

Observations on the influence of habits and manners, national and domestic, upon the health and organization of the human race : and particularly on the effect of that influence as it relates to the present state of English females, in the higher and middle classes of life / [Ralph Palin].

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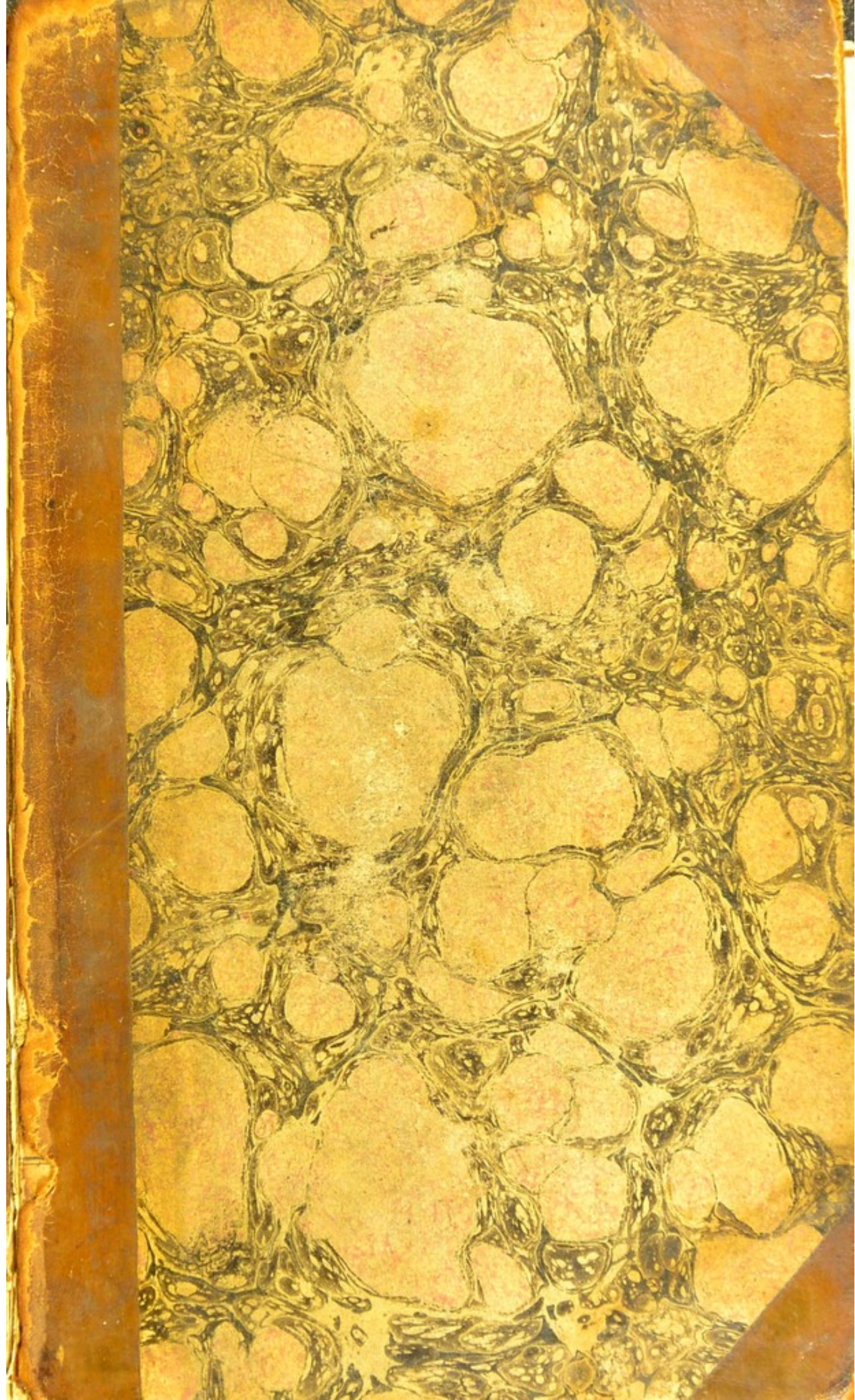
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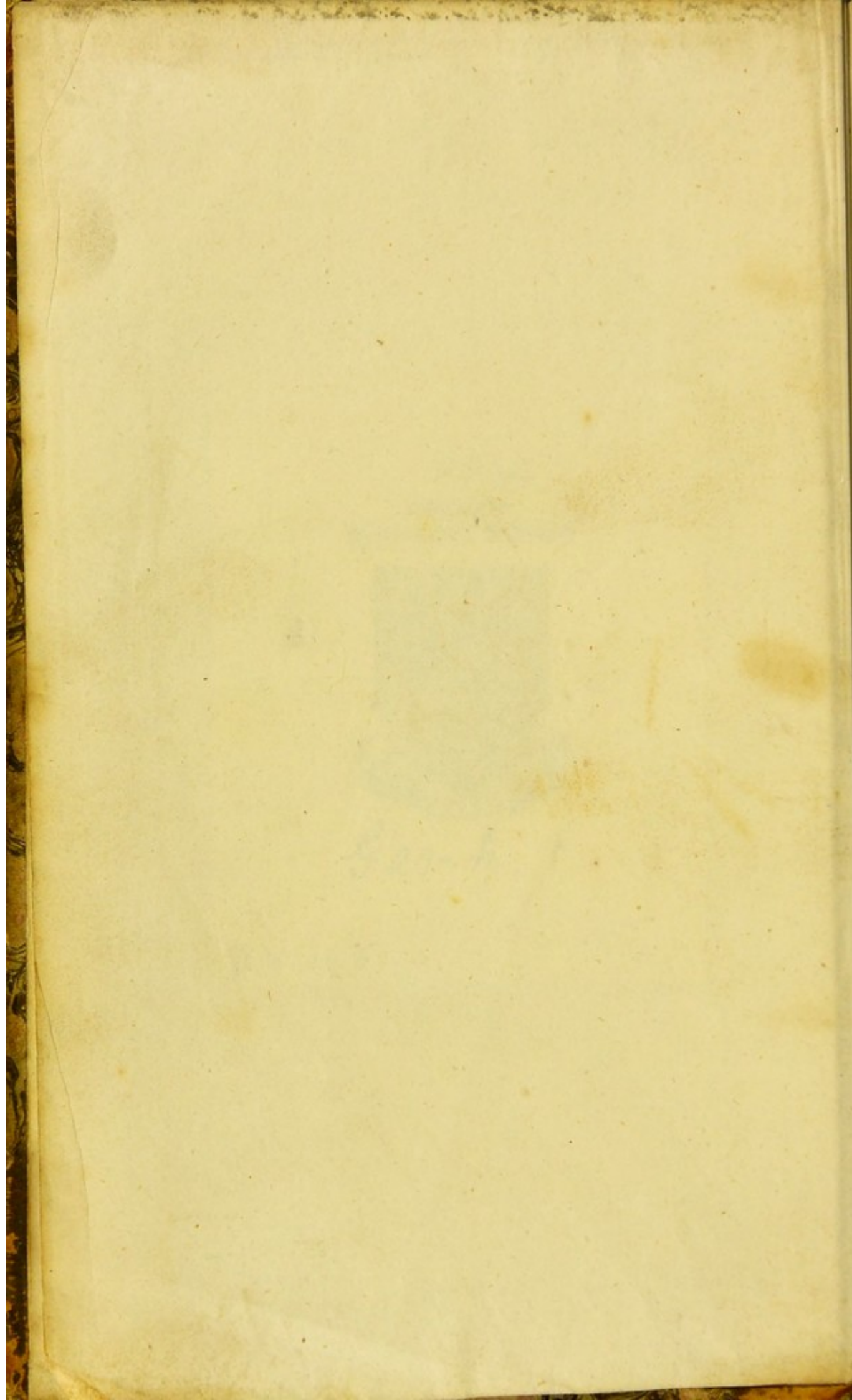
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OBSERVATIONS

ON THE

INFLUENCE OF HABITS AND MANNERS,

AND THE

HUMAN RACE,

BY J. G. B. B.

ORIENTATIONS

OF

THE HISTORY OF THE EAST

AND

THE WEST

BY

OBSERVATIONS

ON THE

INFLUENCE OF HABITS AND MANNERS,

UPON THE

HEALTH AND ORGANIZATION

OF THE

OBSERVATIONS

ON THE

INFLUENCE OF HABITS AND MANNERS,

UPON THE

HUMAN RACE,

&c. &c. &c.

ORIGIN AND

DEVELOPMENT OF THE

MODERN

HEALTH AND ORGANIZATION

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National and Domestic,
UPON THE
HEALTH AND ORGANIZATION
OF THE
HUMAN RACE:
AND PARTICULARLY
ON THE
EFFECT OF THAT INFLUENCE
AS IT
RELATES TO THE PRESENT STATE
OF
ENGLISH FEMALES,
IN THE
HIGHER AND MIDDLE CLASSES OF LIFE.

—•••—
BY RALPH PALIN, M. D.
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LONDON:

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OBSERVATIONS

ON THE

INFLUENCE OF HABITS AND MANNERS

ON THE

HEALTH AND ORGANIZATION

HUMAN RACE:

H. P. Silvester, Printer,
Newport.

PREFACE.



WE are called upon not unfrequently to make the observation, that the character and disposition of youth, particularly of female youth, depend more on the early impressions received from parents, than on any subsequent ones, which may be communicated by after-circumstances. And if this be the case in the moral, equally true is it in the physical order; so that the character of the constitution and temperament, will be found to depend much more on the management of the early period of life, than of any more advanced one. By the early period here is meant that progressive stage, which precedes the full developing of the system; and, according to the principles, which regulate the physical education, during this progress, the constitution will become

ameliorated, or otherwise; and the whole train of conservatory movements receive the impressions of strength or weakness.

From the various modifications, we observe taking place in the human race, under the different effects of climate, manners, and habits; and from the various operation of local circumstances, on the animal system; little doubt can be entertained, but that it might be possible, by means well conceived, and wisely adapted, to act so far upon the constitution, as to improve the particular nature of every individual. While general causes are always acting upon the temperament of nations, and produce impressions the most varied; particular ones operate not less certainly upon individuals; and hence the physical education becomes an object of importance, not only from its reference to the animal system, but to the moral constitution. It is from the effects of their mutual and reciprocal influence, that we should direct our particular attention to the relations, which exist between the state of the vital

stamina, and the social affections;—between the temperament of the body, and the feelings and dispositions of the mind; in order to render every improvement, in the physical nature of the human species, a step towards a relative degree of improvement in the moral order.

To develop the operation of those combinations of causes and effects, on the human economy, which are continually acting and reacting upon each other, so as to be able to anticipate their results, and adopt rules to meet each indication, by which utility and advantage shall follow to the system, may appear a difficult task; and it is rendered more difficult in proportion to the advance of civilization. But complicated as the human machine is, in its various parts, and complex as are the designs of nature, she is nevertheless simple in her means. For though so multiplied the human sympathies; though so delicate and extensive the sensibilities of an organization, possessing so much suppleness and mobility; and though the phenomena of life have such various

force; yet they all bear the same uniform relation to certain principles, which govern the movements of the system. These principles, as far as relates to the management of the animal economy, are few and easily understood. It is by them that is regulated the important task, which parents have to study in the early care of their offspring;—important certainly in every sense of the word, since the physical education, in the first stages of life, not only determines the character of the constitution and temperament, as the moral education does that of the mind; but embraces and involves all that chain of causes and effects, which unite both in a uniform correspondence and sympathy.

The following remarks form an attempt at the developing of those principles, before referred to, upon which so much depends, in that part of life, which may be said to be most eventful in respect to the future.—The subject which this little work comprehends, may be said to divide itself into three parts; and perhaps it would have been

a more perspicuous way of treating it, if such division had been introduced into the body of the work.

The two first chapters, which might form the first part, relate to the influence of climate upon the human system, connected with those impressions, which attach to it, from the action of the great phenomena of nature upon the peculiar phenomena of life; and with those modifications which it produces, under different circumstances, in the female constitution.

The five subsequent chapters, which might be termed the second part, refer to the influence of artificial habits, as they are diversified by the effects of climate, upon the animal system; and to the modifications, we have it in our power to make, according as the principles just mentioned shall direct our management of early life; for artificial manners and habits may have opposite effects, from the manner in which they are regu-

lated; they may support the best views and designs of nature, or they may frustrate them.

The eighth chapter, which might form the third part, refers to the consequences, which, under our climate, often follow, in the female constitution; when the principles, which ought to form the guide of their physical education, give place to others which produce opposite effects.

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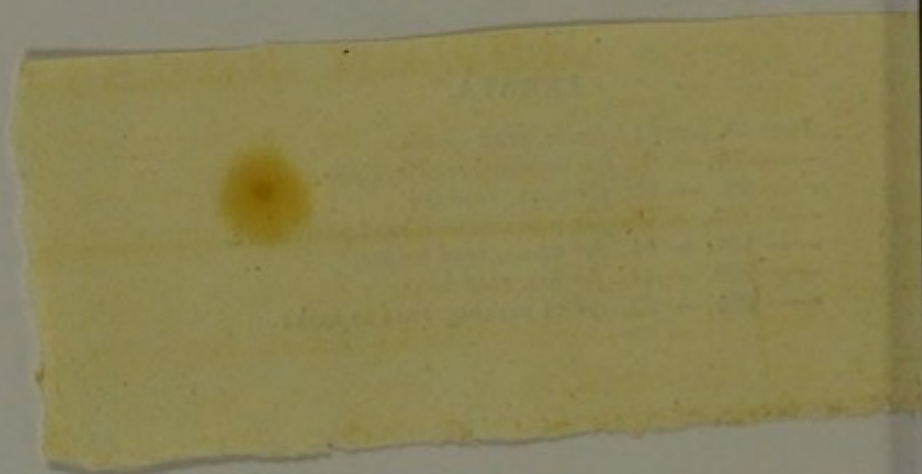
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ERRATA.

- Page 48, line ²⁶21, *for as, read which.*
— 75, — 7, *for hygeine, read hygiene;*
— 92, — 15, *for early, read the.*
— 137, — 15, *for preventative, read preventive.*
— 191, — 14, *for upon, read under.*
— 260, — 11, *for has, read have.*
— 295, — 25, *for of making, read to make.*



OBSERVATIONS
ON THE
INFLUENCE OF HABITS AND MANNERS,
National and Domestic,
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CHAPTER I.

