index to Nature. The importance of such a means is great; to the young student, in a science of great extent, it is

indispensable for the acquisition of the rudiments of knowledge. It presents, however, the inconvenience of placing in relation objects naturally separated, and of disuniting those most intimately related. The system of Linnæus informs us of the number of stamens and pistils in a plant,—of the number and form of the teeth of MAMMALIA,—of the relative position of the fins of fishes; but here the knowledge derivable from the system ceases.

A natural method, on the contrary, which is derived from the sum of the characters of affinity, those characters having regard to the constancy of appearance and importance of function of the organ from which they are taken, serves to mark, by the distribution of the objects, the relative rank they hold in the scale of creation,—the analogies they present with those which surround them,—and the distinctions by which they are separated from them; in short, "it considers the object under every possible point of view, and therefore makes one really know it."

If the naturalist desired to learn the name of an object only, indeed the system would have the advantage, since only one organ need be known to furnish the key to this knowledge; while in the other, the whole structure and history must have been previously well studied. In all subjects it is desirable to unite as closely as possible the convenience of the one with the solid utility of the other. In a science possessing very natural relations throughout all its parts, in which the same organs or characters, variously modified, are repeated throughout each family, this may generally be effected by selecting the most constant and essential character to form the basis of the system, and superadding it to the methodical arrangement founded on the sum of the characters. Jussieu has effected this object (for even Jussieu is a systematist) with so much success, that the Linnæan system might almost be dispensed with, even for the beginner.

It may perhaps be urged that this complication is unnecessary, since in botany many of the genera, as arranged artificially by Linnæus, are in the same relative position as in the natural classification of Jussieu; and in zoology, Cuvier has at last returned, as observed by M. Isidore G. St-Hilaire, to exactly the same order in his arrangement of *Mammalia*, as that originally proposed by Linnæus himself. Nor should this be wondered at; for such is the harmony of organization which reigns throughout creation,—such the successive and proportionate increase of developement,—such the sympathy of form in the different parts of one body, that, except in monstrosities,

the state of one part of the body being given, the state of any other may be almost certainly predicated.*

This agreement between the system and the method, however remarkable in some instances, does not render methodical arrangement the less necessary. In reflecting on the unity and harmony of nature, we must not forget that she has also varieties and anomalies. It may be considered almost as an axiom, that absolute constancy is a thing unknown in natural history; from thence it necessarily follows, that any one character must be subject to irregularity, and therefore that any arrangement founded on one character, consequently any system, must be imperfect.

As natural history is only the means, and not the end of illustration, we shall quote one or two instances, first of accidental variety, and then of constant variety, if such an expression be not a contradiction in terms. The first is comparatively trifling, it merely serves to confuse the systematist in the determination of an unknown species; the second strikes at the very root of all systematic classification. It requires but a very young botanist to know how frequently the number of stamens vary in plants according to the soil or climate in which they may be found,—how often in some species there is more or less abortion of these organs, and how easy it is by cultivation to make them assume a character and structure quite foreign to their natural state. These may be considered as exceptions or accidental varieties, but in other cases the exception becomes the rule, the variety constant. In some genera, as the *Lychnis* and *Valeriana*, certain species are always deficient in the number of the organs of generation, and had Linnæus strictly adhered to his system, he would have been forced to break up these, two of his best marked genera. If such anomalies would operate frequently in dividing genera, it may easily be conceived how much more frequently it would oppose the formation of the larger groups, or orders and classes; and accordingly, we frequently find in the Linnæan system, that genera are altogether separated from those to which they are naturally allied by some unimportant variety in the number or disposition of their stamens or pistils.

In zoology, the varieties of organization are not less striking, and extend to whole families and collections of families. The *Invertebrata* generally, and especially the *Insecta* and *Entozoa*, present anomalies the most extraordinary; the latter, from some

* It was to the constancy of this harmony that Cuvier owed his great discovery, so useful in its application to another interesting branch of natural science; namely, that, from a single bone, nay, from a fragment of a bone, even in a fossil state, the family, genus, and frequently the species even of the animal to which this relic once belonged, might be accurately determined.

portions of their organization, would merit no inconsiderable rank in the animal kingdom, while from others they would justly be placed among the lowest of the zoophytes.

A protracted contemplation of nature under this point of view renders us almost forgetful of the great harmony which pervades the whole. To appreciate this vast expanse in its just proportions, we must regard it, as it were, from some lofty eminence, whence, overlooking the less inequalities of surface, which, on a near approach, become magnified to undue importance, we may obtain without obstruction a general and comprehensive view. Thus, in natural history, to see distinctly the unity of nature interrupted by anomaly, demands that, with the geologist, we should consider the successive formation of organized beings, as displayed in the relative ages of the various strata of which the earth's surface is composed: that, with the anatomist, we should observe the progressive developement of organs during their fœtal formation, and the changes through which they pass before they arrive at their perfect state; and finally, it demands that, with the analytic spirit of Geoffroy St-Hilaire, we should decompose and reduce to their simple elements the complicated structure of the whole, before we can comprehend the vast harmony of creation, before we can see nature as she really is,—Variety in Unity.

In making use of the term Natural Method, we have inquired how far any classification can strictly merit that name. "Je suis de l'opinion," observes M. Geoffroy St-Hilaire,* "qu'une méthode parfaite ne saurait exister; c'est une sorte de pierre philosophale dont la découverte est impossible." We believe the observation to be correct; for nature has only formed individuals. We must remember, however, that she has formed them in a certain order; some she has more or less approximated by certain resemblances and affinities; others she has separated by modifications and distinctions. To unite, however, in families, genera and species—to make abrupt stops, and lay down strict divisions, is without question purely the work of art; but the more perfectly this is accomplished on the principles of natural classification, the more nearly it approaches the course of nature herself. A natural method we consider as much a means of union as of separation,—as a mode of marking relations and affinities, no less than distinctions; and in proportion as it imitates the natural course of organization, shows how beautifully one type of formation glides into another, —how gradually the characteristic features of one class become

* Cours de l'Histoire Nat. des Mammifères, &c. par M. Geoffroy Saint-Hilaire, 1829, p. 28.

softened in its extreme members, till they blend into harmony with those which follow, does it attain the true character of a natural method,—Division in Union.

Part II.—Principles of Natural Classification, and their applicability to Diseases of the Skin.

Before we can discuss the comparative merits of natural and artificial arrangements of the diseases of the skin, a question of some difficulty must be answered. Is a natural method applicable to this subject? "Vouloir procéder en nosologie comme en histoire naturelle, c'est vouloir comparer à des états qui sont toujours des aberrations ou des perversions de la règle, des êtres constamment réguliers," * is the reply furnished by a modern pathologist. That there is not in diseases all that natural order which reigns in the animal or vegetable world,—that their relations are more distant, their affinities less evidently marked, we are ready to allow. But this would lead us to draw the contrary conclusion, that there is, for this very reason, more need of a method by which the relations and affinities which do exist may be brought more clearly into view; that, as no one character can be found sufficiently constant, it becomes the more incumbent on us to found our classification on the sum of the whole. To determine, however, accurately the possibility of this application to the subject in question, we must examine minutely the principles on which natural classification is founded, the conditions under which it is applicable, and the extent to which these conditions are fulfilled by the diseases of the skin.

Principles of Natural Classification.—The principles of natural classification must vary to a certain extent, according to the subjects to which they are applied. The only one in relation to which they have hitherto been laid down with any thing like precision is Botany. Decandolle, who has applied himself to this abstruse branch of science with the greatest success, has considered the whole theory of natural classification as comprised in the three following divisions.

1. The estimation of the relative importance which should be attached to organs, as compared with each other.

2. The knowledge of the circumstances which may deceive the observer relatively to the true nature of the organs.

3. The estimation of the importance which should be attributed to each of the points of view under which an organ can be considered.†

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* M. Breschet, in the Dict. de Mèdecine, Art. *Déviations.*

† Decandolle, Théorie Elémentaire de Botanique, 8vo, p. 78.

As these observations are general, and more or less applicable to almost every subject to which a natural method is adapted, we shall, as briefly as possible, consider their importance in relation to our present subject, and the modifications which they undergo, before they can be applied to other branches of natural science.

Before commencing the consideration of these principles, we premise, that, in applying them more generally than their author has done, we shall be obliged to break through a rule which naturalists have laid down, or rather we shall be forced to make their exception our rule. A character, it is said, should never be drawn from a function, but from the organ by which that function is effected, except in cases where that function cannot be appreciated. In nosology, it is the diseased function or symptom which must always furnish the character, since we are generally, not to say always, unable to appreciate the organic change by which it is produced. We can see, for instance, the difference between the syphilitic pustule and the eruption of variola; but the peculiar organic modifications on which these varieties depend are probably beyond our apprehension. We shall speak, for the sake of generalization, therefore, indifferently of the relative importance of characters, as of the organs or functions from which they are derived.

The importance of the first of the principles laid down by Decandolle is easily demonstrated. Natural classification frequently depends on the assemblage of the characters; but every character does not possess an equal value. On the contrary, a character is important in natural history, only in proportion as the organ from which it is derived is essential to the life of the individual, or the reproduction of the species. Now, as all the organs concerned in these acts are not equally indispensable for this performance, it becomes a matter of great interest to determine the relative importance of organs, and the laws by which it should be estimated. The great test applied by Jussieu to estimate the relative importance of a character, was its constancy. He found the value of a character in methodical arrangement to be in the exact ratio of its constancy; for he established, after innumerable examinations and comparisons, that the most constant characters were those drawn from the parts most essential to the formation of the plant, and, therefore, those which prevailed in the greatest number of plants.

It would be erroneous to conclude from this, as some have done, that universality is a fair test of importance. The organs of reproduction are common both to plants and animals; and yet, although botany and zoology may be considered only as two branches of the same science, these organs possess a very

different relative importance, as to the characters they furnish in the one and in the other. In botany, the organs of reproduction serve for the basis of a system; in zoology, those of assimilation are always preferred. In other sciences, not quite so naturally connected as these, the error becomes still more obvious; for we find certain characters prevailing among a number of species and genera with such constancy, and drawn from such essential circumstances, that they are directly allowed to be of sufficient importance to constitute a natural family, which the very same characters in certain other genera are so inconstant, and so unessential, as not to suffice even for the establishment of a species.

In the diseases of the skin, if it be not premature to draw illustrations from a subject to which the principles are not yet proved applicable, we might quote the *Exanthemata* and *Psorodes*, as furnishing striking examples of this observation. In the former, the occurrence of a primary fever, and the succession at a certain period of an eruption on the skin, form constant and essential characters. In the latter they would be considered only as incidental and trifling coincidences.

This is, however, of no real weight as an objection to the application of natural arrangement to diseases of the skin, since it prevails, even in botany, in the establishment of the different genera of some families. In the *Umbelliferæ*, for example, the generic characters would be insufficient to distinguish the species, even of another family.

In reducing diseases, then, to a natural nosological arrangement, we should say, if we may venture a hasty conjecture on a question of such delicacy and importance, that the characters are important in proportion as they are constant in any one family, and in proportion as the symptoms from which they are derived regard the life of the individual,—as they extend their effects to other parts of the organization, or as they produce constitutional sympathies,—as they respect the formation of permanent organic changes, as they effect appreciable alteration of form and appearance, as they modify the principles of treatment, as they affect the sensations of the patient, and as they regard the causes of the disease.

The second part of the theory of classification, or the knowledge of the circumstances which might mislead the observer in regard to the true nature of the organs, is one of great importance. In natural history these circumstances principally regard excesses or deficiences in developement, either congenital, or formed at a later period of existence. They include, also, the changes of form and structure effected by climate, soil, nourish-

ment or culture, as well as the effects of disease, as far as they modify the nature or appearance of the plant or animal.