Of the physical and moral impressions, produced upon the human system,
by habits and manners, under the different circumstances connected
with the progress of civilization and the influence of climate.

SECTION I.

Of the susceptibility communicated, in the progress of national improvement, to the impressions of constitutional debility.

ALTHOUGH the human species possesses, from its great flexibility, the property of resisting the impressions of climate, in a far higher degree than any

other part of the animal world, so that it is observed of man, that he is the only animal which enjoys the privilege of living and multiplying, in every country, from the equator to the poles ; yet we nevertheless see these impressions more strongly marked in the varieties of colour, form, and feature, which distinguish the human race, than in those of any other animal. But a great part of this variety and contrast of character, which are found in the different quarters of the globe, arises from the influence of those moral causes, by which the susceptibility to impressions is so variously modified, and which forms so considerable a share in that combination of circumstances which is always acting upon the frame. Hence the relative influence, not only of climate and situation, but of habits and manners, both national and domestic, becomes, for obvious reasons, a subject as important as it is interesting. For since all climates, and all circumstances, are not equally favourable to the development of the physical and moral qualities of our species, it becomes the more necessary to render active, on proper occasions, the resources of reason and art, in order to counteract the disadvantages of nature. To this end are the talents and intelligence of mankind called continually into action, in a greater or less degree, in every part of the world, and through all the different gradations of civilization ; and it is in fact the employment of these resources, that forms the principle, to which the customs and

usages of countries every where refer, in the formation of those modifications, which constitute national taste, and are relative to the different feelings and wants experienced under all the various shades of human existence.

If we examine the customs of nations, we may discover generally without difficulty the relations they have to climate. These relations appear much more strongly marked in the higher than in the middle latitudes; not only because the action of natural causes is there more powerful, but that the moral resistance also is less. Such relations are the result of the effects of the natural properties of inorganic bodies, upon the vital properties of living bodies. Every where is felt the influence of the general phenomena of nature upon the peculiar phenomena of life; and, in the order of their lives, the inhabitants of all countries conform to those habits which make that influence most favourable, and render the reciprocal action of those phenomena as congenial as possible to the movements of the system. This is the principle which has generally determined the customs of countries, and all that train of moral agency, the effect of which is so great in the improvement of a people. And, if there is an intimate connexion between the manners and morals of nations and the climate; there is one not less intimate between the physical constitution and the national and domestic manners. If the moral temperament be in some sort reflected,

as it certainly is, in the customs of a country; these, in their turn, are reflected also in the physical temperament; and hence have the action and reaction of morals, manners and climate, upon the sources of life and health, so diversified an influence. From the operation of these causes results great part of that strength and vigour which distinguish the inhabitants of some countries, as well as of that delicacy and debility peculiar to others; and we refer, in like manner, to a similar correspondence and sympathy between the habits, situation, and character, for the causes, which produce and perpetuate, in all professions and all climates, the diversity of constitution and of temperament.

But while the character of the climate is more strongly reflected in the national manners of warm than of temperate countries, the reaction of these upon the physical constitution, is far more powerfully impressed and more strikingly felt in the last. It is in temperate climates that the temperament is often formed, and constantly diversified, by the influence of manners and habits upon the moral and physical existence; while that regular uniformity of temperament, we remark in warm climates, that striking monotony of features, wearing almost always the same expression; that identity of character and disposition, pursuing an established routine of feelings and usages, appear more closely connected with the operation of physical causes,

than with the reaction of those which are moral and social.

When therefore we see, in civilized life, manners and moral causes operating, in so powerful a degree, upon the temperament, as is the case in some climates; and affecting changes so great in the physical character of nations, we must refer, for the cause, to a correspondent change in that principle of action, which determines the order of those manners. The natural feelings, which, in a rude state of society, govern all the constitutional sympathies, are interfered with, in civilized life, by moral feelings, which greatly increase the physical sensibility, and have often an unfavourable effect upon the properties of life. That integrity of organization which distinguishes the life of nature, that energy of the vital principle, which circulates equally in every member, become weakened in proportion as those new impressions, derived from moral causes, increase their influence; in proportion, in fact, as the due order of the natural sympathies is interrupted by the irregular excitements of progressive civilization. It is hence that result not only that varied physiognomy, that striking mobility of feature, which give new beauty and new expression to animated nature, and which are strangers, in great measure, to a more natural state of society; but an almost equal diversity of constitution and temperament. We hence obtain the privilege, not always the most enviable one, of stamping upon our

posterity a double identity, as it were; and of transferring, with our features, all our constitutional peculiarities, and organic debility; and, with our exterior form, our internal disease, varied in ten thousand protean shapes, according to the character of our habits and manners, which are thus continually reflected in real life.

Nor is it to the human race alone that the changes, produced by domestication and cultivation, are confined: we may trace them in the inferior animals, and even in the vegetable creation; for we observe that plants, under the hands of an expert cultivator, acquire qualities absolutely new, and impress upon their productions, a character, which they had not primarily. With respect to the former, the development of the varieties observable in the animal kingdom, derives its principal source from the change of condition, which domestication produces. A subserviency to the use of man so far modifies the animal nature, that great deviations follow, from that uniformity which distinguishes the more natural state. The new phenomena, thus exhibited, take their character from the unnatural situation in which they are produced; and from the artificial dispositions, which are generated, in greater proportion, as the susceptibilities, created by domesticated habits, are increased. Cultivation effects, in the vegetable world, a change analagous, in some sort, to that caused in animals, by domestication; and the last differs probably from the

natural condition of one order of beings, in the same circumstances, allowing for the difference of their reciprocal organs, which distinguishes the former, from the natural condition of the other order. The change that takes place in both the animal and vegetable creation, in these opposite conditions, seems to be the consequence of the different quantities of stimuli, furnished from the more or less abundant supply of nutriment and warmth. The excess of stimuli, afforded by the artificial state, gives a facility to expansion, which tends to the production of all the perfection of which the different classes are susceptible ; but becomes, at the same time, for obvious reasons, the frequent source of greater debility than is found in a state more natural ; where exposure to the inclemency of the weather, and to the deficient and precarious supplies of nutriment, may be supposed to furnish constant checks to the exuberance of growth and the development of structure. It is from being reared under these different circumstances, that arises the great variety, which cultivation and domestication produce in flowers and animals. The domesticated state holds the same relation to the natural and wild condition, amongst the inferior animals, that civilized life has in man to the life of nature. But the difference between the natural and artificial state of man, is capable of so much greater a range than any which can possibly take place between wild and domestic animals, in consequence of the new sympathies

which arise from moral causes, at every step of civilization, that it is evident the analogy cannot be very close; particularly, as this influence of moral causes produces its effects in modifying natural causes, not so much from the great increase of stimulation, as from the inequality of its application.

The sympathies which distinguish the human species, in a state of nature, seem determined, principally, by the functions proper to structure; and, by the sensations prompted by the simplest wants. How greatly these sympathies are capable of variation and extension, we discover at the first glance of comparison, between man in a state of nature and in civilized life. As they depend upon the moral faculties, which receive continually new impressions, in the progress of society, it is difficult to prescribe to them even an imaginary boundary, in the course of that luxuriant growth, and of those infinite ramifications, which they experience in that progress. Now we may presume that the indulgence of these sympathies, when confined to their due boundaries by the strict economy of nature, is favourable to the organization which prompts their action. But, in the highly civilized state, when those boundaries are enlarged, in the progress of society, we perceive the new impressions which are received and rendered active, are not always determined by the natural order of the animal functions; but, on the contrary, place, on many occasions, a

degree of resistance to that order, and produce the excitement of actions and dispositions in the physical economy, which create great derangement in its operations.

It is from the causes connected with such circumstances, that we may best account, probably, for the peculiar inflexibility observable in the organization of some nations, and the strikingly uniform resistance they oppose to those demonstrations of debility, which are marked by irregularity in structure; whilst other nations, and, amongst these, the most civilized, are remarkable for the facility with which they slide into deformity; and for the numerous instances they present of deviations from a regular type. It is the diversified effect of climate and manners, acting upon the physical and moral properties, which constitutes, what is denominated, the national character of a people; and hence proceeds that variety of personal appearance and of temperament, observable in different parts of the globe. These impressions and the action of these causes, are always more uniform, in proportion as the manners of nations remain pure and simple. The more remote man is from cultivation, remarks a celebrated author, the greater his stiffness and moral inflexibility; and we may add the greater also his physical inflexibility. The farther our observation extends to the parts of the world which feel least the influence of artificial life, the stronger will appear the evidence of this truth. In

some countries, whole provinces may be traversed, and even entire nations, without encountering any instance of deformity, or being able to discover the least apparent deviation from the just order of nature; and, under such circumstances, the physical inflexibility renders the national character particularly uniform.

There cannot be a stronger proof of the great degree in which the manners and habits of temperate climates react upon the physical temperament, than the influence which they have in forming the variety of character, so general in the nations of our quarter of the globe. This is particularly exemplified, even in females, who escape, in great measure, the operation of many of the causes which act upon the temperament of the male sex, only to be more subjected to the effects of domestic usages. But, as nations approximate to each other in arts and civilization, and thus lose their former characteristic distinctions, a new source of distinction prevails in the national spirit, which gathers strength from foreign rivalry; and, in proportion as the physical causes of such variations diminish, the moral ones increase. Thus the gravity of the Spaniard, the vivacity of the Frenchman, and the phlegm of the Hollander, which are reflected in their physiognomy, and determine, in a certain degree, their respective manners, are intimately, though almost insensibly, connected with the opinions and sentiments, that national pride and national taste cherish

and support ; and the physical constitution and personal appearance, receive, from the same causes, their distinctive character and appropriate expression. It follows that though, in Europe, the personal distinctions between nations are not the same, in our time, as they were in that of Tacitus ; and though the uniform individual appearance, he remarked,* is now lost in a boundless variety of feature and expression ; yet there are other distinctions, equally characteristic, which moral causes conduce to strengthen and preserve. It is only in the more simple and rude state of society, that the physical and moral influence combines with that of climatorial phenomena, in producing that uniformity of operation, which gives whole nations the expression and appearance of one family, as was formerly the case in those of Europe. To causes the reverse of these must we attribute, amongst ourselves and our neighbours, the present great diversity of feature and modification of form. The new and powerful passions which civilization begets and cherishes, the increasing fund of sensations and ideas, so variously combined in different individuals, fail not to impress the system as powerfully as they agitate the heart. And perhaps nothing disposes so much as the mental emotions to diversify the feature, and give that eternal mutation of expression, that no two faces appear the same ; and

* Tacitus de moribus Germanorum.

the countenance becomes the index of those moral and intellectual operations, which interfere, in such various degrees, with the processes of the organization.

With respect to the influence of these causes upon females, it is rendered strikingly evident, not only in the moral, but in the physical character. The different effects of this influence are conspicuous, according as the manners and usages, which appertain to domestic life, are modified by civil and political institutions; by the taste of a country, or the action of a climate. But while these causes operate generally, there are other secondary ones, which tend still farther to modify the effects of domestic habits, in the different classes of the same country. These consist in those restrictions and limitations, which refinement practices arbitrarily to form its own peculiar distinctions. It is the operation of these, by acting unfavourably upon the form and constitution, in cases where it is too much in opposition to the indications of nature, and the instinct of the system, that becomes the source of those peculiar impressions of debility, either structural or organic, which we find no where more frequent than amongst ourselves; in that fair class of society, upon which the habits of domestic life, in all their various modifications, exert a most commanding and absolute influence.

SECTION II.

Of the influence which the progress of society is calculated to have upon the physical organization.

Nations, observes Humboldt, attach the idea of beauty to every thing which particularly characterizes their own physical organization and natural physiognomy. But this observation must not be received without some qualifications, since the source of that great improvement, which nations have frequently made in what relates to form, has resulted from a contrary principle. We may remark of great communities, that, as they proceed from a rude to a civilized state, their anxiety to improve their personal appearance, is generally marked and striking; and it were easy to cite instances of some which, from attention to this point, have greatly improved and beautified their race. Of this the Turks and Persians afford good examples. Originally of a very disagreeable exterior, by their continual mixture, during a long succession of ages, with people more handsome than themselves, they have ameliorated, in a remarkable degree, their natural physiognomy. This perception of beauty, which seems every where the chief principle that guides men in their union with the other sex, fails not to act, with the greatest effect, in the ruder state of society. In barbarous communities the

repugnance which deformity excites is so strong, that there are no motives which can overcome the disgust felt against alliance with it; for, in such societies, beauty is the only qualification, in the female, to which any interest is attached; and, therefore, personal deformities are regarded with insuperable antipathy. "It is obvious," remarks Dr. Prichard,* "that this peculiarity in the constitution of men, must have considerable effects on the physical character of the race; and that it must act as a constant principle of improvement, supplying the place in our own kind, of the beneficial control which we exercise over the brute creation. This is probably the final cause for which the instinctive perception of human beauty was implanted by providence in our nature. For the idea of beauty of person is synonymous with that of health and perfect organization."

But as societies advance in civilization, reasons are produced, why that strong repugnance to personal defects, which distinguishes the ruder nations, should somewhat relax. The development of the mental powers must render those merely personal of less comparative value; and, though female beauty still retains, in every stage of society, its wonted empire, yet with increasing refinement deformity excites less disgust, in consequence of the concealment which dress is enabled to effect.

* Researches into the physical history of man.

Moreover the common sympathy towards such demonstrations of debility must increase, in proportion as it becomes evident, that, in unfolding the higher qualities of our nature, civilization causes not unfrequently a comparative weakness of the physical organs; and diverts the vital energies, which before were wholly expended upon the animal system, into other channels. Not that we are to suppose that the exercise of the intellectual functions, is incompatible with the full display of the animal powers, for the contrary is evidently the case; but it appears, that, in this advanced stage of the progress of human society, the habits and manners peculiar thereunto, react most powerfully on the constitution; and by their influence upon the vital functions, produce all those varied modifications, which appear so conspicuous in the diversified field of highly cultivated life.