Applying this principle to our present subject, to which it is equally well adapted, we should enumerate, as the circumstances most likely to mislead the medical observer, principally such as regard the age, sex, and temperament of the individual affected, —the idiosyncrasies to which he might be liable,—the period of the disease, and the treatment to which it has been subjected, as well as many others with which it is absolutely essential that the medical naturalist should be intimately acquainted. To enumerate all the errors which would result from ignorance of them would be impossible. Suffice it to say, that anomalies would be every day mistaken for new species, and that the most important laws would be transgressed by the very facts which, when properly understood, are found to furnish the strongest arguments in their favour.

Decandolle's third and last division of the theory,—that respecting the relative importance of the points of view under which an organ (or character) is considered,—though including propositions of great value in classification, as applied to plants or animals, is not equally essential in its application to other subjects. The absolute or relative position of organs, for instance, which furnishes such important characters in botany, is a consideration quite inapplicable to mineralogy or nosology. We shall venture, therefore, to pass over this without further remark, and proceed to the next part of the inquiry.

After having briefly and imperfectly touched on the principles of natural classification, and some of the modifications to which they must be submitted to be rendered applicable to other sciences, it still remains for us to show under what conditions these principles are applicable. M. Isidore G. St-Hilaire has saved us the trouble of answering this question; for in his recent work, *Histoire des Anomalies de l'Organisation*, he has laid down three propositions, under which he considers all the necessary conditions included. These the author has applied to monstrosities, with what success we do not inquire; but they are drawn up in such general and abstract terms, that, *mutatis mutandis*, they may be made available for any other science to which it may be desirable to apply them. We shall adopt them, then, without hesitation, prompted as well by the authority on which they are given, as by the persuasion, that any subject fulfilling these conditions is in every respect adapted to a natural classification.

" 1. Those pathological modifications of the dermatic tissue, really meriting the name of diseases of the skin, are subject to certain and precise laws.

2. They are not merely local affections, but are usually attended by certain modifications in other parts of the economy, the one appearing to be the cause of the other, or at least to possess some necessary connection.

3. The same disease of the skin occurs in many individuals; so that there exists not merely an analogy between them, but as positive a similarity, as between any two individuals of the same species in the animal or vegetable kingdom.*

" Toutes les fois que se trouvent réunies les conditions exprimées par les trois propositions que je viens de vous rappeler, une méthode naturelle est possible et utile; et les formes et les principes des classifications zoologiques et botaniques peuvent et doivent etre appliqués."

It remains for us then only to prove that these conditions are fulfilled by the diseases of the skin.

The required conditions fulfilled by the Diseases of the Skin. —That the diseases of the skin, in common with every other disease, obey certain and precise laws, however difficult it may sometimes be to determine these laws, no one who has studied pathological phenomena with attention will be inclined to deny. That exceptions to these laws are of more frequent occurrence than in the other sciences to which natural classification has been applied, we are inclined to admit; but we cannot help suspecting that many circumstances, considered as exceptions, should be rather attributed to the ignorance of the observer than the error of nature. Since the cultivation of morbid anatomy has effected so much for medical science, how rarely do we hear of those miraculous maladies which used to astonish and puzzle our forefathers? How simple and regular do the most extraordinary phenomena of disease appear when investi-

* Histoire Générale et Particulière des Anomalies de l'Organisation, par M. Isidore Geoffroy Saint-Hilaire, 1832, Paris, Tome i. p. 104. These propositions run thus in the original:—" 1. Les modifications organiques qui méritent réelement le nom de *monstruosités*, sont soumises à des lois certaines et précises. 2. Elles ne constituent pas des déviations purement locales, en ce sens que, chez les monstres, plusieurs anomalies sont ordinairement associées ensemble, l'une paraissant être la cause de l'autre, ou du moins leur existence étant liée d'une manière nécessaire. 3. La même monstruosité se reproduit ordinairement chez plusieurs individus, en sorte qu'il existe entre ceux-ci une analogie, et souvent même une ressemblance frappante, et qu'ils peuvent être considérés comme formés sur le méme type." It will be observed, that the third is the only one of these propositions in which we have, in any degree, altered the spirit of the original; and we have ventured to do so in that instance, because the diseases of the skin are fully adapted to this more restricted application, and because we have some doubts as to the propriety of classifying from analogy only. It must not be imagined, that, because we agree with the principle of these propositions, that we therefore agree with the author's application of them. Notwithstanding the elaborate, and, in many respects, excellent work of M. Isidore G. Saint-Hilaire, we still retain the opinion we formerly expressed on this subject; and later observations have only tended to confirm us in the same persuasion, that monsters cannot be arranged in a natural classification.—*Vide* Ed. Med. and Surg. Journal, Oct. 1831.

gated and explained by the scientific pathologist: how unnatural and incomprehensible is the commonest symptom when mystified by the imposing solemnity of the ignorant empiric? As knowledge advances, anomaly will decrease. Even now we know sufficient to establish the principle of regularity in disease. Who that has ever observed the active inflammation, the speedy suppuration, and the final reparation in a common *furunculus*: who that has watched the insidious attack of *carcinus*, its slow but certain course, and, if unchecked, its dreadful termination: who that has ever once seen the stages of *variola*,—its antecedent fever, its eruption on the fourth day, its maturation between the eighth and eleventh, its desiccation by the fourteenth (as Sydenham so accurately described it): who that has once observed these phenomena can deny that the diseases of the skin obey certain and fixed laws?

That the diseases of the skin are not merely local affections, is a circumstance of no less importance in their reduction to a natural arrangement. The point we need scarcely argue; the constitutional irritation which accompanies most of the *Eczemata*, the fever which precedes the *Exanthemata*, the morbid changes which give rise to the *Hæmatodes*, and the implication of the whole organization in the *Cancrodes*, the *Leprodes* and the *Aischrodes*, are proofs too striking to require further exemplification.

We must not, however, pass over this fact so slightly, in its application to the formation of a method in nosology, since the constitutional symptoms form some of the most constant and important characters. In the *Exanthemata*, the febrile movement which precedes the eruption may be said to form the essential characters of the group. In the *Aischrodes*, which are so naturally united, the cutaneous eruption assumes almost every form of which the tissue is capable; but the constitutional causes are the same; the constitutional effects liable to occur from mismanagement are the same; and, for all, the same principles of constitutional treatment appear to be applicable. To the man who despises all arrangement, if it be worth while to notice such an antagonist, this example might be adduced as a striking proof of the practical utility of a natural method.

The third and last proposition, that *the same diseases of the skin are repeated in many individuals*, seems equally capable of demonstration with either of the other two. It is possible that some men, who, by the constitution of their minds, appear incapacitated for the comprehension of relations and affinities, and whose sole attention is directed to minute and individual distinctions, might urge in opposition, that idiosyncrasies produce changes in the aspect of disease so considerable that the formation of species is impossible, and that of genera even doubtful.

In opposition to this, we refer to any candid botanist; and we would ask him, whether the varieties of climate, situation, soil, and cultivation, do not effect as striking and important modifications in the structure and form of vegetables, as idiosyncrasies in the characters of the diseases of the skin? How often is the tyro in botany misled by these varieties? Nay, the master himself may sometimes err. We must not be surprised, then, if the physician, who is much less accustomed to philosophical precision in his observations and deductions, should be equally liable to mistake. As the one may sometimes constitute a mountain specimen a new species, so will the other occasionally give different names to the same diseases as they occur in individuals of different constitutions, or as they are observed under different circumstances. These, however, are defects essential rather to classification itself than to the subject to which it may be applied.

Part III.—Classification as applied to the diseases of the skin.

Having now, we trust, said sufficient to prove the possibility and propriety of applying the principles of natural classification to the diseases of the skin, we shall proceed to compare the merits of the two methods as hitherto applied to this study. In speaking of artificial arrangement, we shall confine our observations entirely to that of Dr Willan; as we consider it by far the best, and the only one which can for a moment contest the palm with that of M. Alibert. As for those arrangements which divide these diseases into the chronic and acute, into those of the head and those of the body,—into those merely local and those depending on constitutional causes,—all these are equally faulty with that of Willan, as having regard to only one character, and far more so with respect to the selection of that character.

System of Willan. Character selected, and the objections to which it is obnoxious.—Plenck was the first to propose the division of diseases of the skin according to their external appearance; but to Willan the credit must be given of having reduced the system to a tangible and applicable form. Observing the various primitive forms of eruption to which the skin was liable,—remarking that it was one of the most prominent characters; that it admitted of great closeness of definition, and was easy of determination, requiring little previous knowledge for the application of it,—the English physician adopted this character, as Linnæus did that of the generative organs of plants, as the basis of his classification. His sole object seems to have been to furnish an index to cutaneous diseases; and he certainly effected this object, though imperfectly, to a far greater

extent than had ever been previously accomplished. Brought up in the Linnean school, Willan had probably no idea of the purposes of classification beyond the one he proposed to himself, and for this purpose it is impossible he could have chosen any character so well adapted for it as the one he has done; indeed it almost reminds one of the facility of the great naturalist himself; and it is not improbable that this happy selection of character may retain in use the artificial method in diseases of the skin, as it undoubtedly has done in botany, long after the principles on which it was founded have been shown to be erroneous.

Many, however, as are the advantages possessed by the primitive form of eruption as the character of a system, we cannot close our eyes to the fact, that it is in itself too imperfect and irregular to be safely depended on. We have already said, and we believe it will be generally admitted, that no other single character pervading the whole class is more constant than the one selected by Dr Willan. If, therefore, we can show that this character is inconstant and inessential, we shall prove, as a necessary consequence, the insufficiency of this or any other artificial system for the classification of cutaneous diseases.

In the *first* place, *the eruption may change its nature and character in the course of its developement.* The most common instance of this change, is that in which a vesicle, by the augmentation of the inflammation, rendering the base hard and thickened, secretes a white and opaque, instead of a clear and colourless fluid, and thus becomes a real pustule. This is so common an occurrence, that it must have been observed by, and probably at first perplexed, almost every follower of the English system. The *papula* is not more constant to its original form. Sometimes, though not very frequently, it secretes a small quantity of serum, and assumes the appearance of a vesicle; sometimes it changes its form for that of a scale; indeed Bateman expressly observes, that in the three first of Willan's species of *Lichen*, the papular form is often lost, and they "occasionally pass into *Psoriasis*;"* while in the fourth species, *Lichen Agrius*, it is considered a distinctive mark, that "it is liable to terminate in a chronic pustular disease, the *Impetigo*." The rash or diffuse inflammation of the skin will often, as seen in *Erysipelas*, exhibit large *Bullæ*, in consequence of the intensity of the inflammation; so frequently indeed does this

* A Practical Synopsis of Cutaneous Diseases, according to the arrangement of Dr Willan, by Thomas Bateman, 6th ed. 1824, p. 11 and 12. It may be as well to observe, that, in speaking of the arrangement of Willan, I always make use of his nomenclature; in all other cases that of M. Alibert is preferred.

happen, that it has induced Willan to place this disease among the *Bullæ*, though his followers, as MM. Biett, Rayer, and others have, and certainly more correctly, according to the principles of artificial classification, brought it under their order *Exanthemata*. The scale which Willan has considered a primary form of eruption, has been described by others as only a secondary formation; from what we have observed ourselves, we should say it occurred in both of these ways, and perhaps most frequently primarily, though certainly not exclusively so. The tubercle is a form of eruption but ill defined, and not yet very well understood. Some of the diseases considered tubercular by Willan, are now called pustular by many of his followers; so that the form, if not inconstant, is at least exceedingly variable in this order.