On a general view of the natural physiognomy of the human species, we remark that the varieties of the common type, are regulated by certain laws, which act uniformly, when they depend upon climate; and on the causes connected with natural events. The circumpolar nations of the two continents, though apparently of an entire different origin, wear forms that mark the same relative influence of situation and climate; and, if we view the different races of men from the poles to the equator, the uniformity of this active principle, which proceeds from the uniformity of the laws of

nature, appears evident in similar determinations. But a constant source of opposition to this influence arises from the effects of artificial habits, which effects are increased in proportion to the progress of civilization. The distinctions, observable in nations, are of two kinds; they are those which refer to the usages of life, to those varieties of gesture and of expression, which characterize customs and opinions; and, again, they are those which relate to the peculiarities of form, and the difference of natural physiognomy. All the diversities of the former kind, all the moral distinctions of nations, philosophers are agreed to attribute, rather to external and incidental causes, than to such as are inherent and innate; but the sources of the physical distinctions last mentioned, seem, not unfrequently, to have escaped their research. No stronger proof can be given of this than what appears in some absurd theories current upon this subject, and which have been countenanced by men so celebrated as Volney and Blumenbach. Amongst these may be mentioned that of attributing the peculiar cast, in the features of the negro, to the effect of a strong light falling upon the face;* and the varieties observable in the visages of some savages, to the efforts made to preserve the eyes from the attacks of insects.† To these may be added the

* Volney voyages en Sirie and en Egypte.

† Blumenbach de Gen 2. Var. Nat. Damp: Voy. Vol. 2.

idea of ascribing the physiognomy of whole nations to the custom of flattening the noses of infants. When the characteristic traits of one half of mankind are attributed to similar causes, we have reason to suspect that the subject is not without its difficulties. Perhaps the conclusion most agreeable to sound philosophy, is, that the circumstances which operate upon form and feature, ought no more than those that act upon manners and sentiments, to be referred to any one train of causes, arising exclusively either from innate or external sources ; but to be considered as the result of circumstances, which have a relative and reciprocal action upon the several parts of the frame and its various sympathies. In nations, the same causes are effective, as in families, in forming those peculiar personalities, which mark different races and societies ; though, on a more extensive scale, and with a more commanding influence, as national rivalships and antipathies, as patriotic and personal feelings, unite their force to other causes moral and physical. The operation of this varied agency appears evident, not only in the general traits, which distinguish the different countries of Europe ; but also in those which particularize different states of the same country. Nor is it to feature alone, that generally speaking these distinctions are confined ; they extend to the expression of the person, to the peculiarities of the character, and to the nature of the temperament.

Domestication has the same effects, in a certain extent, upon the inferior animals, that civilization produces on man. They share with their protectors in the disadvantages, as well as in the advantages, of artificial life; and shew, in their domestic state, a disposition to put off the natural physiognomy of their class or species, which is so undeviatingly preserved in a wild state; and to take, if we may so term it, an individual character. The variety of their colour is evidently one of these results. In some of the lower animals, as well as in man, the features acquire a striking mobility; and the perceptions of the imagination are reflected upon the countenance, in proportion as the internal emotions become strongly excited, and characteristic of certain habits. And it is evident, that, according to the degree in which the laws of domestication they are subjected to, restrain and divert their natural impulses; a new train of diseases attacks them, peculiarly demonstrative of increased susceptibility and weakness.

With respect to the human species, it has been conjectured, that, in nations of the dark complexion, there exists a remarkable resistance to change of original type, and to deviations of form. But probably the same power of opposition to the irregularities of structure, may be found, in an almost equal degree, wherever the manners of nations consult equally the instinct of nature; and as little interfere with the laws which relate to the integrity

of organization. When therefore we see it asserted, that all the races of men of white or light complexion, are less robust and less capable of enduring fatigue, and the inclemency of climate, than those of more sable hue;* we ought perhaps to receive the statement with some limitation. The dense and firm fabric of the negro, enjoys no more than the presumed weaker one of the European, the privilege of being equally strong in all climates. Far from possessing greater capability of resisting the shock of pain and disease, he frequently appears to sink under it more readily, and, particularly, when removed from tropical climates. From observations which the author has had opportunities of making upon the negro, both in the higher and lower latitudes; it has appeared to him, that, the greater energy of mind of the white races, enables them to support pain and disease with a firmness often of which the former is incapable; who seems, under their influence, to derive no support from mental vigour. If he escape many diseases, and all those symptoms of debility, which show themselves in structural defects; and which are so frequent in the nations of lighter hue; should we not rather attribute this circumstance to the causes before assigned, which are to be found in customs which interfere not with the natural functions, than to any superiority in primitive force? The narratives

* Prichard's Researches, P. 272.

of travellers furnish us with most convincing testimony of the absence of deformity, in nations of very opposite shades of colour ; and this, in some countries, where, from the unfavourable state of the climate, and from the difficulty of obtaining wholesome food, and other attendant privations, the human species might be supposed likely to display the picture of a deteriorated race. Even where, in rude nations, some trifling deviations from a perfect type occur, they will be often found, on an attentive observation, rather the simultaneous peculiarities of whole tribes and entire nations, which are distinguished by certain characteristic appearances of particular parts of the body, than individual idiosyncrasies. This remark applies to the accounts we have of the original natives of Van Dieman's land,* and of new Holland ;† to the tartar tribes inhabiting the regions watered by the Obi, ‡ and those upon the coast of Tierra del Fuego.§ But while in these, as in many other instances, the general organization is stamped with certain characteristic impressions, the system still preserves so much uniform physical energy, under great natural disadvantages, that no individual deviations take place. The former circumstance must be attributed to the operation of national manners ; the

* Voyage de Decouvertes aux Terres australes de Peron, Tom 1,

† Ibid, ‡ Voyages de Pallas, Tom. 4.

§ Forster's Observations,

last to that of natural laws. As an example of the first, the common defect among the Calmucks, which is a curvature of the thighs and legs, arises, Pallas observes, from their sitting, even in the cradle, upon a kind of saddle, in a riding attitude; and being accustomed to be mounted on horseback as soon as they are well able to go alone. In like manner the curve of the legs, which is found in the Hindoos and Americans, proceeds from the practice of squatting; that is, of resting the body on the lower limbs, the ankles and knees being bent to the utmost; from which custom arise the curvature of the legs and the deficiency of calf. Yet sometimes very improperly, these simultaneous peculiarities have been referred to by authors as evidences of a naturally defective organization.

If therefore, under the greatest natural privations, in the rude state of society, the laws of organization in the human species, are sufficiently powerful and active, to preserve an almost undeviating uniformity of type; we must look more to moral than to physical causes; more to the influence of habits and customs than of nature; to explain the comparatively great debility and irregularity we observe in the organic life of some civilized nations. The same course of observation, which enables us to remark the tendency of the higher attainments, in the march of civilization, to produce physical debility; makes us distinguish the effects of particular habits and professions, in

entailing constitutional peculiarities, and in determining correspondent temperaments : for temperaments are formed by habits and usages as well as by climate. In one case, they appear in that uniformity which marks the general character of rude nations ; and, in the other, in that variety and diversity which are found in the more civilized. The former state of the physical constitution appears to arise, in great measure, from the inactivity of those numerous moral sympathies, which are brought into almost unceasing action in the last ; and which communicate a disposition to be acted upon by all the irregular excitements of a morbid susceptibility. They seem to overlook this circumstance, who attribute the freedom from deformity, in rude nations, to the destruction or premature death of sickly and ill formed children. It has been argued by such persons, that a savage, who grows up to manhood, is well made and free from personal defects, not because the severities of such a state are favourable to animal life ; but because they are so much the reverse, that none but the strongest can survive. Such an argument however seems not drawn from facts, not from the effects of savage life upon itself ; but from an idea as to what would be the effects of such a life upon the constitutions of them who are born in civilized society.

Upon the whole then it appears that the great organic debility, which we so often observe in a civilized condition, is the consequence of unequal

and irregular excitement ; by which that balance of the vital functions, which exists in the economy of natural life, becomes disturbed, from unequal quantities of stimuli being directed to particular parts, at the expense of the whole. We may consider the human machine as containing three series of parts, namely, the sentient or intelligent system ; the organic system, including the organs of circulation and digestion ; and the muscles of voluntary motion, or animal system. Now the relative and reciprocal dependance of these different systems upon each other, is so obvious, that if the due and regular proportion of action which each should support in the animal economy, be overdone in one of them, the others feel, in some part, a correspondent diminution of vigour and impaired energy. The preserving of the due balance of these different systems, in the early part of life, is the principal end of physical education ; since upon this will depend in great measure the full and perfect development of the constitution. Civilization does not necessarily beget increased debility, or more active disposition to organic derangement ; on the contrary, it multiplies the sources of health, strength and longevity ; it enables man better to endure fatigue, hunger, and cold ; and renders him more equal to all the great efforts of human life. But, to produce this effect, the order of its habits must be so conducted, as not to contravene too powerfully the natural impulses ; and that animal instinct of the system, which go-

verns and leads in harmony all the consenting func-
 tions. Upon this happy state of things the habits
 of refined life are too apt to make most dangerous
 inroads; and this, particularly, in respect to females,
 subjected as they are with us to the arbitrary
 influence of domestic institutions, which give a
 greatly increased susceptibility to the action of
 those various excitements, that operate so power-
 fully on the order of the moral and physical
 existence.

CHAPTER II.

Of the moral and physical causes which act in determining the character of the female sex.

SECTION I.

Of the dispositions which the female system acquires in the progress of its development.

THE causes which act in modifying and changing the temperaments of women, are far less numerous than those possessing the same influence with respect to the other sex; which are in fact as multifarious as the arts and employments in which they engage. In the early part of life the temperament called the sanguine, is common to both sexes; and while from the numerous causes, acting in society, upon the male, it soon changes, in him, its constitutional character; it remains more generally and more properly the temperament of the female. Uniting health and beauty under an appearance the most captivating, it combines a sensibility always active and vigilant, with a disposition the most happily calculated to preserve those due relations, between the various parts of the human economy, upon which depends the perfect harmony

of its functions. In proportion as this state of the system becomes changed, and the relative proportions which the action of the organs holds to each other, are differently determined, correspondent dispositions are formed; and are known under the denominations, which have been given to the different states of the constitution. In the countries where climate and aliment are the powerful causes, which produce these determinations of the constitutional energies to particular organs; the action of such causes is uniform and general, showing itself in the national character of certain races; and in the expression of their natural physiognomy. But when the influential causes are created in an artificial state of society, the effects appear under all the modifications of individual distinction and personal peculiarity. The infinite variety and mobility of features seen in civilized life, show, when compared with the monotony of feature displayed by rude nations, how various and how active are the emotions which agitate the former in comparison with the latter state. Although those quick and impetuous emotions which occasionally trouble the face of savage man, amount almost to convulsion; yet his passion is transient, in proportion to its violence; and his features soon resume their natural calmness. It is not those momentary bursts of the passions, which give expression to the features, but that "sensibility of the soul which brings us continually into contact with the external

world, multiplies our sufferings and our pleasures, and reacts at once on the physiognomy, the manners and the language." Now these internal emotions which are thus reflected in the feature, are constant in their operations upon the organic system; in the course of which they produce those various modifications of temperament we observe in active life; and give its peculiar character to the constitution, as well as to the physiognomy.

But in consequence of the civil existence of females being less varied, amongst ourselves, than that of the other sex, their character receives with greater uniformity the impressions of their relative situation. From the little activity given to the muscular and animal system, the nervous organ acquires, in them, greater mobility; and, by reacting upon the former, renders it far more susceptible; and presents a form of superior sensibility and irritability. Under our habits, the age in which the sexes are confounded in the same pastimes and pursuits, early gives place to that wherein different privileges and usages, modified as they are by a variety of circumstances, produce their peculiar distinctions and effects. The male assumes that form and character which announce his destination. The muscles, which are the principal instruments of animal force, acquire a decided strength and energy; and determine that firm and decided march, that vigorous action and commanding look, which seem to spring from an innate

feeling of force, anxious to break the bonds which restrain him. Happily, equally favourable to the expansion of his powers and feelings, are our domestic manners and our national prejudices. The development of the constitutional energies is assisted and encouraged by that personal freedom of movement, which preserves, in the muscular system, the exercise and balance of its force; and hence arise, in great measure, the sources, not only of the vigour and spirit, but of the well proportioned form and symmetry, which characterize the male part of the population.

The female appears to advance in a manner quite different: always delicate and tender, she preserves uniformly, as Roussel observes, somewhat of the temperament proper to childhood. But under the influence of certain moral impressions, which are carefully implanted, the vivacity of the natural character becomes early restrained; and instead, like the male, of acquiring an accession of boldness and hardihood, in advancing from infancy, she loses great part of that portion of these properties before inherent in her habit; and progressively assumes an increase of delicacy, a more modified and chastened demeanor. And, if the female preserves naturally more of her primitive constitution than the other sex, and the texture of her organs never loses its original softness, never attains that firmness peculiar to the former; it may be observed that this natural tenderness seems greatly increased

amongst ourselves by the influence of manners. The mobility and sensibility however which distinguish females, is a necessary consequence of their organization. Their moral attributes appear to be modified, in a considerable degree, by physical impressions; and that character of finesse and flexibility, for which they are remarkable, seems dependant upon the facility with which they are enabled to lead themselves to particular movements, and to emotions which have an evident relation to the organs that excite them. It is remarked that whatever is the principle which communicates to living bodies their impulsion, they follow, in the movements they receive in the course of this determination, nearly the same laws as inanimate bodies. The vital movements, in living bodies, appear to execute themselves with a rapidity the inverse of the magnitude of the animal, and what large animals gain in force they lose in agility and address. The application of this principle has been made to the female part of the human species; and women having forms so much smaller and more delicate than the male, has been deemed one cause of their greater precociousness and flexibility. But what concurs probably in a still greater degree to their decided suppleness and mobility, is that state of the animal fibre, which, from the constitution of its organization, promotes a peculiar susceptibility to emotions depending upon sensibility; and hence that delicacy and suppleness which

qualify them rather for an existence of sensation than of vigorous corporeal action, and keep them exquisitely alive to all the various impressions that external circumstances produce. With a physical constitution so formed as to possess far greater aptitude for feeling than power to rebut it; with a moral feeling always vibrating, in a state of perpetual agitation, between different attractions; their relations to the common pains of life are multiplied, and rendered more delicate by their exquisite sensitiveness. From these causes their happiness, is, in a great degree, relative; and, the greater their capacity for enjoyment, the more are they exposed to the danger of the opposite feeling.

These modifications of the female character, have had great influence in directing those efforts at improvement and refinement, which, in the progress of civilization, have often been determined more by prejudice and opinion, than by feeling and reason. The last, in a frame organized to obey the same laws, and experience the same passions, naturally approach to the same standard every where; but the former are infinitely diversified; because they are the result of all those varied combinations of the moral and physical faculties, which form the distinctions and fill up the different degrees of comparison, between nations in their greatest excellence, and in their rudest and most imperfect state. It appears to arise in great measure from the operation of this cause, that the *beau*

ideal has no fixed standard which applies universally. Particular ideas of beauty, acting as a constant principle upon a people, during a long continued period, naturally produce a correspondent result; and the influence of different standards, must have a tendency to establish a considerable diversity of taste. The singular flexibility of organs, which renders the human race so susceptible to the impression of surrounding objects, and so capable of adapting itself to particular circumstances; makes it probable that the natural peculiarities, which appear in the personal distinctions of different nations, in a natural state, is the development of the physical character the most advantageous to situation. But we have constant evidence before our eyes, that, as nations advance in civilization, artificial tastes lead to the adoption of habits, which tend to produce various incongruities, that infringe the order of nature, and turn artificial elegance into real distortion. Perhaps indeed we may adopt the sentiment of a late ingenious author, and conclude, that the natural idea of the beautiful, has been more or less distorted in almost every nation. In observing the various influence of art upon the beauty and symmetry of the female form, it is evident, that, though so many resources have been employed in embellishing this *chef d'oeuvre* of nature, the work itself has never been improved; and, not unfrequently, in the eagerness to load it with the meretricious graces of art, it has lost some of the

best graces of nature. Beauty, not having any national type, may be deemed, not improperly, the disposition the most advantageous to arrive at a determined end. Nor can that just measure of personal proportion, upon which harmony and utility depend, be deviated from, in any considerable degree, without injury to the order of the system; and, hence, while the variety of opinion respecting the countenance is so great, there is little concerning that of form; for, in regard to the last, the idea of beauty, which corresponds with that of health and utility, is the same every where. All men might not have agreed perhaps with the sages of Greece, whom the poet represents speaking so rapturously of the face of Helen; but all the world will ever agree in admiring the form of the Medicean Venus. The reason seems to be, that the idea of beauty of feature and complexion, depending on causes so various, is subject to as much variety as the taste of adorning them; while that of beauty of form, being the result of one cause, is, with some trifling exceptions, uniform and fixed. While the source of our admiration of the first must depend, in great measure, upon the caprices of the imagination; upon local prejudices; and a particular idea of the *beau ideal*; our admiration of the last named description of beauty, which refers to form, may be said to be laid in nature; which, in having wisely fitted the relation of parts to their use, has rendered equally striking

the correspondence between proportion and utility ; and between the symmetry of one and the fitness of the other. Of the last kind of beauty, health and vigour are the result. Nor is it the eye alone which is interested here ; the moral and physical consequences, connected with this subject, are truly important ; and the effects it has upon the comforts and happiness of a great portion of society, in involving considerations inseparable from the best interests of mankind, render it deserving of an attention the most serious. We are enabled to exercise a beneficial control over the brute creation with regard to its improvement ; and, in our contemplation of the lower orders of the animal world, our idea of beauty of form corresponds with that of a vigorous and perfect organization. The same sentiment strikes us in our contemplation of human beauty, and accords with our views of general utility, and of that harmony which is necessary to the just order of existence. For though it may not enter into such a contemplation, to consider, in what degree, the sensations, the comforts and the durability of human life may depend on the structure, and relative proportion of the different parts of the human form ; yet has the providence of nature implanted that instinctive perception which leads to the same result, in our admiration of a just organization, and in our alienation from personal deformity.

In the progress of those variations, which the manners of nations assume from different circumstances, we may remark a correspondence between them and the external form; and this produces frequently a correspondence also between the external form and the internal organs. The last circumstance is peculiarly conspicuous where the habits and usages of artificial life beget that great delicacy and debility of frame, which are productive of injury to the organic functions, and, not unfrequently, of even structural deformity. This disposition to irregular deviations from a common type, becomes generally increased according to the progress of nations towards the higher degrees of civilization; but not so in an equal measure, in all countries. This will depend on the degree in which artificial habits react upon the physical temperament; and on their concordance with those natural indications, which form the principles that determine the original manners of nations. In this respect some of our domestic usages, which regard the female, are extremely perverted from the natural principle just mentioned; and they appear to have, in innumerable instances, a correspondent effect upon the structure, as well as upon the functions of health and life. So much does this seem to be the case, that, in those classes of females in which these usages act with the most arbitrary sway, it is observed, that diseases of debility, and structural defects, are greatly on the increase.

From the character of our national and domestic institutions, a more natural principle of conducting physical education, is observed in the management of the male than of the female sex ; and hence the constitutional energies of the former develop such superior vigour. The circumstance of man's seldom appearing amongst us marked with defects of structure, favours the vulgar conjecture of his having received a form better calculated, than that of the other sex, to resist the tendency to such morbid deviations. But this impression leads to the conclusion, that nature acts inconsistently with herself, and partially towards her creatures. In opposition to the opinion, that the greater delicacy of the female form renders it more disposed to put on deformity, it may be observed, that the delicacy of nature's works, and we see it extreme in some of her beautiful and wonderful productions, never tends to produce distortion of parts, while her creatures act in conformity to her dictates; for the habitudes of animals correspond naturally to the state of their organs. Each sex came, without doubt, from the hands of the great Creator, with a conformation the best calculated to answer all the purposes of existence ; and therefore to preserve that just relation of parts and harmony of organization, so necessary to health, utility, and enjoyment. But the male sex has, with us, several powerful resources against the causes productive of physical debility, which the female does not enjoy.

These seem to consist, not so much in any peculiar vigour of stamina, as in the superior advantages he derives from his social institutions, and from the more favourable constitution of national and domestic habits, as they are relative to his physical existence.

So completely in fact is the physical character modified by the institutions of social life, that we have good reason perhaps to conclude that the weakness of organization, which appears so frequently in the progress of civilization, is the result of this cause. This seems the case, in great measure, amongst ourselves ; and those deviations from the order of nature, which are the evidences of this debility, must be attributed to the effects of habits and manners, which are unfavourable to the development of the system, and to the phenomena of health and life. But more particularly is it the case with the female ; who, in our climate, and under our domestic institutions, is more arbitrarily submitted to the yoke of artificial laws, which communicate the impressions of debility to the organization, far more frequently than takes place in the other sex.

It is this circumstance and this peculiar susceptibility to receive the impressions of organic weakness, under our social habits, which renders the physical education of the female, a subject of so much impor-

tance. Her constitutional disposition partaking naturally more of activity than strength, more of sensibility than firmness, becomes endued, under our institutions, with a peculiar irritability ; which being more active in early age, than at any other period, makes the task of submitting her to their full influence, one of great delicacy. In fact in our subjection of this easily excitable frame to the laws of artificial life, we should be constantly guided by the indications of nature, as they appear manifested in the economy of the system. But attention to this subject becomes of greater importance in proportion as the unfavourable effects of climate, exercise a correspondent influence over the habits and manners of life, in producing an ungenial reaction of these upon the physical constitution. These effects according to the preceding observations, will operate more in countries of a low temperature than the reverse. It seems in fact, that, in contradiction to the common opinion, the stamina of females are more feeble in cold than in hot climates, as their muscular fibre is less firm and dense ; and that the idea so usually entertained of the action of the former, in strengthening the powers of life, is often erroneous, since the effects of that action are relative to habits. Cold, by the reaction it produces, and by the vigorous exercise it promotes, may be one source of strengthening the powers and developing the energies of the male, who lives in the open air and is engaged in active pursuits ; but it has usually a

very different influence upon females, when joined to the confinement and artificial temperature in which it obliges them to take refuge; and, hence the influence of some climates upon the different sexes, proves in many respects extremely opposite.



SECTION II.

Of the causes which make climate and temperature act with a varied influence, upon the different sexes; particularly in the more temperate climates.

Though the females of our own country enjoy great moral advantages over those of warmer climates, they have not equal physical ones. Confinement and seclusion, have in fact effects so different, under different temperatures, that they have not the same characters. In the midst of all that liberty which our manners give to the fair sex, the nature of our climate imposes a certain degree of restraint and domestication; which, taking place in stove-heated apartments, and an artificial temperature, is far more injurious than the close seclusion of the women of the East and South. The pure air of heaven there circulates through the innermost apartments. Their houses have in fact no artificial temperature, and the inhabitants may be said to live in the open air, under the closest confinement. Again, active exercise not

being indicated nor necessary to health, in warm countries, confinement, under the circumstances just mentioned, is neither injurious to the constitution, nor painful to the sensations.

If the North then, from the moral activity it promotes, is greatly advantageous to the male; the South, from physical causes, appears not less so to the female. If the human race be distinguished from all other subjects of the animal world, in the capacity it possesses of multiplying, and flourishing in all climates; this privilege results from circumstances connected rather with moral than physical properties; and from the talent superior intelligence gives, of drawing those resources from art, which compensate in some degree for the deficiency of nature. But though the assistance received from these sources, may do much in counteracting those effects of climate, which are injurious to the human constitution; though it may temper to the feelings, the extremes of heat and cold, and furnish artificial supplies of food; after all it can but very inadequately compensate for the absence of that genial influence upon the vital organs, which is produced by a temperature with which all the internal functions sympathize. For if all the races of inferior animals, are formed, according to their organization, to find some particular climate more favourable than others, to those properties upon the action of which the vital

functions depend; we may draw the same conclusions respecting our own species. In what consists that unknown and inexplicable property, which climate has upon the habit, may perhaps always escape the scrutiny of philosophical inquiry; but we may presume it to have a strict analogy to the same property, which, under similar circumstances, is influential upon the lower animals. The principle part of this influence, being supposed to arise from the various degrees of temperature, existing in different latitudes, opinion has been employed in agitating the question of the effects of heat and cold upon the system. Theories have hence arisen, which have assumed that heat and cold have reciprocally a bracing or relaxing action upon the living fibre, such as they exert upon some dead substances. But it would seem that the real effects of cold upon the animal fibre, have been much mistaken; and that the inferences which have been thence deduced, have led to conclusions often false and unphilosophical; for we may observe that the effects, termed bracing and tonic, of northern climates, depend, not so much upon the direct application of cold, which is in itself debilitating as upon the state of excitement, occasioned by the muscular and organic movements to which it prompts, and the reaction which follows.

A moderate degree of cold has an invigorating operation upon the system, from the reaction it

produces on the surface; and this physical effect appears productive of a moral one, in the development of that disposition to labour and activity, which distinguishes temperate climates. The influence of human policy, laws, and commerce, in calling forth all the innate resources of man, is unequalled; and it is, on this account, that some nations of the North, may be said to teem with that active moral life, which is the best and greatest promoter of the constitutional energies. If then the inhabitants of such climates, possess a superiority over those of the South, we must attribute it, rather to the moral causes just stated, than to climate. But, as these causes act little upon females, the effects of climate operate upon them more powerfully, and have consequently, a very opposite influence upon the different sexes. Climate has also, it may be observed, effects which differ, in an essential degree, in the poor and rich classes of the female sex, according to the natural or artificial circumstances which govern them. The exemplification of this subject appears, in the varied action of our own climate, upon the females of different ranks; on them, for example, who live in the cottage, are engaged in active callings, and breathe the pure air; and again, on them, who reside in the well carpeted chambers of the mansion, and are reared in a less pure and more artificial temperature.

It appears therefore that those habits of activity, which enterprize and industry communicate to the male portion of the population, and which react upon the physical properties, are not reciprocal; and, from this cause, it follows, that, in warm climates, the energies and constitutional vigour of the sexes, are always much nearer upon a par than in cold ones: since, in the former, the weaker sex escapes, in great measure, the debilitating effects of an artificial and impure temperature, in which they live, for the most part, in the last. This is the case, whether the softness and blandness of the air of the more southern parts of the European continent, lead the female class to abandon their houses, and live in the open air; or whether, in climates still farther South, where seclusion is practised, the same genial breeze circulates through the interior of the dwelling, which surrounds it externally. To this cause must we attribute, principally, not only that firmness of fibre and physical energy, but those personal advantages which belong, in a superior degree, to the females of warm climates; for with respect to the comparison of beauty and expression of feature, and form of person, we must allow them to be greatly in favour of the inhabitants of the South. It were vain to look in the German nations, or amongst their northern neighbours, either for that firm texture of flesh, which is peculiar to the truly fine form; or for that expressive cast of feature, or

elegant mold of limb, which are common to the more southern females. The women of several parts of Germany, particularly the Saxons, display a fine complexion and beautiful bloom, but their light hair and fair skin are emblems of their debility; nor does the texture of the fibre prove greater strength. What a contrast do we find between the firmness of the flesh of the Italian and Spanish women, and the looseness and flaccidity of that of the Dutch; whose forms are almost uniformly weak and nervous, and have so languid a circulation, that artificial means are constantly employed to keep warm the feet! The same contrast exists, in a greater or less degree, between the female inhabitants of other climates, where there is equal diversity of temperature.

It has just been observed, that, under the refinements of civilized society, some climates extend not the same influence to the different orders; but act unequally according to the different degrees of the social state. From the operation of such causes, producing their various effects in the way already explained, the females of the middle and higher classes, are, with us, far more liable to have the organization interfered with; while, in some other countries, the deviations from regularity of structure, are more observable in the lower classes. In walking the streets of Paris, we frequently meet deformed persons; but such persons have appeared

to me generally to be rickety subjects of the lower orders; or to suffer from the effects of scrofulous affections or caries of the bones. That species of deformity, in the production of which the muscles are most concerned, and which is so frequent an occurrence amongst our females, is seldom found, perhaps upon the continent. This may be satisfactorily accounted for by the different local state of domestic manners. As these causes apply to very opposite ranks of society, in the two countries, the classes most affected with deformity are of course very different; and while, in England, the rich; in France, the poor, suffer almost exclusively the weight of the evil. From the manner of building practiced in Paris, and the large towns, in France, the poor are obliged to lodge in the cellars and garrets; and, in consequence of their crowded state, in such situations, the scrofulous affections of the bones, fall principally upon them; while, in England, the cause of deformity, arising far more frequently from the effects which our domestic habits produce upon the muscles of the trunk, than from any other cause; the better classes of females, who are the most rigidly subjected to the discipline of our institutions, are principally affected. But it must be confessed, that, under manners the most favourable to the integrity of the structure, local situation is sometimes singularly productive of deformity. Italy, as Alfieri* observes, may be

* La pianta uomo nasce piu robusta in Italia che in qualunque altra terra.

considered the garden, where the plant man grows in the greatest perfection; yet there are, even in Italy, local exceptions to this general rule. Milan, for example, and its vicinity, furnish a striking proof. The number of deformed and diminutive objects in this city, attracts the eyes of the traveller; and, in this subalpine situation, the influence of climate extends not to the person only, but to the intellect; the Milanese being as much inferior to the other Italians, in mental endowments, as in fair personal proportion. This defect of type, in the mountainous district, is not confined to Milan alone, but extends to the neighbouring towns; so that probably this local tendency to deformity is a defect of race, extending through the descendants of the gallic subalpine tribe. The climate of Milan is cold in winter, in autumn loaded with fogs, and hot in summer.