Having thus shown that the character of the eruption itself is by no means constant, since it is liable to change its appearance during the progress of its developement, we shall proceed to point out some instances in which it is inessential, and cannot be properly applied as a character of classification, since two or more forms of eruption are often observed at the same time, without producing any important modification in the nature of the disease. *Scabies* is the disease in which this circumstance is most frequently observed. I recollect a very well-marked case in the Royal Infirmary of Edinburgh, at the time I occupied the situation of clinical clerk under the late Dr Duncan, in which different parts of the body presented distinctly at the same time *Papulæ*, pustules, and vesicles. Bateman, in his synopsis, places *Scabies* among the pustules, but observes, "this troublesome disease, which, from its affinity with the three orders of eruptive diseases, pustules, vesicles, and papulæ, almost bids defiance to artificial classification, is not characterized in a few words." In the work of MM. Cazenave and Schedel, it is placed among the vesicles, while others arrange it as papular. From having frequently seen it in the hospitals both of Dublin and Edinburgh, where it abounds so plentifully, I must confess that, if obliged to follow an artificial system, I should prefer the latter arrangement; and the strong resemblance which *Scabies* bears to *Prurigo*, an undoubtedly papular affection, would appear to confirm the opinion.

The genera *Eczema* and *Impetigo* of Willan, though classed, the one as vesicular, and the other as pustular, so frequently present the two forms of eruption together, that it is in vain to attempt their distinction from this character alone. Bateman himself observes, that *Impetigo*, "like *Scabies* and *Eczema*, varies so much in its phenomena," that it is impossible to reduce it to a strictly artificial arrangement. These imperfec-

tions were by no means unknown to the framer of this system. Bateman speaks of them repeatedly, but does not consider them of sufficient importance to prevent the adoption of it; though they occur so frequently as to offer perpetual difficulties to those who rigidly adhere to it.

Another error into which I think Willan and his followers have fallen, is that of having classed *Variola* among the pustules. The peculiar eruption by which *Variola*, *Vaccinia*, and probably to a certain extent also *Varicella*, are distinguished, is well known to be multilocular, composed of many cells, like the capsules of some plants, and, throughout the whole of its history, as well as anatomy, present many characters by which it is clearly separated from the true pustule.* The vulgar, from whom the learned physician may often gather valuable information, have always in England distinguished this form of eruption by the term *pock*, and the diseases exhibiting it by the names small-pock, cow-pock, and chicken or swine-pock. Dr Macartney, in his "Arrangement of Diseases of the Skin, in Natural Orders and Genera," followed in his lectures in the University of Dublin, has formed an order *Varicodes*, or pocks, characterized by the *Varix* or pock, and including *Variola*, *Vaccinia*,

* The indefinite use of terms which has led to these errors cannot be too severely reprobated. Linnæus did more for botany from the accurate definition of the terms of the science than by any other means; and, had Willan done nothing more than lay down the meaning to be attached to the names expressing the primitive forms of eruption, he would still be considered one of the greatest benefactors dermatology has yet possessed. In the French school the abuse of the word *pustule* is still greater than with us. The "*Syphilide Pustulante*" seems to include every possible form of primary eruption; and the "*Pustule Muqueuse*," of which we hear so much, is still more indefinite; it is applied to any elevation of the skin which secretes a fluid. The use of this latter term seems to have arisen from a belief, not in the analogy merely, but in the absolute identity of dermatic tissue and mucous membrane, and the possibility of converting one into the other simply by a change of circumstances. The skin and mucous membrane may be said to hold the same relation to each other as plants do to animals. Where the two membranes approach each other, as at all the normal orifices, the nature of each is so modified, that it is impossible, as with the highest plants and lowest zoophytes, to say where the one ends and the other begins. But the mucous lining of the intestinal tube, with its naked surface, its mucous glands and follicles, its sensibility to certain stimuli, its peculiar powers of absorption and assimilation, its secretion of a fluid soluble in water, and its whole series of diseases, is as far from identical with the skin of the hands and arms, with its thick covering of epidermis, its shaggy coat of hair, its layer of membrane containing colouring matter, its delicate sense of touch, and its secretion of an oily sebaceous matter, as the higher orders of Mammalia from the lowest members of the vegetable series. A case recorded by Mr Earle sufficiently proves that exposure for no length of time will suffice to make true mucous membrane assume the appearance of skin. It is that of a case of congenital defect of the anterior parietes of the bladder and abdomen, where the posterior vesical surface is continuous with the skin of the abdomen, and is of course constantly exposed. The subject of this malformation, which, through the kindness of my friend Mr Ward, house-surgeon of St Bartholomews, I had lately an opportunity of examining, is now arriving at the age of puberty, but the mucous membrane still retains all its primitive and essential characters.—(*Vid. Lond. Med. and Surg. Journal, Feb.* 1832.)

and *Varicella*. These diseases, however, present so many important features in common with the rest of the *Exanthemata* of Alibert, that a separation from this character alone would scarcely be justifiable. The three diseases just mentioned, with the addition of the genus *Clavus*, (a disease of which we have never heard in England, and of which we believe our sheep to be quite free,) might not improperly be included in a subdivision of the natural group *Exanthemata*. But, to quit for a moment the critical part of this question, let us ask, how far does the system of Willan fulfil the intention of its author?—How far does it afford an easy and certain means of ascertaining the name of any of the objects it comprises? The experience of a tyro will furnish the best answer to the question. I commenced the study of diseases of the skin, a subject in which I was much interested, with the Synopsis of Bateman in my hands; yet, notwithstanding the attention bestowed on it, except in a particularly well-marked case, or one in which the disease was seen in its very commencement, I could rarely name it without the aid of more experienced eyes. Nor was my case singular; there are few students, of those who give themselves any trouble about the matter, that cannot complain of similar perplexities. Who is not aware of the many circumstances by which the original form of eruption may be destroyed, and its determination by this character rendered impracticable? Who has not been deceived by appearances, modified by constitutional peculiarities, previous treatment, friction of the clothes, scratching of the patient, the presence of filth, not to enumerate the varieties incidental to the form of eruption itself, or innumerable others, which, trifling as they may appear on paper, in practice it requires a well-accustomed and observant eye to detect?

Evils resulting from an Artificial Classification, as exemplified in that of Willan.—It now remains to be shown, that the classification of Dr Willan is not only imperfect in itself as a system, but that, from the manner in which the genera are arranged, the most important symptoms are often neglected and thrown into the shade, while trifling and unessential characters are brought prominently into view: that those diseases most strictly united are often the most widely separated; while those possessing no one essential character in common are placed in the closest proximity. These evils will be best shown by passing in review each separate order, and remarking on some of the most gross and prominent imperfections which each presents.

The first order of Willan is that of the *Papulæ*, including the genera *Strophulus*, *Lichen*, and *Prurigo*. The only inconvenience of much consequence here, is the separation of *Prurigo* at such a distance from *Scabies*, notwithstanding the many points of resemblance by which they approach each other.

The next order, the *Squamæ*, is not equally free from anomaly. *Ichthyosis*, in many, or rather in all, its important characters, as its complication of all the tissues of the skin, its hereditary descent, its congenital origin, its usual duration for life, the absence of constitutional disorder, and even in its external appearance, is very widely separated from the other genera of this order, as *Ptyriasis*, *Psoriasis*, or *Lepra*. On the other hand, there are some diseases in this system far removed from the *Squamæ*, which, in fact, possess such very near resemblances to them, as to be with the greatest difficulty distinguished from them in their latter stages; some forms, for instance, of the *Eczema*, *Impetigo*, and *Lichen* of Willan, most of which M. Alibert has included under his very extensive group, *Serpigines*. The next order, *Exanthemata*, is perhaps one of the very greatest importance, and one in which the artificial system is most glaringly defective. The first, second, and fourth genera, *Rubeola*, *Scarlatina*, and *Roseola*, possess important characters in common, as the antecedent fever, and the regular periods of eruption and termination, and would belong properly to this group in a natural arrangement. The third, however, *Urticaria*, is distinguished from them by the causes which produce it, by its irregularity of continuance, and its very trifling importance. To these diseases follow *Purpura*,—a very peculiar affection, far removed from all the others of this order; and appearing to depend rather on a morbid state of the blood, than on disease of the dermatic * tissue itself. In a very remarkable case which occurred in Edinburgh under the care of Dr Graham in 1830, and which proved very speedily fatal, precisely the same appearances were observed on several parts of the mucous membrane of the intestinal canal, and, if my memory does not deceive me, on some of the serous membranes also, as on various parts of the surface of the body. For this reason, Dr Macartney has excluded it altogether from his arrangement, as a disease not proper to the skin, nor at all modified by its location there. Willan closes this order with *Erythema*,—a disease possessing no character in common with the others, except a diffused superficial redness on the surface.

Great as are the sins of commission in the order *Exanthemata*, those of omission are still greater. They are, however, too manifest to need much illustration. We have but to cast our eye over the natural group of M. Alibert to be at once convinced of the injury inflicted by such arbitrary divisions as those imposed by Willan. To place *Variola* in one order, *Varicella*,

* I have adopted the word *Dermatic* (δέρμα, δέρματος,) from M. Alibert, in preference to the term *Dermoïd*, which was first introduced by Bichat, and properly signifies, *like the skin*.

Vaccinia, and *Miliaria*, * in a second, and *Rubeola*, *Scarlatina*, and others, in a third, is to separate what nature has most closely joined,—to break assunder the nearest ties of relationship, to disunite harmony itself.

The fourth order of Willan is that of the *Bullæ*, including *Erysipelas*, *Pemphigus*, and *Pompholyx*. The character which has been chosen to distinguish the first of these diseases is particularly unhappy, as it is only an accidental one, and has not the slightest influence on the progress or termination of the complaint. This, however, can scarcely be received as a fair objection to artificial arrangement, since it is placed, in its present situation, in direct opposition to the principles of the system, according to which it ought most undoubtedly to occupy a place among the *Exanthemata* of Willan. *Pemphigus* we need not notice, as Bateman himself considers the disease here described under that name as more than doubtful. *Pompholyx* may therefore be considered to stand next to *Erysipelas*; and, if the object had been to place those affections in juxtaposition, which in their essential character presented the greatest contrast, it would be difficult to conceive an arrangement by which the intention could be more perfectly accomplished; the one is characterized by severe diffused inflammation, attended with redness, tumour, and pain, preceded or accompanied by fever, and occasionally exhibiting *Bullæ*; the other by the "eruption of *Bullæ* appearing without any inflammation round them, and without fever." †

The order *Pustulæ* includes some of the most important of the cutaneous diseases, which unfortunately, from the confused manner in which they are here thrown together, are very difficult to study and justly appreciate. The first genus is *Impetigo*,—a disease which it would be difficult enough to recognize, were we to depend entirely on the form of the eruption, for it has generally lost its pustular form and acquired that of a scab, before we see it. When thus far advanced it ordinarily presents precisely the same appearance, goes through the same changes, requires the same mode of cure, is in fact at this period the same disease as the vesicular *Eczema*. The peculiar local affection produced on the hands and arms of certain persons subject to the frequent contact of irritating substances, as the gro-

* The *Miliaria* we refer to is not the trifling symptomatic disease spoken of by Bateman, but the *Miliaria* as formerly described by Hamilton, and as recently seen by Alibert, Rayer, and others, with its antecedent fever, its regular eruption and desquamation, with, in short, all the characters of an exanthematous disease. *Vide* Tractatus de Febre Miliari. D. Hamilton, Geneva, 1719. Monographie des Dermatoses, par Alibert, 1832, 4to. Histoire de l'Epidemie de Suette Miliaire dans le depart. de l'Oise en 1821, par Rayer. 8vo.