But the criterion which may be considered as determining the distinction between the effect of climate, on one hand; and that of national manners and customs, on the other; is that which appears, when the privilege of immunity from personal defects, is enjoyed, in a very opposite degree, by the different sexes, under the same climate, and under their opposite habits of life. Now, in no country, probably, is this more the case than in our own, where the penalty of defective structure falls, in great proportion, upon the fe-

males; and, as this applies much more to particular classes of the sex, than to the sex generally, it must be attributed to the reaction of manners upon the constitution.

Thus, while in producing those various modifications and distinctions, which mark our species, climate acts as a general cause, the habits and manners of nations, by their reaction upon the physical temperament, have an influence, which, though secondary, is more active and more varied. It has been before remarked, that a distinguishing peculiarity of the influence of the last, is to produce their effects, as civilization advances, by giving an unequal excitement to particular organs. The usual march of that education, which forms the refined orders, appears to have an uniform tendency to this; particularly in female life. The proper study of moral and physical education, certainly, is to adapt particular actions to general ends; but the most common errors of parents and preceptors, with regard to youth, is that, in their views to certain points, they neglect the attentions due to the demands of the system as a whole. The laws which regulate the habits, the structure and the constitution of animals, render it necessary, if we wish to make our dominion over them as useful and advantageous as possible, that it should be correspondent to the natural indications, and to the impulses communicated by organization. This

observation applies also to the human species, and should determine the modification of our plans in respect both to moral and physical education. In considering the effect of early treatment, we know that the habits of life exert great influence over the formation of the constitution, character and taste; and tend not only to modify the internal impressions, but in some measure also the dispositions of the parts which produce them.

But it is the powerful operation of the moral feeling upon the physical temperament, which is so constantly and greatly active in modifying the human character. A great part of this effect arises from that increased relation to surrounding objects, which is the consequence of the culture of the moral faculties; and of the new susceptibilities which follow. By this means, in civilized life, a new order of feelings is produced, which, depending more upon moral sentiment than physical sensation, increases in a tenfold proportion, the sources of mental and corporeal excitement. It is doubtless an interesting and important inquiry, to examine by what process of action, by what effect of habits, the progress of moral education, tends to produce those new modifications of the human frame, which debilitate the powers of life; and such an inquiry relates to the reaction of the moral upon the physical order. It is greatly through this influence, that, in the different epochs of life, the

system contracts new dispositions; that the functions of the organs are not executed, uniformly, in the same manner; and that new relations are established between them. While we are aware that all the acts and movements executed in the animal economy, are the consequence of anterior impressions, either external or internal; we find that these render by repetition their subsequent movements more easy; that they beget a tendency to reproduce themselves more frequently, and to continue longer; and that the frequent repetition of the same impressions, and of the movements, which relate to them, is capable of greatly influencing the action of the organs and even their primitive dispositions. If then the causes of certain impressions act with sufficient frequency, and continue long enough upon the system, they must have some effect in changing the habits of action, and those of the organs; or in introducing accidental dispositions, and by this means temperaments may be formed which supersede in some sort the natural ones.

Upon the whole, it appears then that the great business of physical education, is to exert that regular and uniform influence over the action of the organs, and over the functions of life, both with respect to the moral and physical order, ^{which} as may prevent or moderate irregular excitements; and may not only operate, in obviating the disposition of our domestic institutions, to establish unfavour-

able determinations to particular parts; but may correct also the natural propensity to this; for such is in fact not unfrequently the error of nature; so that the same organs have a most unequal action, in different persons, relative to that of the other parts of the system. So far then should we consider the concordant operations of that circle of causes and effects, which are continually acting and reacting upon each other in the animal economy, as to preserve those due relations between them, upon which the harmonious movement of the different systems of organs depends. In proportion as we are enabled to fulfil this indication, we may hope to be successful in communicating to our children those important qualifications of body and mind, which comprehend a well formed person, a healthy constitution and a happy temperament. It is a common observation that the structure of the mind is the work of moral education; and we may say with no less justice, that to physical education belongs equally the task of forming the constitution. Nature has put much in our power, in this respect, and the way to avail ourselves of her indulgence, is to modify the action of the different stimuli which govern the phenomena of life, to the state of the moving and sensorial powers; since it is the inequality of stimulation, generally speaking, more than the excess of it, to which is to be attributed the defects and diseases of civilized life. Hence that state of organic debility, which

is so often seen prevailing, takes place, as before observed, from the unequal and irregular excitement of the system; and in consequence of the balance of the vital functions, which exists generally in the economy of natural life, suffering great disturbance and derangement, in the more artificial state from unequal quantities of stimuli being directed to particular parts, at the expence of the whole. The stimuli consequently of the greatest moment to modify, in the course of physical education, are those which affect the ordinary functions of life, and govern the organs of sensation, of circulation, and digestion; and which regulate the muscles of voluntary motion. What forms therefore the most important consideration in the general education of females, is the due regulation of the impressions arising from the following causes; so that the principal part of the business of forming early life, is to be able to modify and regulate duly, according to circumstances;

1st. The excitements which affect particular parts of the organic and muscular fabric under the influence of artificial habits:

2ndly. The stimulus of the animal system in exercise:

3rdly. The quantity of natural stimuli depending upon food &c. &c.

4thly. The stimuli of the cerebral functions and mental exertion in education; and

5thly. The quantity of external stimuli depending upon clothing.

CHAPTER III.

Of excitements unequally applied to the muscular system; and of the effects produced in female habits, from this source, under the influence of our domestic institutions, on the muscular and organic fabric.



SECTION I.

Of these causes as they are calculated to act unfavourably upon the external organization.

NOTWITHSTANDING our advance, with progressive civilization, in the knowledge of human life, and our improvement in the art of embellishing it; when we take a comparative view of the condition of the human species, in its natural and artificial state, and see the emblems of physical debility appear multiplied according to the progress of nations in the arts of life, our triumph experiences some drawbacks. This evidence of weakness does not show itself however in an equal degree in all climates; nor yet indeed, in all countries, under the same climate, where the social and elegant arts have made the same advance. There are countries where nature dictates even the domestic habits and usages, in a way so arbitrary, that she must be obeyed; there are others, where the reverse is the

case; and where the less impulsive impressions of climate seems to leave the customs to be determined more by circumstances of taste or caprice, than of nature. The former observation is applicable to climates that have a high temperature; the last to the middle latitudes. As the natural feelings and demands, with respect to the habits of personal convenience and indulgence, are more imperious in warm than in cold climates, they are more favoured consequently by manners, which consult the natural impressions. Hence, under the former, will personal deformity be less likely to take place; because it is the result, generally, of some opposition to a conformity with the natural dictates; of some resistance to the instinct of the system.

Distortion of the spinal column is attributed by authors to three causes; "The first is that peculiar disease, which terminating in the ulceration of the bodies of the vertebræ, necessarily induces an abrupt and very evident curvature. The second is that state of the bones in which, from a deficiency of earthy matter in their composition, they are incapable of preserving their natural form. The third is the feebleness of those muscles, which are employed in maintaining the erect position of the body." To these we may add a fourth cause, which, though less considered, seems, amongst our females of the better classes, more active than all the rest, and more frequently the source of deformity.

This is the irregular action of the vertebral and extensor muscles, which support the body, from the fatiguing manner in which they are excited by the discipline of our domestic institutions. Such at least is the origin of the most common kind of deformity in females; which is caused by the highly imprudent way in which the observance of the erect position is enforced; and not only in frames where there exists a weakness of the physical organization, is this effect produced, from the cause just mentioned; but also in forms of greater strength.

The domestic habits of temperate climates are contradistinguished, generally speaking, from those of warm ones, in making far greater demands, than is done in the last, upon the extensor muscles which support the frame erect; the relative weakness of which part of the human system, in comparison of the flexor muscles, is evident, not only in infancy and age, but in every part of life. In temperate climates, a far greater portion of time seems passed in the erect and sitting position, than is the case in the higher latitudes. Indeed in the domestic customs of some countries, and the observation refers particularly to our own, the exorbitant demands made upon the vertebral muscles, in early life, are often succeeded by consequences highly productive of deformity. The operation of this cause applies particularly to the fair sex, as is apparent in a great

part of the female population of some manufacturing towns, who are engaged all day in certain sedentary occupations. Nor is it less so in women of the better classes of society, who, in the course of education, that critical period of female life, when the foundation of future health or disease is so often laid; are kept all day long in positions, which make incessant demands upon the extensor muscles, without any intervals of adequate relaxation, or relief to the wearied parts. From this cause the structural defects of females certainly arise, in a degree far greater than seems generally suspected; because such habits are considered as relative to their general usage, rather than to their effects upon particular constitutions, or indeed to their common consequences.

“An upright position,” observes Richerand,* would be to man a state of rest, if his head were in a perfect equilibrium on the vertebral column; and if the latter, forming the axis of the body, and supporting equally in every direction, the weight of the abdominal and thoracic viscera, fell perpendicularly on the pelvis placed horizontally; and, in short, if the bones of the lower extremities formed columns, set perpendicularly under their superincumbent weight; but not one of these circumstances is to be observed in the human body: the articulation

* *Elémens de Physiologie.*

of the head does not correspond to its centre of gravity; the weight of the thoracic and abdominal viscera, and of the parieties of the cavities in which they are contained, rests almost entirely on the anterior part of the vertebral column. The vertebral column is supported on an inclined base, and the bones of the inferior extremities, which are connected to each other by convex and slippery surfaces, are more or less inclined towards one another. It is therefore necessary that an active power watch incessantly, to prevent the fall which would be the natural consequence of their weight and direction "

"This power resides in the extensor muscles, which keep the parts of our body in a state of extension, the more perfect, and which render our erect position the firmer, as they are endowed with a more considerable power of antagonism, and as our parts are naturally less disposed to flexion, and besides as these powers are not sufficient to balance those whose action is directly opposed to theirs."

In the sitting position, where the back leans, almost all the extensor muscles, employed in standing, are in action. It is an erroneous idea of the erect posture, which some physiologists convey, when they make that attitude depend on the general effect of all the muscles; since the extensors only are truly active. The flexors far from assisting, tend, on the contrary, to disturb the relations

between the bones necessary to render that state permanent. This preponderance of the flexor muscles over the extensors, which is so evident in infancy and adolescence, becomes in middle age less apparent; but in advancing years the extensor muscles again gradually return to the state of comparative debility. The same debility is felt, in a greater or less degree, on all occasions of constitutional weakness and disease. The sitting position is not in reality that state of perfect repose it assumes to be in appearance; the unremitting contractions it requires, fatigue the muscular organs; and this order of perpetual oscillation, which takes place as in the standing posture, arises from the incapacity of the extensors to keep up a constant state of extension; so that they become relaxed for a short time, and the intervals of rest are frequent in proportion to the more feeble state of the subject. Hence the effect, which is always necessary to preserve the upright position, becomes felt more and is more fatiguing when long continued, according to the relative debility of the constitutional energies. From this circumstance of the extensor muscles possessing less power than the flexors, a state of demi-flexion is the natural one which the members of the body take during repose, when volition ceases to operate.

The nature of animal life points out two ways of obviating the unfavourable effects, resulting from

long continued postures; and of restoring that balance of the animal economy, in which consists the due and relative action of the various parts: the one is by relaxation; the other by exercise. The first relieves the extensor muscles, by giving action to the flexors to which they are opposed; and the second produces the same effect, by bringing the various parts of the body generally into a state of reciprocal action; and by exhausting, in so doing, the excitability of the parts before inactive. Under these circumstances, there are two considerations, which should have all the weight of principles, in directing the physical education of female youth: the first is, that the less animal exercise or loco-motion the system enjoys, the more it requires general muscular relaxation in the recumbent position; and the second, that the lighter and more sedentary the employments and pursuits are, the more imperious will be the want of active exercise, or of its best succedaneum, general relaxation.

The close relation which exercise and relaxation bear to each other, in their influence upon the animal system, is, therefore, a most important point of attention in early life. It may be observed that both tend equally to balance the animal and muscular systems, and to relieve the undue determinations made to particular parts. In warm climates, where exercise is not indicated by the sensations, as in the middle latitudes; the relation of parts, or ba-

lance of the system is preserved by great indulgence in the recumbent posture. In such climates we see no deformity: but it may be remarked, that it does not appear an easy task to divert nature from her purpose of producing a just organization, unless we place a continued opposition to the order of the system. All her simple impulsions may be every where followed without such a penalty; whether those of great exertion, or great indolence; of labour or pleasure; for whether under a tropical sun, man woos a life of untroubled inaction, or toils, in the regions of corn, and under a rigorous sky, for the bread he eats, he is equally free from deformity, and equally removed from the causes which operate to its production. If great labour never distorts the frame, it is not because it is made in the open air, as people generally think; but because the violent exertion which attends it, can never act with a continued impulsion on the same set of fibres; as they demand those constant intervals of short respite during which the extensors and flexors of the limb are in alternate action. Deformity, on the other hand, is very frequently the consequence of those almost incessant light labours, which constrain extremely, without having the appearance of doing so at all; and, from their sedentary character, may be continued in a sitting posture. A proof of the justice of this observation, is evident as was before remarked, in the effects, which the light and sedentary employments of some

manufactories have, in producing the consequence here adverted to ; while the candidates for more laborious employments enjoy a comparative immunity. In fact we might, with great justice, reverse the common place observation, with respect to the effects of employments. Most absurdly is it said of labours, which require little exertion, that they never can do injury to the system ; since the common danger to the structure arises, for the reasons already explained, not from those which demand great efforts, but from those which in consequence of not demanding any, admit of a too continued application.