† Bateman, op. cit. p. 139.

cers, bricklayers, bakers, and, we may add, washerwomen, in whom we have seen the disease in a very obstinate form, is particularly remarked by Bateman as being impetiginous in some individuals, and eczematous in others. How arbitrary is the selection of a character so inconstant and so unimportant! In further illustration of the real similarity between these two affections, we may state, that we have remarked that the very same disease, which in our own country we have been accustomed to hear called *Impetigo*, receives in France, from the generality of those physicians who follow Willan's nomenclature, the title of *Eczema*.

The next genus in this order is *Porrigo*, under which are included all the *Tineæ* of former authors. In few of these is the appearance of pustules ever perceptible; and in many, later investigations have distinctly proved the original form of the disease to be exceedingly different, and, as far as we are aware, peculiar to the hairy scalp.* The age at which the *tineæ* occur, their ordinary spontaneous cure at puberty, certain constitutional states with which they seem to be connected, and the peculiar part of the surface which they commonly and naturally occupy, are characters which separate them very widely from the other affections with which they find themselves in juxtaposition in the arrangement of the English school.

Ecthyma, *Variola*, and *Scabies*, are the remaining diseases, classed by Willan in this order,—the first, a pustular eruption, generally symptomatic, and of itself scarcely needing the aid of medicine, is placed by the side of one of the most severe and most fatal of our constitutional affections; and this again, followed by a disease merely local, never dangerous, but perhaps one of the most disagreeable to which man is subject, furnish evident proofs of the evils of artificial classification when applied to diseases of the skin.

The most striking anomaly in the order *Vesiculæ*, is the presence of *Varicella*, *Vaccinia*, and *Miliaria*, in the same order with *Herpes*, *Rupia*, and *Eczema*. The two first, as we have already said, are characterized by the *Varix*, and not by either pustule or vesicle. *Varicella*, it is more than probable, at the least the opinion is supported by so high an authority as that of the present Professor of Pathology and Morbid Anatomy in the University of Edinburgh,† is no more than a species or variety of *Variola*; and if this be true, we have the monstrous

* "Cette maladie (*Favus* of Alibert: *Porrigo Lupinosa* of Willan) ne pustule point.—C'est une simple incrustation deprimée dans son centre, et qui prend justement la forme des canicules béans d'où filtre l'humeur sébacée."—Monog. des Dermatoses, Alibert, p. 274, and 309.

† Ed. Med. and Surg. Journal, October 1818.

anomaly of two species of the same genus placed in different orders. It may be observed also, that other systematists have here, as in other instances, been so forciby struck by the power of natural affinities, that, unable to resist them, they have placed *Vaccinia* by the side of *Variola*, neglecting, they confess, the strict observance of the arbitrary character.*

In the order tubercles, Willan seems to have united a number of diseases which he found it difficult to place in any other of his divisions. Many of them have since been found to commence in other forms of eruption, (*Acne*, *Sycosis*, *&c.*) and should of course be placed in other parts of the system; but it shows how injurious must be the tendency of artificial classification, when it could induce a man like Willan, from a supposed resemblance in one unimportant character, to place in opposition the *Furunculus* and the *Elephantiasis*, the *Lupus* and the common wart,—diseases as dissimilar as it is possible for the imagination to picture.

We shall not notice the last order *Maculæ*, except to observe, that it is composed of affections differing as widely in their external characters, as in their anatomical structure.

The foregoing remarks on the classification of Dr Willan, we have almost entirely confined to the form under which it was published by Dr Bateman. We must not forget to mention, however, that in other hands it has been modified, and in some respects improved. As far as we are aware, the only alteration of any great importance made in the recent English editions of the work, is the formation of an order of syphilitic eruptions, which are grouped according to their natural relations, and are of course in direct opposition to the principles on which the system is founded.†

In France the system of Willan has been followed by M. Biett of the hospital St Louis, and after him by M. Rayer‡ and by MM. Cazenave and Schedel,§ as well as by many others. We have not space to enter into a full examination of the works of these authors, nor indeed do they appear to demand it. In the two thick volumes of M. Rayer, we have certainly several improvements in the arrangement of the genera, (we must except, however, the translation of Zona from the vesicles to the

* Traité des Maladies de la Peau, Rayer, 1826, T. i. p. 340, and Abrége pratique des Maladies de la Peau, MM. Cazenave et Schedel, 1828, p. 178.

† Atlas of Delineations of Cutaneous Diseases. By A. T. Thomson, Prof. in the London University. London 1829, 4to.

‡ Traité Theorique et Pratique des Maladies de la peau, par P. Rayer, in 2 vols. 8vo, Paris, 1826.

§ Abrégé Pratiques des Maladies de la peau d'apres les documens puisés dans la clinique de M. Le Docteur Biett, par MM. Cazenave and Schedel, in 8vo, Paris, 1828.

Bullæ) and many of the anomalies above-mentioned are therefore avoided; but to effect this object, the author has destroyed the simplicity of the English system, for he has rendered it secondary to a kind of natural classification into sections and chapters. The first chapter of the first section includes the inflammations of the skin, under which head are placed all the primitive forms of Willan, except the *Maculæ*, with the addition of four others, the *Furonculeuses*, the *Linéares*, the *Gangreneuses*, and the *Multiformes*. The other five chapters of this section are occupied by congestions and hæmorrhagies, *neuralgia*, alterations of colour, morbid secretions, and "*Vices de conformation*," including many affections of little or no importance; and others, as *Cyanosis*, *Icterus*, *Leucorrhœa*, *&c.* which are dependant on organic changes in other parts of the body, and in which the cutaneous symptom is only secondary and unessential. The other three sections include diseases of the hair and nails, parasitic animals, *Elephantiasis Arabum*, and other affections not considered properly cutaneous.

In the modest and unpretending work of MM. Cazenave and Schedel, the systematic arrangement of Willan is much more strictly adhered to, the disposition of the genera is amended, and the classification very properly restricted to the diseases justly called cutaneous. As for those affections which cannot be fairly reduced to any one of Willan's orders, as *Lupus*, *Purpura*, and the *Syphilides*, these authors have very judiciously set them aside, and might fairly have called them an order of *Heteromorphes*.

Notwithstanding all these modifications and improvements, the system of Willan still remains, and must ever remain,—imperfect; for the character on which it is founded is neither constant nor essential.

Method of M. Alibert; Objections to, considered.—It is an old observation, and not more trite than true, that it is much easier to play the critic than the author,—that it is a much simpler task to find out faults in an old system, than to form a new and a better one. The science of Dermatology, if we venture to elevate it to this rank, has been fortunate enough to find one capable and willing to execute this more difficult undertaking. M. Le Baron Alibert, occupying a situation perhaps the most favourable ever filled by any medical man for the observation of cutaneous diseases,—physician to a hospital dedicated to these affections in one of the largest cities of Europe, where are congregated individuals from every corner of the globe, furnished with the most expensive and invaluable means for their cure:*—Commanding all these advantages, and uniting

* It is to the baths we especially allude, of which the hospital St Louis contains

to them that zeal and devotion to the cause, without which nothing great can ever be accomplished,—M. Alibert has more than fulfilled the just expectations which the profession could have formed, even from such unexampled opportunities. Inspired by the success which attended the efforts of his great countrymen, Jussieu and Cuvier, to reduce natural history to a classification drawn from the sum of the affinities and relations, the celebrated physician of St Louis has essayed the application of the same principles to the arrangement of diseases of the skin. Collecting together those genera which offered the greatest number of resemblances, he formed them into natural groups, under twelve of which he has been able to include all the diseases to which the dermatic tissue is subject.

It would be impossible, in the short space of time allotted for this essay, to examine with accuracy each of these groups in detail. We could not undertake to criticise all the circumstances in which they might be thought defective, or to point out the many instances in which their excellencies are observable. Nothing but its actual employment and attentive study will show how beautifully it generally follows the course of nature herself,—how it joins together those diseases which offer the most natural resemblances,—how it separates those which approach each other by trifling and incidental characters,—how, by the position of intermediate genera, it softens down the features of one group, till it harmonizes with those which surround it,—it requires the eloquence of its author himself to do justice to its merit in these respects; and nothing less than his practical skill can properly indicate all its peculiar advantages.

It may easily be supposed, that before this great object, the establishment of natural groups could be accomplished, much previous labour must have been gone through. The determination of species and their separation from mere varieties,—the establishment of new genera and the correction of the old,—the reformation of the nomenclature and appropriation of significant terms, were all required before this could be attained.

In what manner, and to what extent, the author has succeeded in this attempt, we cannot pretend to discuss at any length. To examine each genus and species, and the grounds of their union and separation would be labour of months; for this we must refer to the work itself. To supply, in some degree, this deficiency, I have added a Supplement, from which the English reader may be able to form some opinion of the natural method.

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a large number of every possible kind. Some idea may be formed of the importance of such an agent, and the extent to which it is employed, when we state that in 1822 the number of baths administered to the out-patients of St Louis amounted to 127,752.

In the nomenclature, M. Alibert has differed in many respects from that of Willan, and we think generally with reason. In the first work * of M. Alibert, few but the vulgar names were applied to the diseases figured and described; the object was then only the establishment of species and genera, but those now used are, wherever it was possible, derived immediately from the Greek or Latin authorities. We do not pretend to so much critical knowledge of the fathers of medicine, as would enable us to say, whether the English or French master has most closely adhered to the original application of the terms employed; but we can say that M. Alibert has been particularly happy in appropriating names strikingly expressive of some prominent character of the disease, and therefore probably correspondent to their primitive acceptation. We feel assured, that the restoration of the word *lepra* to a group of diseases approaching at least more than any others of which we at present know, to that described by the Jewish writers, will be hailed as a boon as well by the biblical critic and the man of letters, as by the scientific physician.

We shall now proceed to notice some of the objections which may be urged to the application of a natural method to diseases of the skin, and examine the justice of some of the strictures we have already heard expressed on that of M. Alibert.

The most serious objection, and that most commonly urged to natural classification, in relation to diseases, that it is inapplicable, we shall take for granted that we have already overturned in the former part of this essay, at least in as far as it relates to that part of the subject now at issue. The objection which appears to us most weighty, is, the difficulty which a natural method presents to the beginner in his search for the name of a disease. Were dermatology a science of as great extent as botany, we should allow that this was a capital objection to the adoption of a natural method, as a means of acquiring the first rudiments of knowledge, supposing the student to be quite unaided in the attempt; since it would be impossible to form, as Jussieu has done in botany, a system which should be in harmony with the method. The reason of this is evident, the characters of most importance are not universal; the *Eczemata* are characterized by acute inflammation, pain, and consecutive fever, the *Dyschromata* by a simple change in the colouring matter of the skin, without pain or other symptom. A system, therefore, derived from one character could never harmonize with a method drawn from the sum of the whole. Fortunately, however, our subject is not so extensive as to demand such as-

* Description des Maladies de la Peau. Paris, in folio, 1806.

sistance. The *Dermatodes*, although taken by M. Alibert in the most comprehensive sense, and including every disease which at any time effects any important modification in the dermatic tissue, wherever it may commence or terminate,—taken even in this extended view, have been comprised in twelve groups, and about fifty genera. Were it necessary to read over the characteristics of each group, therefore, before the name or situation of a disease could be ascertained, the labour would not be very great. This inconvenience might be still farther diminished, and we trust will be ere long, by the formation of a synoptical table, containing the essential and distinguishing characters of each group, followed by the genera arranged in similar order, by which means the eye would rapidly seize the relations of the subject, and the determination of the group and genus would be found so easy and simple as to obviate any difficulty the beginner might find in his first attempt to employ this method in practice. To those who already know anything of the subject it would be unnecessary ; for an arrangement derived from the most essential and constant characters must always be to them the most easy of application.

We have lately heard another objection : that in M. Alibert's method there are no bounds to the formation of orders or groups ; that there is no reason why twenty should not be formed as well as twelve. From one acquainted with the true principles of natural classification this objection will only excite a smile; for he must know that precisely the same objection would apply to the method in botany or zoology ; yet in both these sciences has it been applied with the greatest success. A group is formed on the same principle as a natural family, from a number of genera which possess in common at least one constant and important character, besides presenting certain general resemblances which render each more like every genus of the same family than any genus of any other family ; in short, a general family likeness must prevail throughout the whole. The formation of natural groups therefore is not arbitrary. I do not say that the groups, as laid down by M. Alibert, are as yet all well established ; it is scarcely possible that they should all be permanently fixed in the first essay ; but when the principles on which they are determined are once well settled, it is only under peculiar circumstances that change can be required. This may happen, for instance, with respect to such genera, as, from their possessing little or no affinity with any others, have been grouped apart under the term *Heteromorphea*. Should further investigation lay open affinities between them and other well known affections, of course the two would be united ; or should more extensive observation make us acquainted with other dis-

eases of a somewhat similar nature to any of these, a new group would then undoubtedly be founded, in which all such would be included.

Such are as yet the only objections we have heard against the method of M. Alibert, and we cannot consider them of sufficient weight to overbalance its many advantages. We do not enter into the question of the formation of the genera, on which probably different opinions will be entertained; because we feel ourselves unequal to a task of such difficulty and importance, and also, because it is not necessarily connected with the determination of the present question, the application of the principles of natural classification to diseases of the skin.

Advantages resulting from the application of a Natural Method to Diseases of the Skin.—But what advantages can accrue from the use of the natural method? On its very surface rests this important advantage, that the more attention we devote to its improvement, the more we increase our knowledge of the subject. To effect this purpose every disease must be studied under all its various forms and modifications; its important characters must be noted, and separated from those which are no-ways essential to the disease; those which are constant must be distinguished from such as owe their origin only to incidental circumstances; in short, the assemblage must be studied in all its details. In a system, on the contrary, the more we dedicate our attention to its perfection the more we close our eyes to the real nature of the subject; we look to one, often trifling, character, to the exclusion of the many and important ones.

Another great advantage derivable from a natural method is, that by means of it we acquire real knowledge of a subject much more easily and certainly. The physician does not desire to know the name merely of any new disease which may present itself; this is only useful as it enables him to acquire information concerning it. He wants to know its origin, its cause, its seat, its general history, its probable consequences, that he may arrive at the great object of his labour,—the establishment of a safe and rational mode of cure. A great part of this information is at once furnished by the mere knowledge of the situation which a disease occupies in a natural arrangement. If we are told that a disease belongs to the *Cancrodes* or *Leprodes*, how immediately do we appreciate its danger, its obstinacy, its probable termination! If to the *Aischrodes*, how quickly does this information reveal its cause, its progress, the general principles of its treatment! If to the *Exanthemata*, how plainly are the leading characteristics of its history laid open before us! The first act of the mind after the observation of a new fact, is

its comparison with such others as are already known, and which most nearly resemble it. By this process, the points of similarity are at once indicated, and most of the circumstances connected with it made known. A little more attention indicates the characters by which it is distinguished from its neighbours, and our knowledge is completed. It is precisely in this natural and easy course, that we are led by the employment of a method, to the knowledge of the subject we have in view.

In studying from a natural method, there is no longer any danger that we shall become learned in words, while we remain ignorant of things. In seeking the one we must necessarily acquire the other; for to obtain the name of a disease, we must study the subject in all its various relations, and under every point of view.

The great importance of this knowledge of disease, under various points of view, to which the employment of a natural method necessarily conducts us, will be readily conceived, if we consider how very rarely we see a case in its commencement, —how often in diseases of the skin the primary form of eruption is already passed,—and how difficult, therefore, their recognition must be, if we are not acquainted with every change of form which they are liable to assume. The cicatrix itself ought to be sufficient in many cases to declare the affection which has preceded it; and we may observe, that this sign is one which should be attended to from its practical utility. To recognize the cicatrix of true *varicella*, to quote a familiar example, is a point of attention with every physician. The cicatrices of *Syphilis serpiginosa* are no less evidently marked, nor less important to be known, as they at once inform us that the constitution of the patient has been injured by an attack of *syphilis* in one of its worst forms. Instances might be multiplied, but these must suffice.

By the employment of this new method, circumstances of importance, which might otherwise be passed over, are brought into view, and relations otherwise unnoticed are distinctly revealed. "Les genres étant groupés entre eux, suivant leurs affinités naturelles, une multitude de rapports, jusqu'alors inaperçus, se révèlent à nous; les faits tout éleves à toute leur valeur; des suppositions encore douteuses peuvent être jugées, et définitivement rejetées ou admises; une découverte, faite dans un genre, est facilement étendue aux genres voisins; et l'analogie dont il nous devient permis d'invoquer le secours, dirige, éclaire, féconde nos observations." *

Nor last or least, should be enumerated the reason which in-

* Histoire d'Anomalies, &c. 1. Geoffroy St-Hilaire, T. i. p. 101.

duced Sydenham so ardently to desire the adoption of methodical arrangement in diseases: "ut certa aliqua, et consummata undique ac fixa methodus medendi in publica commoda tradatur." * As the real knowledge of disease increases, the method of treatment will be proportionally improved. Instead of the employment of empirical remedies, general principles of practice will be established; and medicine, instead of ranking as a doubtful art, may hope to take her seat among the certain sciences.

With this short summary of the advantages likely to follow the adoption of methodical arrangement in diseases of the skin, we must close the essay: time and space alike forbid us to proceed. We do not, we repeat, wish it to be supposed, that we consider the method of M. Alibert as by any means perfect. The methods of Jussieu and Cuvier have already submitted to many modifications,—are daily undergoing more,—and will probably continue to receive still further improvements, as long as additions shall be made to our knowledge of the subjects of which they treat. To suppose that any one could succeed by his sole efforts in forming a perfect method for any science, when such men have only effected a beginning in those to which they have dedicated themselves, would be an absurd and fulsome compliment.

To M. Alibert, however, must be given all the credit of having drawn the plan,—laid the foundation,—and almost erected this beautiful structure; its completion can only be effected after much time, and by the aid of many hands. For this purpose, diseases of the skin must be studied on the principles of natural classification in other countries and among other men; the relative value of characters must be established; a more perfect knowledge of the circumstances which may deceive us in our determination of them must be attained; new species may be discovered; affinities hitherto concealed may thus be brought to light; the *heteromorphea*, finding relations of whose existence we are as yet ignorant, may be united in natural groups, and the work will then approach its completion. "Quamvis etiam numerosi in catenâ desint annuli procùl dispersi, plures habentur facilè connectendi in diversas catenæ partes quæ posthàc diverso tempore novis annulis intermediis junctæ, paucioribus sensim spatiis intervacantibus distinguentur." †

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* Opera Thomæ Sydenham, Genevæ, 1716, 4to, Præfatio, p. 10.

† Jussieu, Genera Plantarum secundum ordines Naturales disposita, Paris, 1789, p. xxxvi.

SUPPLEMENT.

SUPPLEMENT.

IN this supplement it is my intention to present the English reader with an outline of the natural method of arrangement to which M. Alibert has reduced the diseases of the skin. I am induced to adopt this course, as well in justice to myself and the author to whose tenets I have so freely expressed my adherence, as in the hopes of furnishing the reader with information which cannot as yet be obtained from any other source.

It is well known that some years ago (1806) M. Alibert commenced the publication of a work on cutaneous diseases, containing a series of the most splendid engravings, but deficient in arrangement and classical nomenclature. At this period the knowledge of diseases of the skin was at the lowest possible ebb in France. The Hospital of St Louis was a kind of lazaretto to which skin affections were sent, with other chronic diseases which were supposed to be of little interest, and almost beyond hope of cure. M. Alibert's first endeavour, on applying to the study of these diseases, was the determination of species, and, as far as possible, the formation of genera, leaving the classification and nomenclature to a later period, when these first points should have been fully settled. This was all that was attempted in M. Alibert's first work.

About the same time, or somewhat previously, Dr Willan began the publication of his well known work on the very opposite principles; he adopted and modified a system, and applied the diseases to it. It should have been observed that the labours of each were unknown to the other, for war had completely cut off the communication between France and the rest of Europe, especially England. The system of Willan, from its apparent simplicity and certainty, was generally adopted throughout England, and extensively on the Continent; while the work of M. Alibert, from the circumstances already mentioned, and from its costly form, was confined to comparatively few, some of whom, we may remark, have not failed to appropriate many of the admirable descriptions with which it teems, though they have forgotten to acknowledge whence they have derived them.

After having completed the establishment of the species, and their union in genera, M. Alibert commenced a reform in the nomenclature, and a general methodical arrangement. He first promulgated his method about four years since, in his clinical lectures,

but it was only last summer that he commenced its publication. * Of this work as yet only four numbers have appeared; and as it is to be on the same splendid scale as the former one, containing at least one folio engraving of every genus, some time must elapse before it can be completed, and still more before it can be generally known in England. To supply in some degree this deficiency, and to prevent the supposition that it is of M. Alibert's original classification and nomenclature of which we speak, this supplement has been drawn up.

In laying down the characters of the groups, we have endeavoured to follow, as far as possible, the author himself. But this has been no easy task; for the descriptions are often spread through ten or twelve quarto pages, and mixed with the history, origin, &c. of several of the genera they include. Should this part be considered faulty, therefore, I beg that it may be attributed to my imperfect comprehension of the author's intentions, or erroneous representation of his opinions. For the generic characters I am not answerable, as they are strict translations, except in some instances where some important circumstance seemed to have been omitted, and which I have ventured to add, always, however, in italics. In the first genus we have given each species with its definition, as a specimen of the manner in which the species are formed.

In the original the title of each group is either French, or reduced to the form of a French adjective. These we have altered to a form more analogous to our medical nomenclature, and, where necessary, have formed terms either from the Latin or Greek. This has been done under the inspection, and with the entire approbation, of the author himself. For convenience in reference, we add the list of names in both forms.

Eczémateuses, . .	Eczemata.
Exanthémateuses . .	Exanthemata.
Teigneuses, . .	Tineæ.
Dartreuses, . .	Serpigines. †
Cancéreuses, . .	Cancrodes.
Lépreuses, . . .	Leprodes.
Veroleuses, . . .	Aischrodes. ‡
Strumeuses, . .	Strumæ.
Scabieuses, . .	Psorodes. §
Hémateuses, . .	Hæmatodes.
Dyschromatéuses. . .	Dyschromata.
Hétéromorphes, . .	Heteromorphea.

* About the same time M. Daynac edited an edition in 4to and 8vo of the lectures of M. Alibert; but as they were supposed to interfere with the great work, their publication has been stopped, and a few presentation copies only are now in circulation. It is from the 4to edition of this work that we always quote.

† "Serpit per totum corpus."

‡ Aischrodes from αισχρος, à αισχος turpitudo, fœditas, obscenitas.

§ Psorodes, from ψωρωδης, à ψωρα, à ψαιρω, quia fricari solet.

Group I.—Eczemata.

The diseases included under the first group are characterized by acute inflammation of the skin, always accompanied by more or less pain, and generally by redness and swelling. These affections are mostly local in their origin, but the constitutional irritation produced by the eruption is often sufficient to induce secondary fever; they sometimes depend on constitutional disturbance; gastro-intestinal irritation is the most common cause. They occupy every part of the dermatic tissue, from the epidermis to the subjacent cellular membrane. The pain, the peculiar characteristic of the eczemata, may be burning, itching, tensive, pungent, gnawing, throbbing,—indeed words fail to express its innumerable shades and modifications.