From what has been before said of the customs of climates, where no deformity is found ; it appears that they are favourable to the organization, in relieving the extensor muscles from those constraintive attitudes, upon which our domestic manners too much insist in the early part of female life ; or, in other words, in proportion to the general freedom the system enjoys with respect to natural impulses. In southern climates, where nothing is less thought of than the necessity of habitual constraint, in order to produce straightness, the eye is struck with that beautiful symmetry, which is the perfection of nature's law, and displays so strikingly the native grace inherent in the human form. In such countries, the muscular system, being necessarily exempted from those

habits of posture, in which we oblige our young females to do the penance of refined life; finds, in the balance of its energies, its security from personal defects. The harmony of the constitution, which nature, when left to herself, preserves in a well regulated equilibrium, always suffers some degree of derangement from habits, whatever they may be, which do violence to the feelings of the system. Hence it is easy to discover in what way the influence of warmth of climate, in preventing the adoption of that posture discipline, we so unremittingly keep up, is favourable to the integrity of the organization; and, we may observe, that, in proportion as the same influence is felt upon the European continent, personal defects are less known. To the same cause must be attributed the various degree of deformity, sometimes evident in the different classes of a country: and, if the females, in the more privileged classes of our own, exhibit far more frequent deviations from regularity of structure than the inferior orders, it is because in the last there is less intrusive interference with the natural instincts. Thus the physical character of nations is formed, in a great degree, by the influence of their customs, which, as before observed, are determined in a certain measure by climate. The climate, which dooms our females to domestic life, consigns them to sedentary occupations, that require certain habits of posture. But as these, from reasons before explained, may,

if too intently persevered in, in early life, be productive of mischiefs almost incalculable; it becomes necessary, in similar cases, to modify such habits to meet the purposes of nature. To understand the best mode of doing this, a very superficial knowledge of the principle which regulates the action of the muscular power, and renders the most important part of the bony fabric dependant thereon, will be sufficient.

“Hardly,” as a celebrated anatomist remarks,* “can any thing be more beautiful or surprising than the mechanism of the spine, where nature has established the most opposite and inconsistent functions in one set of bones; for these bones are so free in motion as to turn continually, yet so strong as to support the whole weight of the body, and so flexible as to turn quickly in all directions; yet so steady within as to contain and defend the most material and most delicate part of the nervous system.” In the construction of this interesting part of the human structure, there is interposed, between the bodies of the different adjoining vertebræ, an elastic body which has been termed by anatomists the intervertebral substance “It is a soft and pliant substance, which is cursorily folded and returned upon itself, like a rolled bandage, with folds gradually softer towards the centre, and with

* J. Bell.

the rolled edges as if cut obliquely into a sort of convex. The cut edges are thus turned towards the surface of the vertebra, to which the intervertebral substance belongs. And this substance, though it still keeps its hold on each of the two vertebræ to which it belongs; though it permits no true motion of one bone on another, but only by a twisting of its substance; yields, nevertheless, easily to which ever side we incline, and returns in a moment to its place by a very powerful resiliation. This perfect elasticity is the chief characteristic and virtue of this intervertebral substance; whose properties indeed are best explained by its uses; for in the bendings of the body, it yields in a very considerable degree, and rises in the moment that the weight or force of the muscles is removed." *

Though nothing can be more admirable than the natural structure of this part, yet may it be observed, that on this beautiful adaptation of it to its various uses, depends in great measure its liability to be rendered, by undue restraint, the source of deformity. From the intervertebral substance rising on one side in proportion as it yields on the other, it is apparent, that any incurvature or inclination of the body, by being long continued, may induce permanent distortion, as the continued restraint may tend to prevent that natural buoyancy acting to its own relief. Thus may the contrac-

* J. Bell's anatomy, vol. 1.

tions of the muscles, from being irregular, or too long continued, have an unfavourable effect on the state of the bones. Permanent contractions are often thus produced, in young subjects, by sitting too long in the same posture. To give a greater firmness to attitude we contract in a certain degree the flexor muscles, and a similar effect is naturally made by young persons, who feeling fatigue in the sitting position, attempt by a flexion to either side, to obtain relief for the wearied extensors; since when these last become from great exertion incapable of performing properly their functions, the contractile action of the flexors is always increased.

This complicated formation of the relative structure of the bones and muscles of the spine, renders it obvious, from what cause that art has always failed, which has been exerted with a view of assisting in propping up the female form. From the wearisome manner in which the usual discipline of young females acts upon the extensor muscles of the trunk, the regular action of the parts cannot be supported; and, in order to obviate impending deformity, the aid of machinists is called in to the assistance, as it is pretended of nature; but in reality to the support of art against nature. For, in consequence of the restraints imposed, by such means, on the natural action of the parts; the ingenuity of those artists, who have supplied so many different supports for the female form, seem gene-

rally to have been injurious. By their awkward attempts at assisting and relieving the muscles, in preserving the erect attitude, they have too often produced or increased deformity. The cause of this ill success is apparent when we consider the character of the muscular power. If nature always acted by mechanical principles in the disposition of her forces, the interposition of art might succeed better here in directing her movements, or in anticipating her wants. But that inherent force which enables the muscles not only to bend the bones, but, on some occasions, to break them; depending as it does upon the innate contractile energy of the fibre, can neither be imitated, nor governed by mechanical means. It is this contractile power of the muscles, acting by volition, that tends not unfrequently to produce different degrees of distortion, in its efforts to counteract the effects produced by painful postures. Were the construction of the spine, like that of the solid bones, the assistance of whalebone and steel, by acting with an equalized pressure, might preserve something like a right line; but that elasticity which distinguishes the intervertebral part of the moveable column, gives it the power, in spite of pressure from mechanical instruments, of obeying the influence of the muscular instinct. In fact the injuries done by mechanical means, appear to arise from the views being directed solely to the bones, and that on an erroneous principle; since in the generality of cases, the

evil begins, as before observed, in the irregular action of the muscles.

The great want of success, which, from the causes explained, must ever be likely to follow those artificial means, generally so much relied on, of preserving the forms of young females from becoming irregular, demands the most serious notice; since it is evident, that by depending too much upon their aid, the mind is diverted from the consideration of natural indications, to be occupied by the vain subterfuges of art. Philosophers and physicians have often joined their voices against those injurious shackles, which Rousseau* long ago predicted would have the final effect of producing a degenerated and deformed female population, from the extent to which the English ladies then carried this abuse. But it were taking a very short sighted view of the subject, to suppose that the innovations on the order of nature, are confined, amongst ourselves, to the improper use of whalebone and steel; for though, in the present day, these are far less objectionably employed than formerly, yet there appears in reality rather an increase than a diminution of personal deformity, and of spinal disease, which proves that we must look somewhat farther for the sources of these evils.

* "Je ne puis concevoir que cet abus, poussé en Angleterre à un point inconcevable, n'y passe pas à la fin dégénérer l'espèce."

What is in fact of far greater consequence in regard to the securing of a well formed person and perfect organization, is the balance of the muscular and vital energy, and the obviating of the irregular excitement of particular parts by due regard to the physical education of females. In order to preserve this equilibrium of the animal powers, we consider exercise as necessarily indicated, and therefore feel anxious to give to youth the full benefit thereof, in order to relieve the effects of confinement. But it must be obvious to a very superficial observer, that, from the influence of climate, as well as from the constitution of our manners, the exercise usually taken by female youth, either in seminaries of education, or in private life, is inadequate to the wants of the system under the nature of their confinement. Under these circumstances the employment of the couch or recumbent position, for an hour at least at midday; a habit so generally resorted to on the European continent, as well as in warmer climates; becomes in our age of delicacy and debility, an important and valuable consideration, in the physical treatment of the female. A common ground of complaint against the exercise usually taken by girls, is that it does not communicate sufficient interest to the mind, or adequate stimulus to the living fibre, as is the case in the active exercises of boys. But it may be observed that it is of far less consequence, that the means of relaxation of the former should partake

of the character of violent exercise, than that it should be of that kind, which, equalizes the demands made upon the muscular powers; for the same circumstances which render violent exercise little calculated for young females, and which arise from the delicacy of their organs, make long continued postures more distressing and dangerous.

If the wearisome sensations attending restraint and confinement are relieved by active exercise, it is from the manner in which the general exertion overcomes the feeling of partial fatigue, by exhausting the excitability of the parts before inactive. The same relief may be obtained, in an almost equal degree, by balancing the excitability, in positions which produce an equal relaxation of all the parts. This is always in our power by means of the couch, and is calculated to be far more effectual in relieving irregular determinations, and in preventing their tendency to structural deformity, than partial exercise. There are countries in which women take little or no exercise, and in which personal deformity is nevertheless unknown; but, in such countries, the fullest personal freedom is enjoyed, at least, within the house. It is an opinion of some persons, that the little active exercise taken by young females, renders the recumbent posture, during any portion of the day, quite unnecessary; but the contrary is the case; and as exercise is increased, the necessity of the former becomes

comparatively diminished; since active exercise has, on the principles already explained, all the effects of complete relaxation, in relieving parts which before were only partially, or not at all called into action; as occurs in the light and sedentary occupations which occupy so large a portion of female life.

Under the circumstances just mentioned, relative to the fatiguing action of the extensor muscles in the erect position; it is not only weak and delicate frames that suffer, but the strong and healthy. In such situations the very strength of the muscles, which increases the force of their irregular contractions, is a disadvantage. How frequently do we see girls in our seminaries of education growing awry in the highest health, and where the muscles can experience no want of vigour. Full health seems sometimes to increase the disposition to deformity; as in such a state of things there is naturally an excess of vitality; the excitability of the system is very great, and not being expended in the exercises necessary to balance the due relations of parts, or equalized by full and general relaxation; the muscles which are fatigued in uneasy positions, fall more readily into irregular action, and exert a correspondent influence on the bones of the spine.

Considering that habits and manners are in great

measure modifications of the influence of external circumstances on the human frame, every country may be presumed to possess a capability, peculiar to itself, of forming its own customs; and hence it arises, from a principle more rational than prejudice, that people prefer so obstinately those of their own country, particularly in respect to domestic arrangements and usages. But as manners become artificial, they are apt sometimes, for the reasons already explained, to lose sight of the original principle, if it may be so called, which first gave to them their direction and character. In conformity to this almost instinctive principle of adapting manners to climates, we may observe that very different modes of studying personal convenience, and of supporting the body, have been introduced, according as countries have a high or low temperature. Now personal convenience may, after a certain age, be relative to habit, as is the case certainly with respect to our females; whose devotion to the sedentary employments of domestic life, familiarizes them so completely to the sitting posture, that they prefer it to any other. But if the adult female can support such a position during the entire day, are we to conclude that young and delicate girls are equal to the same efforts, whose persons are as yet unformed, whose bones are soft and have not yet attained their due consistence; for the ossific process is not completed before the twentieth or twenty-first year; and whose natural

excitability and spirit of animation at this period of life render confinement a state of pain and sufferance? The perfect accordance of the irritability and sensibility of the animal fibre is the simple order of natural life, which we interfere with in the civilized state in proportion as we introduce habits which harrass and fatigue. Then begins that struggle between nature and art, which, in our domestic circle, ends so frequently in the defeat of the former.

In estimating the causes of that physical inflexibility and undeviating structure, so remarkable in some nations, great stress has been laid upon the influence of that natural principle being duly respected, which determines, in their original state, the manners of a people; which modifies their habits, which associates to them their different regulations, according to relative circumstances; and makes them follow and obey, through such various routes, the instinct of the system. The customs of artificial life are mischievous, in proportion to the opposition they make to this arbitrator of natural indications; and to that relative correspondence of organs, whose action should be uniform and harmonious.

SECTION II.

Of the same causes, considered in the preceding section, as they are liable to act unfavourably on the internal organs.

It were taking a much too confined view of the subject in question, to conclude that the baneful consequences, arising from that part of female discipline, which relates to certain positions, too perseveringly enforced, were confined to the form alone: they extend also to the internal functions. Nor in fact is the body the only sufferer; since, under the effects produced, the mind becomes not only less equal to any vigorous efforts, but is apt to feel a distaste to the pursuits in which it is employed. A fruitful source of irritation is thus raised, which is destructive alike of temper, application and health, and retards the progress of every moral excellence.

The constitution of childhood differs from that of mature age, in having a more exquisite relation by sympathy between the vascular and nervous systems. A great deal of that morbid delicacy, to which we feel it difficult to give the name of disease, yet which is certainly a considerable removal from health, has its cause in some unobserved excitement acting against the sources of health and life. The dawn of disease, may, in

this age of irritability, be awakened by the continued inconvenience of even an uneasy posture, from the facility with which the internal functions sympathize with the excitable state of the muscular fibre. In the moral order, the great art of making the disposition good, is to render the mind happy; so, in the physical order, the surest way of perfecting, as far as possible, the constitution, is to remove every source of irritation from the system. This is the principle on which nature acts in every part of the living world. The first effort of instinct is to make the necessary distinction, between what is painful and what is the reverse, in order that the former may be avoided; for in the opposite conditions of pleasure and pain, of tranquillity and agitation, those secretions upon which the vital functions depend, are of a different quality, and do not produce the same effects on the system.

It is not enough, in the highly susceptible habits of the young, to obviate the actual sensation of pain; we must subdue, as far as possible, the remote causes of its approach; and even the very sources of morbid irritability. The intermediate degrees between real pain, and the first deviation from pleasurable feeling, are as manifold as the different shades from white to black; and it is of the utmost consequence, to detect those deviations from ease and enjoyment, at their earliest transitions; and this we can do only by proper attention to the state

of general feeling. We must respect, in our measures, the state of the sensations, as forming the only unerring guide. For however great may be the pliability of youth to the influence of habits; there is still placed in the organization, certain original dispositions to particular trains of action, with which we should not too rudely interfere. In the juvenile frame, when left at full liberty; while the muscles of volition freely exert themselves, the functions of thought are comparatively little employed. This is the order of nature; which we reverse in the discipline of education, in proportion as we limit the action of the animal frame, with a view to excite the sentient organ. We then accumulate the excitability in particular parts, by restraining the usual means of expending it in the movements of volition, so natural to youth. We refrain however from this species of tyranny in the first stage of life. But when the time arrives, which it too soon does with the female, that established habits assert their full empire, and subject thereunto the laws of nature and the instinct of the system; we then reverse that order of action peculiar to early life; and by opposing the spirit of animation in its natural tendencies, we produce in the habit an excess of sensibility and irritability.