Genus. I. Erythema. A disease which shows itself on one or more parts of the integument, by red, inflamed, circumscribed elevations; varying in extent, more or less superficial, and generally terminating in desquamation or slight furfuration (bran-like exfoliation) of the epidermis. Excoriations and even ulcerations of the skin sometimes occur.

Species I. *E. spontaneum.* This species is easily distinguished by the red colour of the skin, disappearing momentarily on pressure, and by the heat and smarting by which it is accompanied. It ends in resolution, with exfoliation of the epidermis. It is frequently attended by slight constitutional disturbance. Under this species, are included as varieties, the *Erythema papulatum, tuberculatum, nodosum,* &c. of Willan.

2. *E. epidemicum.* This erythema is principally marked by burning itching, and a very troublesome sensation of pricking in the hands and feet. In some cases the skin is red, as if it had been exposed to the heat of a fire; in others it is black, as if covered with a layer of soot. The epidermis exfoliates or forms vesications. The constitutional symptoms are unusually severe. This disease reigned epidemically in Paris in 1828.

3. *E. endemicum,* is a chronic affection of the skin, which especially attacks the peasants of the north of Italy, where it is commonly known under the name of *pellagra.* It generally commences about spring, after continued exposure to the heat of the sun, and terminates about the end of autumn. It begins with smarting or itching of the parts most exposed to the sun's rays, as the hands, feet and face; the skin becomes red, and desquamates about the 9th or 10th day. Small *bullæ* frequently form, which break and become dark scabs. It is very liable to return, and is sometimes attended with severe nervous and cerebral symptoms. There is a variety which is less dependent on the season, called *salsadine,* from the salt taste in the mouth, which the patient experiences in the morning on first awaking. Most of the sensations seem more or less vitiated in this form of the disease.

4. *E. intertrigo,* is that slight inflammation, sometimes with excoriation, which occurs especially between the thighs and about the external organs of generation. It generally arises, either from the chaf-

ing of the thighs in stout persons when walking, or from the contact of urine or *fæces* in children, or paralytic patients who are badly nursed.

5. *E. paratrimma.* This is a diffuse inflammation, arising from long continued pressure. Two varieties have been formed from the two situations it most commonly occupies. 1*st*, The *Paratrimma palmaria*, which affects the hands of certain classes of workmen, and, 2*d*, the *Paratrimma coccygia*, which is so often seen on the back, loins, &c. of bed-ridden invalids, and which so frequently terminates life by gangrene.

6. *E. pernio. (Chilblains.)* This disease affects chiefly the extremities, and is characterized by excessive itching and tingling pains, attended with redness, swelling, and sometimes ending in ulceration or even gangrene.

7. *E. per adustionem*, is that redness which follows immediately on the application of fire to a living body, and which tends to terminate in vesication and separation of the cuticle. The phenomena will, of course, vary in intensity, according to the nature of the substance from which the heat is derived, and the extent to which it is applied.

Genus II. Erysipelas. This is an inflammation of the integument, occurring on all parts of the body, but especially on the face, arms, and thighs, with an eruption of a yellowish red colour, rarely of a deep red; this redness disappears momentarily on pressure. There is heat, with an itching, burning or throbbing pain, *often attended with large irregular vesications; tumefaction of the skin, generally extending to the subjacent cellular tissue;* and fever primary or secondary. The disease may terminate in *resolution*, desquamation, *suppuration, or gangrene.*

Species 1. *E. exquisitum;* 2. *E. phlegmonodes;* 3. *E. œdematodes.*

Genus III. Pemphix.—An inflammation manifesting itself on one or more parts of the integument, by bullæ or vesicles, irregular in size and form, sometimes bounded by a slightly inflamed margin. These bullæ or vesicles, which result from the rising of the epidermis, are filled with a transparent viscous serosity. In a few days they become flaccid and subside; in some cases they burst, and leave the papillary membrane exposed; fragments of the cuticle form on the surface a kind of eschar of a violet red, or black colour. Redness, vesication, and burning pain, are the elementary phenomena of this painful disease.

Species 1. *P. acutus.* 2. *P. diutinus* (*Pompholix diutinus*, Willan.) The first species, the *Pemphix acutus*, a febrile disease attended with an eruption of bullæ, and sometimes fatal in a very short time, appears to be the *Pemphigus* of Willan. Bateman, who had never seen this disease, questions the reality of its existence, but M. Alibert and others, have seen cases which place the matter beyond a doubt. Bateman, however, was right in saying, that there was no such disease as the *Pemphigus* of Cullen, *Typhus contagiosa, &c.* See Alibert, Gilibert, Rayer, and Cazenave and Schedel.

Genus IV. Zoster. (*Herpes zoster*, Willan.) An inflammation with eruption of agglomerate vesicles surrounded by a red, inflamed areola. The vesicles generally arrange themselves in the form of a girdle round one-half of the body, from the spine to the *linea alba*. They sometimes assume other situations, as the side of the neck, in the form of a cravat, or on the knee like a garter, on the posterior part of the trunk, or about the shoulders. The pain is burning and tingling; *sometimes shooting, apparently deep-seated, and so severe as to prevent all rest.* After some days, *generally about twelve,* the vesicles dry, and leave red spots on the skin, which eventually disappear.

Species 1. *Z. acutus*; 2. *Z. chronicus.*

Genus V. Phlyzacion (*Ecthyma*, Willan.) A vesiculo-pustular inflammation, commonly appearing on the thighs, arms, fore-arms, and often even in the interstices of the fingers, or on the backs of the hands. At first the skin inflames, reddens, and rises in a point; a large pustule soon forms, and fills with a sero-purulent fluid. When the pustule has gone through its several periods, it drys, and forms a brown scab, *sometimes of considerable size.*

Species 1. *P. acutum*; 2. *P. chronicum.* Under the second species, M. Alibert includes the *Phlyzacion scorbuticum* of some authors, the *Ecthyma cachecticum,* and the whole genus *Rupia* of Willan. The latter genus is variously classed by the followers of the artificial system. Bateman places it among the vesicles, and observes, that, but for a difference in the primitive form of the eruption, it might be included among the *Ecthymata*; while Rayer has classed it with the *Bullæ.*

Genus VI. Cnidosis. (*Urticaria,* Willan.) An inflammation which extends to one or more parts of the surface, and is marked by an eruption of patches, spots, blebs, or wheals, *more or less prominent, pale in the centre, surrounded by a slight blush of redness,* coming on spontaneously, *disappearing almost instantly, or remaining for an indefinite period,* and accompanied by severe itching, or *tingling like that produced by the sting of nettles.* It terminates by resolution, or passes off with slight desquamation.

Species 1. *C. acuta (febrilis)*; 2. *C. chronica.* M. Alibert in his definition of the genus, speaks of the eruption as "proéminentes, ou non proéminentes à sa surface;" but further on observes, "Le Cnidosis, soit aigu, soit chronique, donne toujours lieu à une éruption sensiblement et visiblement saillante au-dessus de la peau." I have followed the latter description. There are several varieties enumerated of the first species, as the *maculosa, tuberosa,* (red swellings, painful to the touch,) &c. &c.

Genus VII. Epinyctis. An inflammation of one or more parts of the integument, with eruption of a papular or pustular form, the accompanying symptoms of which, *(excessive smarting or itching)* commence or increase in the course of the night, and recede during the day. The parts usually covered suffer most severely, while in *Cnidosis* the very opposite selection is observed.

Species 1. *E. acuta*; 2. *E. chronica.* The existence of this

disease has been called in question by several modern authors. M. Alibert, however, cites two cases from his own observation, which, though differing considerably from the disease, to which some of the Roman medical writers have applied the name, possess characters which justly entitle them to this appellation.

Genus VIII. Olophlyctis. (*Herpes phlyctænodes, &c.* Willan.) An inflammation manifested by vesicles, collected into circumscribed patches, appearing on one or more parts of the integument. These vesicles, the bases of which are highly inflamed, fade quickly, and dry about the seventh day. They are followed by scabs or grey scales, which fall off and leave for some time a red skin beneath.

Species 1. *O. miliaris.* (*Herpes phlyctenodes,* Willan); 2. *O. volatica* (*Feu de dents ou feu volage des enfans.*) 3. *O. prolabialis.* (*Herpes labialis,* Willan;) 4. *O. progenialis,* (*Herpes præputialis,* Willan;) 5. *O. hydroica* (*Sudamina.*)

Genus IX. Ophlyctis, (*Aphthæ,* Willan.) A superficial inflammation of the mucous membrane, with the formation of vesicles of a white or ash-grey colour, generally occupying the lips, the interior of the mouth, the gums, the tongue, the roof of the palate, the tonsils, or the pharynx. These vesicles sometimes extend as far as the stomach, or even through the whole alimentary canal; they may spread also to the larynx, and down the bronchial tubes. This disease attacks children and adults; it occurs also in the old and debilitated; it is common among certain of our domestic animals. *Ophlyctides* may exist with or without fever; they may terminate by desquamation or by ulceration.

Species 1. *O. acuta;* 2. *O. chronica.*

Genus X. Pyrophlyctis.—An inflammation which shows itself generally by a vesicle on the surface, containing a purulent matter or an acrid sanies. It excites a pungent or tingling pain, and terminates in a scab or ulcer. This *phlyctæna* is almost always single; it is excessively rare to see many existing at the same time. *Pyrophlyctis* is reputed contagious.

Species 1. *P. sporadica* (*Pustule maligne*); 2. *P. endemica,* (*Bouton de Bagdad,—de Bassora,—d'Alep.*)

Genus XI. Carbunculus.—An inflamed swelling, circumscribed, round, hard, and resistent, which has its seat in the cellular tissue of the skin. It is at first of a livid red colour, it then becomes black in the centre, and finally, through its whole extent. It is surmounted by one or more lenticular vesicles. It is rapid in its progress, converting the soft parts into a brown or grey slough. *Probably* contagious. It occurs in domestic animals, as well as in man.

Species 1. *C. sporadicus;* 2. *C. endemicus;* 3. *C. symptomaticus.*—The *Carbunculus symptomaticus* frequently accompanies the plague and other pestilential diseases, but must not be confounded with the buboes which also occur in similar affections. These tumours, unlike the buboes, have no fixed seat; they are frequently observed on the face, arms, thighs, and other parts of the body.

Genus XII. Furunculus.—An inflammation characterized by a

hard, conical, and pyramidal tumour, with lancinating pain, of a dull red colour, varying in size from a juniper berry to a filbert or a pigeon's egg, terminating in suppuration, with the evacuation of a false membrane or slough. The suppurative matter may escape by one or more openings. In some cases the inflammation is slow; the symptoms are chronic and unattended by pain; the swelling softens, dries, and is covered with a slight scab, without the discharge of any membrane-like substance.

Species 1. *F. vulgaris;* 2. *F. vespajus;* 3. *F. panulatus;* 4. *F. atonicus.*

"It appears to me," observes M. Alibert, "a point of great importance to collect into one group those alterations of texture which are the primary results of an inflammatory state of the dermatic tissue. The separation of these affections from the *Exanthemata*, properly so called, is of the greatest utility." On this principle have the twelve preceding genera, possessing many positive, and perhaps even more negative characters in common, been grouped together, although they vary as widely as possible in the primitive form of the eruption. Several of these affections have been excluded by former writers on cutaneous diseases, because the subcutaneous cellular membrane is generally implicated; but this M. Alibert considers as a part of the dermatic tissue, and appertaining therefore by right to the dermatologist.

The word *Eczema* has been used throughout by our author in the generic definitions to express the state of inflammation; but I have thought it better to avoid the introduction of this term, as it might be confounded in England with the disease to which Willan, very inaptly, has applied this word.

Group II.—Exanthemata.