And if this early interference with natural propensities and indications, is calculated to occasion the effects here mentioned; this tendency must be

increased in the degree that the general irritation of the habit is augmented by the causes of local excitement. In the action of particular muscles, the sensorial power of the part becomes exhausted, by reason of the increased number of fibrous contractions; while, at the same time, it is accumulated in other parts which remain totally inactive; and, in this way, irregular excitements are produced. The irritation, which positions painfully continued, may occasion from this cause, proves not unfrequently, a powerful source of constitutional disease. But there are particular forms and habits of constitution, which are much more subject to suffer under such circumstances than others. In frames of great delicacy, local irritation is very commonly productive of this effect, particularly where there exists a predisposition to affections of the chest; whose organs, from their extended sympathies, are greatly liable to indirect stimulation. In that pectoral conformation, to which we apply the term of narrow chest, in which the sternal bone is pressed too much on the substance of the lungs; any great fatigue of the muscles of the trunk, which causes the habit of stooping, must tend to increase the inconvenience of natural malformation; in contracting the capacity of the chest, and preventing the full expansion of the lungs. Again, under circumstances of general debility, where the mesenteric glands are in a torpid state; and where consequently there is a want of healthy and vigo-

rous action, in the circulating system, the sitting posture, too long continued, leads to bad consequences. In these states of the system, a temporary supination, at proper intervals, affords relief, by enabling the muscles connected with the organs of respiration, to act more freely; and seems peculiarly indicated as a necessary part of hygiene. To enable the chest to dilate with facility, and afford the lungs a full and free exercise of their functions, must be of great importance; since the muscles of respiration, always weak and feeble in the early parts of life, become strong and vigorous by the effects of their unrestrained action; and that in proportion as this advantage is afforded to them. Nor should it be forgotten, that females of the strumous temperament, are always more disposed than others, to disease in the cartilaginous and ligamentous parts of the frame; as this circumstance should direct, in some respects, their early treatment, since, in the erect position, the weight of the head and shoulders falls upon these parts; and hence this posture is calculated, if too perseveringly continued under such a diathesis, to produce affections of the vertebral column.

It would be an admirable improvement in the physical education of females, in our climate, to render it somewhat more uniform, than is usually the case, with that of the other sex; in allowing greater freedom of exercise, and a comparative

abatement of that restraint and confinement, which have so frequently an unfavourable effect upon the processes of life. When the female constitution gives early evidence of weakness, this becomes a consideration of still greater moment. The human frame, in its early stage, is capable of being greatly modified, not only in its susceptibility to external impressions, but in the order of its internal functions. In delicate temperaments, the most valuable means of effecting a favourable change, is to encourage the spontaneous expansion of the constitutional powers, by giving free action to the muscular system; since in strengthening the muscles of volition, we strengthen also at the same time the organic action of the internal parts. A second source of the advantages of active exercise, arises from the corporeal movements carrying to the exterior of the body, those latent causes of excitements which, during a torpid inaction, might concentrate themselves in some important internal organ. By enlarging the boundary of the sedentary life, to which we doom the youthful female, we are enabled to change that artificial delicacy, the livery of pain and sickness, which we so often entail upon our offspring, by confinement in heated apartments, and impure air, into the animated picture of vigorous and healthy life.

But the limitation with respect to active exercise, is not the severest prohibition extending to the fair

sex. What is still worse is the restraint on the freedom of relaxation; for a well regulated relaxation may be deemed of more indispensable consequence to the growing form, than even exercise itself; inadequate as the exercise of females generally is to the wants of the system. On observing the customs of other nations with whom the influence of climate, or other cause, forbids exercise; it seems that the great resource of health and symmetry, is derived from the last named expedient: and however opposite the indulgence of the *siesta* or couch may appear, on a cursory view, to the active exertions of exercise; yet, in the principal point, their effects are the same, and are attended with the same result.

The utility of exercise in the early part of life, is less to increase the momentum of the circulation than to balance it; and relieve that local fatigue which constraintive and fatiguing positions give to particular parts. This may be as effectually done by that posture, which places the various muscles in a state of complete relaxation, as by that which puts them in a state of general action. What in fact most wants relief, under the circumstances here alluded to, are those positions of sedentary occupation, both in the seminaries of education and in the domestic circles; which, in the case of the youthful female, are generally too long continued, and too commonly exert a most mischievous

effect on the general system. These consequences are the most felt in that early period of life, in which the developing of the organs is gradually progressive; a period certainly the most important in its relations to the future: and this not only because at this time the naturally great sensibility of the sex is most exquisite; not only because the excess of vitality then produces a singular irritability; but that an important revolution is going on throughout the universal frame; new determinations are made, organs previously in a state of torpor are evolved, and actions are generated which have the most important relation to future life.

The muscular system of the human species, like that of other animals naturally requires much more relaxation in the early stages of existence, before the frame has yet attained its full powers, than in any other period. The knowledge of this circumstance governs so much our treatment of the domestic animals, of whose strength we avail ourselves in labour; that we forbear bringing into too strong action their energies until age has sufficiently consolidated the frame. The same forbearance we well know is equally necessary in regard to our own species; yet a very opposite principle is acted upon, even in those tender subjects, where the debilitated state of the muscular fibre most demands its observance; and in the midst of what is considered a state of indulgence. This is done

whenever the muscles are partially and fatiguingly acted upon in long continued positions. In sitting as well as in standing, the extensors are principally excited; but, in exercise, the action of these muscles is alternated with the flexors, and their reciprocal alternations give to each set of muscles alternate periods of action and rest. By these means does exercise counteract the injurious effects of those fixed positions, which some occupations require and which render the domestic and school avocations of our young and fair country-women so frequently injurious. But the recumbent position relaxes also all the muscles. In that posture, all the loco-motive muscles recover the principle of their contractibility, exhausted by exertion; and not only the unremitting contractions, which standing or sitting produce, are relieved, but the unequal distribution of the muscular excitement is balanced.

The state of extension in the muscular system is always that of great inconvenience, if long continued; this is so much the case that even the supine position is not only uneasy but really painful unless relieved by change of posture. This is observable in the soundest sleep; so that when the part of the muscular system employed in the first position adopted in sleep, becomes fatigued, the posture is changed and another part of the system is called into action. But in sleep the body is

more frequently inclined rather to the prone than the supine position, the usual posture being that on one side. In the supine position, the inconvenience is increased, if the body be placed on a perfect plane, and the head and shoulders lie unraised by pillows. From this cause the habit which is sometimes adopted, of making young persons lie down on a perfect plane, seems liable to objection. Because the Indian women amongst whom no such thing as deformity is seen, are in the practice of making their children lie with the head unraised; some English mothers, who have visited India, pursue the same plan. But it is not to be generally recommended. "The gentle elevation and flexion of the head and chest diminish the determination, and aid the return of blood with regard to the encephalon, and facilitate the circulation in general through the lungs. In this position the brain is supported by the falx; the viscera of the chest by the mediastinum.—The function of respiration is rendered incomparably easier; the inspiration and expiration of air, the deglutition of saliva, and the circulation of the blood throughout the system are much promoted." *

On the whole it may be concluded that a state of complete relaxation, in the recumbent position, for a proper time at midday at least, or otherwise

* Hall's Dignosis.

at due intervals; should form a regular part of physical education of females under the influence of our domestic institutions. But this practice certainly should never be dispensed with in those of delicate constitutions, until the bones of the spine become consolidated; as the vertebral column forms the most essential and fundamental part of the ossific fabric, and may be considered the basis and centre upon which the bones form many of their most important movements. From what has preceded it will be understood however that the recommendation of this practice, is not made solely with a view to form, nor deemed indicated only on the appearance of structural irregularity; but that it is advised on more general views, and and on principles which have a relation to the integrity of the constitution.

Accustomed as we are in our adult age, from long habit, to wear without inconvenience the yoke of artificial life, we are too apt to forget how onerous the first impression of it may prove to our offspring. Nothing therefore can be more important in this age of susceptibility, than the vigilance of our inspection over the habits and institutions of the social order, that they interfere not too much with the prerogative of nature; and with that active spring, that secret and invisible influence, which determine the character of the constitution and the order of its functions.

Neither is it uninteresting nor unimportant to observe the manner in which, under the circumstances adverted to, deformities commence. A girl under too severe discipline with respect to the erect position, is observed to shew symptoms of some approaching awkwardness or irregularity in her form. As no constitutional disorder is present, this appearance is attributed to the effect of bad habit; and, in addition to the exhortations and reproofs, which are deemed necessary on the occasion, the ordinary discipline is more strictly enforced. Under this treatment the extensor muscles of the trunk, already yielding to irregular contractions, from being too much acted on, are excited into action still more irregular; for though the muscular fibre, properly speaking, never is wearied, never exhausted, the nerve which governs it may be so. Well were it, if while the effects here noticed are attributed to bad habits, as they are generally, it were considered whence such habits arise. They are unnatural, and it is obvious that every habit which distorts the form, must do great violence to all the pleasurable impulses. Nature always uniform, always true to her own purposes, will in a healthy subject, suffer very considerable opposition, before she is diverted from her original design; and hence in countries where no undue restraint is laid upon her, she shews no deviation.

The principle however of keeping the female form erect, is, under suitable modifications, a proper one. The extensor muscles of the spine, like all other muscles, become strengthened by exertion. It is well known that the muscles of the trunk are equal in power on both sides, and equally employed to support the body; and it is by calling these muscles into regular action, that we are enabled to increase their power. On this principle, we find the advantage of the chair with upright back, without elbows or arms to it; for these might form partial rests, and so prevent the muscles of the spine from being brought into equal action. In order to increase the effort of the muscles, Dr. Grant of Bath has proposed, in some cases of incipient deformity, to wear a weight upon the head. But under all such experiments, the principle uniformly insisted upon here, must be kept in view; namely, that the relaxation of the muscles be always proportioned to their exertion.

We may observe that the domestic discipline of females, bears usually some relation to the national character. It is so with us; and from the circumstance of our national habits being so vigorously active, a particular prejudice is felt against attitudes, even in females, which are not those of industry. By the laws of association, certain postures of the body, are conceived indications of

correspondent dispositions and tastes. Hence our countrymen are not a little disposed to view the customs of some other European nations, which allow the use of the *Siesta*, during the heat of the day, as characteristic of indolence and effeminacy. But, prejudice a part, it may be asserted that the habits of exertion in such nations, are, in consequence of this practice, which is physically necessary, rendered better calculated for health, and not less so for industry than our own. In this respect the Italians, the Spaniards, the Sicilians, and the Greeks follow the example of their ancestors. In fact their practice of dedicating the middle and hottest portion of the day to relaxation, is the act both of reason and nature; and a bountiful nature it is which places a barrier to that lust of gain which too often sacrifices, in our own country, both health and life at its shrine. Innumerable examples of this occur in our manufactories; where because there is nothing in the climate which absolutely prohibits the practice, young persons are kept at almost unremitting labour so long a portion of the day, as to produce the most baneful consequences. It has been well observed by a late writer, that the effect of heat in excess to produce inaction, may be deemed providential, since were the increase of temperature productive of an increased disposition to action, the danger of the system would be much augmented, by two of the most powerful stimuli acting upon the human body at the same time.

CHAPTER IV.

Of the relation which exercise has, in different ages, and under different climates, to the functions of health and life.

SECTION I.

Of the effects of exercise and air upon the muscular and animal system of females, in the early period of life, under circumstances connected with the influence of climate.

THE physical education of the sexes varies in some degree in all countries; but that which relates more immediately to the female sex, has greater shades of distinction, in some climates than in others. And if almost every where the natural state of the female part of society, places it under certain disadvantages, when compared with the other sex; these disadvantages are by no means equally felt. This depends, in a considerable degree, on the climate under which they live, and on its relative habits and manners.

From what has preceded it appears, that, under our climate and its social institutions, the females of the better classes suffer very considerably from the morbid susceptibility to atmospherical im-

pressions, to which the confinement they suffer renders them peculiarly liable. We may consider therefore the most important part of their physical education, that which relates to the strengthening of the constitutional energies, in increasing their power of resistance to those effects which arise from the unfavourable influence of climate. We know that the most remarkable effect of habit, is to diminish gradually the sensibility of the organs; and that an habitual exposure to atmospherical vicissitudes, produces this result in the most salutary degree. To this object therefore should the attention be particularly directed in the management of female life; for in proportion as it is attained, the action of the functions will be more complete, and health and vigour be infused into the system.

We observe that the fibre of the muscles acquires firmness and hardness in the degree that the animal takes exercise; and that in proportion as the habit possesses firmness of fibre, it becomes capable of supporting exertions indicative of strength. From this circumstance, which shows the relation of organization to action, we may deduce the inferior adaptation of females for vigorous exercises, in comparison with the other sex; and the less necessity thereof to their health. In adult females, in whom we generally find the fleshy fibres feebler, and the cellular tissue more abun-

dant and more loaded with fluids, than is the case in the male, much exercise, far from being necessary to preserve health, appears to exhaust the vital energies, and prematurely wear out the frame. This weakness of the muscles inspires a distaste for the more violent exertions, and impels almost instinctively to light amusements and sedentary occupations. The habitual sentiment of debility, which is partly the result of conformation, in diminishing the feeling of confidence, diverts from the employments that require it; and this predominant characteristic of the physical constitution, seems to elicit certain moral qualities, and to produce that talent of finesse and address, which compensates in a great measure for the want of personal force. From this peculiarity of the physical and moral attributes, arise those dispositions, tastes and habits, which distinguish females from the other sex. The contexture of all their organs is more delicate, and their primitive constitutional dispositions are continually renewed, as it were, by the operations of their sensibility.

But though the organization of the adult female seems little calculated for vigorous exertion, it is however hence adapted more for activity; and this particularly in the early part of life. There is a peculiar spirit of animation in the moving fibre in the first stages of animal life, which excites naturally to activity, as is observable in the sport

or play of all young animals; while, in the more advanced parts of their progress, some powerful excitement is necessary to produce similar exertion. This observation may greatly assist us in our estimate with respect to the relative value and necessity of exercise, in the different periods of human life. The muscular fibre receives from nature certain properties in its original constitution, which are gradually undergoing a change with progressive years. Now in the early stages of this progress of vitality, exercise is necessary to the advance of natural ends. It is necessary, in order to develop the proper dispositions of the various organs, and give to the several parts their due determinations; it is dictated by the state of the moving fibres; and its effects tend doubtless to give those movements to the general system, which accelerate the healthy progress of all the constituent parts of the animal machine.