The *Exanthemata* are characterized by eruptions of various kinds, preceded by fever of a fixed duration, which declines as the eruption appears. The eruption goes through certain regular periods, and occupies only a fixed time, when it gradually recedes and ends by desquamation. It is frequently followed by a second accession of fever. These diseases generally occur only once, and are especially observed in the earlier periods of life. The eruption, which prevails more or less over the whole body, is mostly marked by redness and swelling; but there is not, as in the last group, the pain of inflammation, though the surface is often tender and irritable.

Genus I. Variola. An acute febrile contagious *exanthema*, characterized by phlegmonous pustules on the surface, which appear between the third and fifth day from the commencement of the fever; then fill with purulent matter, become depressed in the centre and dry into scabs, which eventually fall off, leaving after them spots, depressions, or cicatrices of various depth and durability. This disease usually occurs only once during life.

Species 1. *V. discreta;* 2. *V. confluens;* 3. *V. mitigata.* Several varieties may exist in the character of the pustules or *varices.* They may be, 1. *crystallinæ*, filled with serum only; 2. *siliquosæ*, flaccid and nearly empty; 3. *verrucosæ*, hard and slowly suppurating;

4. *tuberculosæ*, as seen among the Negroes of Africa and America; 5. *gangrenosæ*; 6. *roseæ*, when the swelling and redness is so general that the pustules can scarcely be distinguished.

Genus II. Vaccina. A contagious exanthema characterized by large circular pustules, depressed in the centre, prominent at the circumference; surrounded by a red inflammed effloresence, containing a viscid fluid, which dries and becomes a scab. This scab turns brown, and falls off about the twenty-fifth day, leaving a large reticulated depressed cicatrix. *Vaccina* can only occur once in the same individual.

Species 1. *V. genuina vel regularis*; 2. *V. abnormis.*

Genus III. Clavus. A febrile exanthema, peculiar to sheep; excessively contagious; characterized by flat circular pustules, which are compared to nail-heads. The pustules, more or less abundant, are chiefly observed on those parts of the skin least covered with wool, as the inner side of the shoulders and legs, about the mammæ and tail, &c. Like *variola* and *vaccina*, this disease only attacks once during life.

Species 1. *C. discretus*; 2. *C. confluens*; 3. *C. abnormis.*—This disease, which on the Continent is often fatal to whole flocks, appears to be quite unknown in England. In the midland counties, those best acquainted with such subjects assure me, that they are ignorant of the existence of any disease of this nature, nor can I find any mention of it in works dedicated to the diseases of sheep. It has been fully proved by experiments conducted in the veterinary school of Alfort, that *clavus* can be propagated by inoculation (*clavélisation*,) and that this operation prevents the recurrence of the disease.

Genus IV. Varicella. A contagious but not severe exanthema, preceded by slight fever, characterized by an eruption of vesicles or pustles, somewhat analogous to those of *variola*. The vesicles or pustules are sometimes distant, sometimes collected together; they are surrounded by a red areola, and generally terminate about the fifth or seventh day, with a slight furfuraceous desquamation, which rarely leaves any cicatrix. The disease occurs only once during life.

Species 1. *V. vesicularis*; 2. *V. pustularis.*

Genus V. Nirlus. (*Nirles*, of Scotland.) An exanthema characterized by distinct, prominent papulæ of a dull red colour, appearing after an ephemeral fever, never suppurating, but terminating by absorption, or occasionally by desquamation.

Species 1. *N. idiopathicus*; 2. *N. symptomaticus.*

Genus VI. Roseola, a fugitive exanthema, which manifests itself spontaneously in one or more parts of the surface, by spots of a rose-red colour, appearing and disappearing in the course of four-and-twenty hours. It is almost always preceded by a slight febrile paroxysm; sometimes there is complete apyrexia.

Species 1. *R. idiopathica*; 2. *R. symptomatica.*

Genus VII. Rubeola, an acute febrile exanthema, contagious, marked by an eruption of spots of a bright red colour, afterwards

becoming darker, *commencing on the face, and thence spreading gradually over the trunk and extremities*, and terminating by furfuraceous desquamation. The disease commences with frequent sneezing, a dry and hoarse cough, lacrymation, and redness of the eyes. It occurs but once during life.

Species 1. *R. regularis ;* 2. *R. abnormis.*—Under the second species may be ranked as varieties, 1. the *adynamica* of Watson ; 2. the *maligna* of Morton ; 3. the *scorbutica* of Hoffmann ; 4. the *nigra* of Willan ; 5. the *sine catarrho* of the same author, which Alibert is inclined to consider rather as a variety of Roseola ; 6. the *dysenterica*, as observed at St Louis ; 7. with inflammation of the brain ; 8. the *comatosa* of Heberden, and several others.

Genus VIII. Scarlatina.—An acute febrile and contagious exanthema, characterized by small red spots or large patches of a scarlet colour, often mixed with miliary vesicles. The eruption commences on the face, and, passing from thence to the neck, spreads over the rest of the body ; it is accompanied by redness and pain of the throat, and terminates, after some days, by desquamation of the epidermis. It rarely attacks the same individual twice.

Species 1. *S. simplex vel genuina ;* 2. *S. anormis.*—The first species includes the *Scarlatina anginosa* of Willan, as Alibert considers the sore throat one of the regular and natural symptoms of the disease. Under the second are included all the varieties in which the disease does not go through its stages in a regular manner, from whatever cause the irregularity may arise. Thus we have 1. the *inflammata ;* 2. *gastrica ;* 3. *mucosa ;* 4. *adynamica ;* 5. *maligna ;* 6. *gangrenosa ;* 7. *parotidæa*, to which might be added a crowd of others. The *Scarlatina simplex* of Willan and Cullen, *(nulla comitante cynanche,)* should be enumerated also as a variety of the second species.

Genus IX. Miliaria.—An acute febrile exanthema, reputed contagious, characterized by an eruption of white or reddish vesicles of the size of a millet-seed, distinct, filled with a serous fluid of a white, red, or purplish colour, bursting the second or third day, and terminating in a scurfy powder.

Species 1. *M. genuina vel simplex ;* 2. *M. abnormis.*

It is scarcely possible to imagine a more beautifully natural family than the one we have just considered. We have not thought it necessary to introduce some peculiar pathological opinions, entertained by M. Alibert on the subject of these affections, ("une sorte de fermentation interne qui a pour but ultérieur la santé de l' homme,") as they do not in any degree affect the principle of the arrangement.

Group III.—Tineæ.

The *Tineæ* are characterized by the irritation in a greater or less degree of the hairy scalp, with a hyperemic state of its vessels, attended by itching, and a sort of tensive pain more or less violent as the disease is more or less deeply seated in the dermatic tissue. The proper seat of these affections is always the hairy scalp ; and it is only by a kind of *error loci* that they

and forms yellow incrustations or scabs, in appearance precisely resembling concrete honey, or the gum which exudes from certain trees.

Species 1. *M. flavescens*; 2. *M. chronica.*

Genus IV. Esthiomenos.—(*Lupus*, Willan.)—A disease most frequently characterized by a tuberculous inflammation, attended with itching, redness, and heat. The most remarkable phenomenon of the disease is its disposition to corrode *or ulcerate* the skin and subjacent tissues, either by confining itself to one spot, or by passing successively to different parts, in a creeping and tortuous course.

Species 1. *E. terebrans vel perforans*; 2. *E. ambulans vel serpiginosum.* The first species is generally confined to the face, and is particularly apt to attack the alæ of the nose. The second may invade any part of the body, and is often seen on the neck, breast, loins, and abdomen, as well as on the upper and lower extremities.

This group includes those diseases which in France are commonly known under the name of *Dartres*, and which were formerly known in England under a corruption of the same word, *Tetters*, though the term is now almost obsolete. Diseases, however, so common will have vulgar names, and the uninitiated have therefore called them *scurvy*, from the scurf or scale which is so often seen in this group. The would-be-wise doctor has again corrupted this simple term into *scorbutic affections*, and thus united them to a totally different disease; while Willan, to complete the confusion, called the most common form *lepra*, a name at which biblical history has taught us to tremble. It would not be difficult to show that this strange misnomenclature has had its effect in leading astray many of our brethren, among whom the persuasion of the hereditary descent, and the incurable nature, &c. of these complaints is far from rare.

The genus *Herpes* might at first sight be thought to include diseases of very different characters; since it comprises, in addition to the genera *pityriasis*, *psoriasis* and *lepra* of Willan, some forms even of *impetigo* and *eczema*; but if the opinion of M. Alibert be correct, that the disease commences with "minute serous vesicles," and that the formation of scales is only secondary, the arrangement is perfectly natural and correct. Bateman himself remarks, that *impetigo* in its advanced state is "daily mistaken for *psoriasis* or *lepra*;"—"but," he continues, "the scaly diseases emit no fluid, and the very existence of a discharge, however slight, is sufficient to determine the diagnosis of the eruption." We can ourselves speak with confidence to the error of this test, of which any one may convince himself, by wrapping in oiled silk, so as to prevent evaporation, any part affected with *psoriasis*, or frequently even by comparing the state of the exposed and covered parts of the same individual. Though not entirely agreeing with M. Alibert, that *herpes*, (*lepra* and *psoriasis*,) always commences with "vesicles," though we know that many others entertain the same opinion, (Dr Macartney, if we mistake not,) we feel assured, that it appears very

frequently in this form, without being in any respect changed in nature or character. If we might venture to propose any alteration in this group, it would be the transposition of *varus* and *melitagra*, as we think the latter is most nearly allied to *herpes*, and the former to *esthiomenos*.

Group V.—Cancrodes.

These diseases are characterized by their slow and insidious attack, by their induration, subsequent ulceration, and tedious duration; by their resistance to all internal remedies, and their disposition to return in the neighbouring or remote parts after removal by operation. The *cancrodes* are attended by consecutive fever, and mostly accompanied by very severe, deep-seated, lancinating pains. They are probably hereditary; never contagious.

Genus I. Carcinus.—A disease characterized by a small tumour, at first indolent, then accompanied by slight itching, which induces the patient to scratch it, and eventually by a severe pungent and lancinating pain. *Carcinus* generally attacks the most sensible and irritable parts of the skin.

Species. 1. *C. tuberculosus;* 2. *C. verrucosus* (Soot-wart, chimney-sweep's cancer;) 3. *C. melaneus (Anthracine;)* 4. *C. eburneus;* 5. *C. globosus;* 6. *C. medullaris.*

Genus II. Kelis. A cancerous affection, characterized by one excrescence, rarely by more than one, more or less prominent, hard, resistent under the finger when compressed; sometimes cylindrical, sometimes round or square, flattened in the centre, elevated at the edges, so as to form a border; the lateral parts project like roots implanted into the skin, sometimes resembling the cicatrix of a burn.

Species 1. *K. genuina;* 2 *K. spuria.*

M. Alibert has adopted the name *Carcinus* for those superficial carcinomatous affections which confine themselves to the skin and subcutaneous membrane, to distinguish them from *cancer*, as affecting the glands and other deep-seated tissues. The existence of the genus *kelis* has been denied; but our author has had repeated opportunities of seeing it, and establishing its identity.

Group VI.—Leprodes.

This group includes several important constitutional affections, manifesting themselves by local degenerations and morbid alterations of various forms, and generally attended by more or less diminution of the sensibility, or numbness of the parts affected. They attack insidiously, and almost insensibly; resist all known means of cure; are exceedingly chronic in duration, and rarely terminate but with life. The leprodes are frequently hereditary in origin, but seem particularly favoured by certain climates and situations, by bad food, sordid living, and mental depression. The dermatic tissue is affected through its whole thickness, and often morbidly hypertrophied. These diseases are not contagious.

GROUP VII.—AISCHRODES.

A group of exceedingly contagious diseases, frequently propagated by sexual intercourse, attacking by preference the face, head, and organs of generation. The cutaneous eruption is often preceded by a slight febrile attack. These diseases are slow in their progress, and are liable to affect secondarily almost every tissue in the body, especially the osseous. It seems probable, though it is not yet sufficiently well established to warrant us in considering it as a character of the group, that mercury possesses an almost specific power in all these affections.

GENUS I. SYPHILIS. A contagious disease, more or less rapidly contracted by impure contact, generally characterized externally by spots of a coppery-colour, by pustules, vegetations, excrescences, ulcerations, swellings, tumours, and imposthumes; internally by caries and deeply seated pains in the bones.

SPECIES. 1. *S. pustulans;* 2. *S. vegetans;* 3. *S. exulcerans.* —These three species include an immense number of varieties, some of which appear to us to possess sufficient importance to form separate species. The first, or *Syphilis pustulans,* contains twelve; we shall only give the names, as they are generally so well selected as to express with sufficient clearness the nature of the affection. 1. *Squamosa;* 2. *Crustacea;* 3. *Pemphigoides;* 4. *Lenticularis;* 5. *Racemiformis;* 6. *Cerasiformis;* 7. *Miliaris;* 8. *Urticata;* 9. *Serpiginosa;* 10. *Scabioides;* 11. *Varioloides;* 12. *Tuberculosa.*

The second species, *Syphilis vegetans,* contains six varieties; 1. *Frambœsia;* 2. *Cauliflora;* 3. *Crista-Galli;* 4, *Porriformis;* 5. *Verrucosa;* 6. *Condyloma.*

The third species, *Syphilis exulcerans,* has only three varieties; 1. *Serpiginosa;* 2. *Excavata;* 3. *Fissata.*

GENUS II. MYCOSIS. A *contagious* disease, characterized by fungous excrescences, which manifest themselves principally on the face, hairy scalp, and about the organs of generation. These excrescences, in form resembling the fruit of the mulberry or strawberry, give out a yellow, fetid, and viscous tumour; they occasionally form tumours of considerable size; sometimes they are attended by coryza, hoarseness, ulceration of the tonsils, pains of the bones, &c. &c.

SPECIES. 1. *M. frambesioides,* (*Frambœsia,* Willan;) 2. *M. fungoides,* (*Molluscum,* Willan, *Verole* of Amboyna, *Pian, Pocken,* &c. &c.;) 3. *M. Syphiloides,* (*le Mal de Fiume, Scherlievo, Sibbens,* of Scotland, *Fungine* of Ireland, &c. &c.)

There can be little doubt that there exists a certain analogy between *syphilis* and *mycosis,* which has been described under as many different names as the situation in which it has been observed; but how far this extends, future and more accurate observations must disclose. From the relative situation in which M. Alibert has placed these diseases, it will be much more easy to appreciate the affinities and relations by which they are allied to other affections.

Group VIII.—Strumæ.

These are chronic affections of the skin of various forms, generally with glandular swellings, which are apt to terminate in ulcerations, and are little affected by any known remedy. The *strumæ* are undoubtedly hereditary, and seem to depend on a certain constitutional diathesis, the nature of which is little understood, but which may show itself in every tissue of the body, and would seem to consist essentially in a disposition to deposit tuberculous matter.

Genus I. Scrofula. An affection which declares itself on one or more parts of the integument by the hypertrophy, induration, and prominence of the lymphatic glands; by the formation of spots, scales, tubercles, and pustules, followed by ulcerations, incrustations, hypertrophies, cellular vegetations of the skin, &c. These tumours or swellings, the result of a morbid change, as yet but little understood, have their special seat in the glands, as the parotid, submaxillary, sublingual, cervical, &c. The genus taken collectively presents itself under two opposite aspects; in the one, the patient has a florid colour, and the external appearance of a healthy and robust constitution; in the other, the face is thin and pale, the eyes dull, and the whole appearance that of wasting and decay.

Species. 1. *S. vulgaris vel sporadica;* 2. *S. endemica.*

Genus II. Farcimen. (Farcy or Glanders.) An affection peculiar to domestic animals, especially characterized by the developement of a greater or less number of small tumours, globular or oval, flattened or elongated, circumscribed, resistent, placed immediately under, or in the substance of, the skin, at first painful, but becoming indolent after some time.

Species. 1. *F. benignum;* 2. *F. malignum.*

From the observations of Dr Elliotson on farcy and glanders in the human subject, the opinion of M. Alibert, that the farcy in domestic animals performs exactly the same part as scrofula in the human subject,—would appear in some degree questionable. It seems pretty well proved that the disease is contagious, and may be communicated from animals to man, and again from man to animals, and that in man it has proved rapidly fatal, and been attended with symptoms quite foreign to any known form of scrofula; on the other hand, the deposition of "grey tubercles,"—the inflammation and swelling of the lymphatic glands and vessels,—the suppuration and peculiar appearance of the ulcers in the chronic farcy—are certainly favourable to the opinion of the scrofulous nature of the affection, and at least render the question worthy of further examination.

Group IX.—Psorodes.

These diseases are especially marked by a severe sense of itching, which, though not peculiar to the *psorodes*, is in them so much more constant and important a symptom than in any other of the Dermatodes, that it has been justly selected to cha-

racterize the group. The form of the eruption is various and uncertain, and is sometimes accompanied by the presence of *pediculi*. These diseases are almost peculiar to the filthy and ill-fed; they are little inclined to cure spontaneously, but, except in certain forms, yield readily to treatment.

Genus I. Scabies.—An eruption common to man and many domestic animals. This disease, in its true form, is eminently contagious; it is marked by vesicles, pointed at the top, wide at the base, generally distinct, yielding a fluid commonly serous, but sometimes purulent; especially characterized by violent itching. This disease attacks alike either sex, and every age; it extends over the whole body, *except the face*, but is most common about the interstices of the fingers, the inner surface of the wrists, the folds of the elbows and knees, under the axilla, on the lateral parts of the abdomen, on the thighs, &c.

Species. 1. *S. exquisita;* 2. *S. spuria;* 3. *S. pecorina.*

Genus II. Prurigo.—A non-contagious eruption, characterized by papulæ, occupying one or more parts of the integuments, varying in number and extent, sometimes red, but more frequently of the colour of the skin, *and often interspersed with small black scabs produced by scratching*. The appearance of these papulæ is always attended by an acute sensation of itching, which must be in this case regarded as a special and characteristic symptom.

Species. 1. *P. lichenoïdes vel furfurans;* 1. *P. formicans;* 3. *P. pedicularis;* 4. *P. latens.*

I am at a loss to conceive why M. Alibert should have placed this group in the situation it now occupies between the *strumæ* and *hæmatodes*, with which it does not appear to have the most distant affinity. I should be inclined rather to place it between the *Tineæ* and *Serpigines*, to which it appears much more naturally related.

Group X.—Hæmatodes.

This group is composed of a peculiar class of affections, characterized by discoloration of the skin, caused by an effusion of blood under the *epidermis*. On what this curious phenomenon may depend, is yet a mystery; but it seems probable that it arises either from disease of the minute blood-vessels, or perhaps more likely from a morbid state of the vital fluid itself.

Genus I. Peliosis.—(*Purpura*, Willan.)—An affection characterized by spots of a red, purple, or livid colour, occasionally of a very considerable size, sometimes but small, arising from the effusion of blood between the cuticle and true skin, and accompanied by hæmorrhagies which are excited by the slightest causes. These spots are sometimes distinct, sometimes in groups; they are rarely attended with fever.

Species 1. *P. vulgaris;* (*Purpura simplex*, Willan;) 2. *P. hæmorrhagica;* 3. *P. contusa.*

Genus II. Petechia.—An affection characterized by small spots scattered over the surface of the skin, generally of a red colour, though often livid, violet, or black; sometimes resembling flea-

bites, sometimes small freckles; with or without fever; remaining a longer or shorter period; varying much in size, sometimes forming an almost imperceptible point.

Species 1. *P. primaria vel idiopathica;* 2. *P. secundaria vel symptomatica.*

Group XI.—Dyschromata.

This group includes a number of rather curious than important affections, characterized solely by anomaly either of excess or defect of the colouring matter of the skin; they may be congenital or accidental.

Genus I. Pannus.—An affection characterized by one or more spots, disseminated or collected together in a greater or less quantity on the surface of the human skin, of which the form and colour are more or less anomalous.

Species 1. *P. lenticularis,* (Freckles); 2. *P. hepaticus*; 3. *P. melaneus*; 4. *P. carateus.*

Genus II. Achroma.—An affection characterized by white spots, quite different from the natural colour, generally oval, of various extent, sprinkled over the body like drops of rain. The power of sensation is frequently either partially or entirely lost in the affected parts. The decoloration is sometimes universal.

Species 1. *A. vitiligo*; 2. *A. congeniale.*

Group XII.—Heteromorphea.

Under this group are included a number of affections which appear to bear no definite relation to any other known diseases, nor to possess any affinity with each other, and which are therefore arranged together merely for the sake of convenience.

Genus I. Ichthyosis.—An affection which appears on one or more parts of the integument, in the form of scales, more or less hard and resistent, of a pearly or grey colour, imparting to the human body the appearance proper to the skin of fish or serpents. The *epidermis* often assumes a horny consistence.

Species 1. *I. nitida*; 2. *I. serpentina*; 3. *I. cornea.*

Genus II. Tylosis. (Corns.)—An affection characterized by dry, hard, lamellated callosities, moveable or fixed, formed in the cellular layer of the skin, mostly occurring about the sole of the foot and on the toes. They are almost always brought on by the pressure of tight shoes, which pressure, if continued for any length of time, inflames the skin, and renders it exceedingly painful.

Species 1. *T. gomphosa*; 2. *T. indurata*; 3. *T. bulbosa.*

Genus III. Verruca.—An affection characterized by sessile or pedunculated excrescences, sometimes moveable, sometimes fixed, and nearly of the natural colour of the skin. Their surface is hard, rugged, and almost indolent. This kind of vegetation is for the most part scarcely susceptible of inflammation.

Species 1. *V. vulgaris*; 2. *V. acrochordon.*

Genus IV. Onygosis.—An affection characterized by inflammation, with pain, redness, and swelling of the matrix of the nail, and malformation, induration, or other morbid change of the substance of the nail itself.

Species 1. *O. acuta*; 2. *O. chronica*; 3. *O. per incarnationem*; 4. *O. per fœdidatem.*

Genus V. Dermatolysis.—An affection characterized by an unnatural extension of the skin, arising from a peculiar change in the contractile power of this membrane.

Species 2. *D. palpebrarum*; 2. *D. faciei*; 3. *D. collaris*; 4. *D. abdominalis*; 5. *D. genitalium.*

Genus VI. Nævus.—A congenital affection, characterized by spots, most frequently solitary and scattered, by vesicles, cysts, warty or steatomatous excrescences, of an infinite variety of forms and colours.

This group is from its very nature imperfect. But though it may, and probably will, frequently undergo modifications and changes, these will in no degree affect the general principles on which the method is founded.

FINIS.

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ERRATA.

Page 3, *l.* 25, *for* partly *read* purely.
7, 8, *for* less inequalities *read* lesser inequalities.
7, 12, *for* interrupted *read* uninterrupted.
7, 24, *for* we have inquired *read* we have not inquired.
9, 5, *for* which they undergo *read* which they must undergo.
9, 32, *for* this *read* their.
10, 9, *for* which *read* while.
13, 29, *for* characters *read* character.
22, 14, *for* opposition *read* apposition.
23, 36, *for* if we venture *read* if we may venture.
28, 38, *for* tout *read* sont.