But what renders exercise so greatly important a consideration in our climate, is the character of our domestic institutions, and that unnatural state of confinement which prevails under them, as referrible to the fair sex. Exercise, in affording an opportunity of inhaling an air so much more pure and salubrious, than that found in the interior of the dwelling, is of vital importance to early life; for it is this circumstance of living in air of such different qualities, that forms the great contrast

between the strength and stamina of women, in various parts of the world. The climate of the more southernly parts of Europe, in furnishing an atmosphere so temperate, that it permits the female inhabitants to live very much out of doors, secures to them great advantages; but the best boon of a bland and mild climate, is, that in circulating through the interior of the houses, it is there breathed in its purest state. And moreover, under many circumstances, its blandness and soft temperature add greatly to the benefit derived from its purity. There are therefore two views under which the surrounding atmosphere may be considered closely connected with the phenomena of health and life: the first refers to its purity; the second to its warmth.

1st. In temperate climates, like our own, the open and pure air is often avoided by the delicate, because active and vigorous motion is required to render the sensations it produces, agreeable or salutary. But this last circumstance, which is the effect of the rigour of climate, seems capable of being rendered, under proper management, with respect to exercise, peculiarly favourable to the forming of the early part of female life. In considering vegetable life, and the analogy which may be supposed to exist between it and animal life, we may observe some distant sympathies which apply to both. In the former we remark, that not only

hardiness is the quality obtained by vegetables from a cold climate; but the capability also of bringing their energies more readily into action, and being rendered more easily capable of full development. It has been observed that "if two plants of the vine are obtained from cuttings of the same tree, and placed, during successive seasons, the one to vegetate on the banks of the Rhine, the other on those of the Nile; and both are subsequently transplanted in early spring to a climate similar to Italy; that which had adapted its habits to a cold climate, would instantly vegetate, whilst the other would remain torpid." The same thing occurs in our hot-houses. A plant accustomed to the temperature of the open air, will, on being introduced into a hot-house, vegetate strongly in December; whilst a plant sprung from a cutting of the same stock, but habituated to the temperature of the stove, remains apparently lifeless. Certain analogous effects may be produced on animal life from a similar action of the influence of climate; and we may hence observe the advantages which might flow to the human plant, from giving it early those habits of hardihood, which render it more capable of development under different circumstances.

It frequently happens, in the animal as in the vegetable, that, according to the climate in which it is placed, there appears a correspondent display of energy. When this is unfavourable, we observe

an absence of that necessary activity in the system, of that vigorous expansion in the various parts, which is the best evidence of strength in early life. Under such circumstances, the removal of the animal plant, like the vegetable, into a climate more congenial from increased warmth, or more salubrious from the greater purity of the air, may have the same good effects of rousing into activity that excitability, which has been accumulated in a situation less adapted to the peculiar habitudes; and may tend to produce a stonger expansion of the constitutional powers. This effect we frequently see taking place in young persons, in consequence of their being removed from a confined and unfavourable residence into others better suited to them.

A circumstance then of no small importance is that the more the system is accustomed to the temperature of the open atmosphere, and the more hardily the physical education is conducted, the more capable does the habit become of deriving advantage from this source. How early and how powerfully the constitution feels the force of this active influence, is forcibly set forth by the consequences of the act of parliament, which took place at the humane suggestion of Mr. Hanway, and obliged the parish officers of London and Westminster, to send their infant poor to be nursed in the country, at proper distances from town.

Such were the good effects of this measure, that while, before its adoption, not above one in twenty-four of the children, received into the work-houses, lived to be a year old; so that of two thousand eight hundred, the average annual number admitted, two thousand six hundred and ninety died: after it had been carried into effect, only four hundred and fifty died out of the whole number; and the greater part of these deaths happened during the three weeks that the children were kept in the work-houses. Now no circumstance could well furnish a more decisive evidence than this, of the powerful and varied influence of an atmosphere, in its different degrees of purity, on human life in *the* early earliest stage; and this striking evidence of the necessity of a pure air, in the very beginning of existence, even to the carrying on the functions of the animal machine, is the most forcible we could have of its natural and close relation to life in its healthy state.

It is worthy of remark, that, in proportion as the constituent properties of a pure atmosphere are enjoyed, or the reverse, the inhabitants of the same country exhibit the picture of human nature in the very opposite states of health and vigour; and it is in the most highly civilized countries that we find this circumstance best exemplified. The celebrated navigator Peron* took with him, on his

* Peron's Voyage, tom. 1 c. xx.

voyage of discovery, an instrument which enabled him to ascertain the relative force of the individuals of different nations submitted to experiment. He found by the results, that no savage tribes existed any where, whose personal strength equalled that of the inhabitants of civilized Europe. The remarks of Herrera, Volney, Hearne, Perouse and others tend equally to show the same relative inferiority of physical force in the rude races. And if superior personal strength be the undoubted privilege of civilized man, under the common advantages of his situation; the contrary is too evidently the case, and proportional debility the result, when he is deprived of that advantage, which though the most common, is nevertheless the best; which is a pure and wholesome air. We see this strongly exemplified in the contrast exhibited by the enervated manufacturer, and the hardy labourer of the fields; nor is it less marked in the difference we find in the other sex, between the pale-faced inhabitant of the stove-heated mansion, and the ruddy peasant girl, blooming like the wild flower of her native heath.

Under these circumstances it may readily be understood in what way exercise proves so greatly and so permanently efficient, in its good effects on the young constitution. It does so by affording the purest air; by giving that healthy activity to the frame, which increases the energy of the diges-

tive apparatus, and favours the action of the functions; facilitating thereby all the necessary secretions, and invigorating every part of the chylipoetic viscera, and the circulation of the vital fluids through the whole abdominal viscera. The lymphatic and absorbent systems, feeling the influence of these impressions, the torpid organs are roused into those increased efforts, which assist the processes of chylification and sanguification; and hence is furnished the best explanation of that remarkable acquisition of energy, made by some temperaments under habits of regular exercise. In fact many persons, who spend their lives in flying from place to place in pursuit of health, might spare themselves all this trouble, if they would only search for that health, nearer their own homes, in the same way they do in other places; namely, by occupying some part of the day out of doors; and in the employment of their limbs, in wholesome exercise. How often do such persons quit their own houses, and after frolicking about the country for a month or two, attribute the great improvement they experience in their health, to the change of place; whereas it arises rather from their being so much more than usual in the open air.

The mode of exercise indicated in different subjects, whether of an active or passive kind, must, even in the period of youth, depend frequently on

circumstances, referrible to the constitution and habit: but in a state of health the former will generally be most congenial to the young. This will be necessarily, in many cases, an important consideration; because the effects of active and passive exercise, on the circulation, on the secretions and exhalations, on the digestive and respiratory organs, are very different. In fact, exercise, whether considered only as a source of amusement, or as a necessary part of the regimen of health, must, in order to answer either view, hold some relation to the ordinary habits and manners of life, as well as to age and constitution. An airing in a carriage, for example, though an excellent exercise for them whose minds and bodies have experienced the fatigue of previous occupation; and for the generality of adult females; will answer the preceding indications, in a very inadequate manner, in the case of the young, in whom all the muscles of volition are peculiarly disposed to action, from that excess of vitality natural to youth. It is then that the muscular and active exercises are more agreeable to the whole constitution of life, and that the expansion of the various powers and processes of vitality appears greatly to depend upon their employment.

2nd. But an important consideration with respect to the influence of atmospheric air, relates to its warmth as well as to its purity. With regard to

the first, namely, the degree of temperature, its reference is not only to the effects of external warmth upon particular temperaments and diseases, but upon all the general constitutional dispositions and habits of the system. We know that a certain degree of warmth is necessary to the growth of animals, as well as of vegetables. Even all chymical changes in the state of bodies, require analagous changes in their temperature, and the tendency to new combinations, is always attended by increase of heat. The more early development of the system is not the only physical effect of warmth upon the human constitution; since the different character which disease assumes in the living body, in hot and cold climates, depends upon temperature. We know, for example, that the scrofulous diathesis has generally some reference to coldness of climate, and that increase of temperature has a powerful effect in removing the disposition to this temperament. In viewing the progress of adolescence, we may often remark the favourable alteration in the health and constitution, which a warmer residence produces, in consequence of the excitability of the system being more acted upon; a principle of the human constitution which seems greatly under the influence of external temperature. Very great advantage might consequently be derived, in many cases, by producing a more extensive operation of the principle, in the choice of situations favourable to its

being called into action. A young female for example, after being brought up at home, with as much attention to physical education as is possible, may yet remain extremely delicate; the energies of the constitution may be tardy in developing themselves, and there may appear an absence of necessary activity in the system. In overcoming this state of the habit, and rousing it into healthy action, a temporary residence in a warmer and more genial situation, has frequently, produced a most favourable effect. In the choice of seminaries of education, in similar cases, some attention to the action of this principle might be of the greatest advantage; for the topographical situation of such places, when considered relative to that of the former residence, is deserving of serious attention, in many females, whose constitutions threaten the advance of different diseases; whether from a torpor or want of action in the habit, or any other cause. The removal of such frames, in early life, in conformity to the plan here recommended, to a new residence, more favourable than the former one to their temperaments, may be compared to the transplantation of a young plant to a more genial climate; and in both cases the favourable properties of the new situation, will act frequently in producing a more full development of the constituent parts of each, as the excitability of the vegetable or animal fibre may be acted on.

But the advantage of this principle, might be still farther extended, by sending the more tender of the fair sex, in whom the constitution gives early indications of scrofulous phthisis and glandular atrophy; and in whom the stamina possess little vigour, and the feeble powers of life raise apprehensions for the future; into a neighbouring kingdom for education; where they would enjoy the advantage of a more equable and more genial climate, and a warmer sun. The situation of France is so favourable, and affords facilities so great of giving to delicate children, the advantage of a temperature, which has, in some constitutions, an effect most powerful and salutary, that it is to be regretted this resource is not more frequently employed. In marked dispositions to consumptive affections, the period of youth is that which is more valuable than any other, in resisting their impressions, and laying the foundation of a more vigorous health; and in which a favourable change of climate is calculated to be of far greater advantage than at a more advanced stage of life. By an efficacious change of climate, during the development of the vital organs, we obtain an influence in some sort over their conformation, so that it is not on the action of parts and their functions only, that we operate, but on the parts themselves, and their organization. The early part of life is in fact that in which this change of climate, for a short time, promises in habits predisposed to scro-

fulous and consumptive disorders and to weakness of stamina, to be attended with the happiest results, from the assistance so given to the expansion of those active internal powers, which form the best bulwark against disease. In that precious period so fraught with the germs of good and evil, are formed the impressions which the phenomena of life stamp upon the human frame. From the character of those diseases of our climate, which so generally menace young females of delicate constitutions, and which are raised and cherished under our cold and inclement sky, it is by no means difficult to form a sufficiently correct estimate of the value and importance of a more genial clime. Because we know that cold is favourable to the progress of scrofulous and glandular disease, we attempt to counteract its effects by artificial warmth of clothing, and well warmed apartments; but as neither of these affords an adequate defence against external cold, they cannot produce that favourable influence we have reason to hope from a climate of higher temperature.

From what has preceded it may readily be conceived, that the degree of warmth which is necessary to answer the end in view, must be in some measure relative to former situation; depending as before remarked, upon the degree of cold and atmospherical exposure, to which the habit

has been previously accustomed. Hence it is not always a high degree of warmth that is necessary to produce the favourable effects here anticipated, but a situation in which may be experienced some comparative increase of temperature; which will frequently enable the constitutional powers of feeble habits to assume new energy, and overcome that resistance to a healthy and vigorous action of the organs, which a state of great natural delicacy and debility sometimes produces. It is this circumstance that renders it so often practicable to secure the desired advantages, by a well chosen change of place, in our own country. It is not altogether by the thermometrical ratio of heat and cold, that we can decide upon the effects, which atmospherical influence will have upon the constitution. The properties of the air are relative, in different situations, to so many other phenomena besides that of absolute temperature; that a constitution which has been previously accustomed to breathe the air of a particular spot, will frequently, on removal to another air, of much the same degree of warmth, feel a new impulse communicated to the health. But the properties of the atmosphere are no doubt, with respect to the scrofulous, the consumptive and even the feeble and delicate, so far connected with warmth, in a general way, that it is one of the constituent qualities which can least be dispensed with; and this circumstance should govern our views in making

change of residence correspondent and salutary to the morbid susceptibilities of the habit. In selecting schools for their children of particular constitutions, parents should be guided therefore by this influence of climate and temperature upon the temperament, in making their choice. By doing so they will be enabled to make the period of moral instruction that also of physical improvement, and to combine in the happiest manner both views.

In the scrofulous habit nothing is more usual than for affections of one part to be suspended by those of another part: if the extremities are affected, the vital organs will frequently escape; if the external parts are so, the internal ones will enjoy perhaps a complete immunity. When therefore this diathesis is formed under a cold temperature, any change to a warmer one which opens the pores, which produces a free transpiration, and excites the action of the capillaries of the skin, will, in all probability, secure the system from active disease. Hence it is by no means unusual to see those signs of constitutional debility, which show themselves in scrofulous affections, during a cold season, disappear under a warmer one; and to observe the threatening symptoms rise and fall according to the state of the external air. This result arises in great measure it is probable from the increased action of the surface, and the

powerful determination of the fluids to that part. Now as active exercise produces the same effects, it appears hardly to be doubted but that its salutary influence arises from the same cause; and this furnishes therefore the best proof of the importance of giving, under different circumstances, a proper degree of vigorous activity to the muscular parts.

It has been asserted, by high medical authority, that persons advanced in years, might prolong their existence by a suitable change of climate. This improvement in the stamina of age, must be sought by migrating to a country warmer than the native one. But it is in the early part of life that this principle seems capable of the most easy and successful application. Parents indeed might consult it during the education of their children, with perhaps little additional expense or trouble. There would be no loss of time, nor increase of cost, in sending many weak and delicate girls, whose constitutions betray the indications of a consumptive tendency, and whose family dispositions give a probably too well grounded apprehension of its visitation, into a proper situation in France. The difficulties attending this plan would not be greater than those which the young Irish ladies, who come from the sister island for education, are daily in the habit of encountering for the sake of an English school. But to reap the full advan-

tages of the principle here recommended, it will not be sufficient merely to cross the water to Boulogne, or the adjacent towns; the climate of the north coast of France partakes too much of the character of our own shores, and the more rational view would be to a more interior residence. In such a situation, the young subjects labouring under the various states of glandular atrophy, might experience a new and healthy excitement of their organs; the constitutional activity might be roused, and the excitability, which was accumulated under a more rigorous atmosphere, be expanded in the display of stronger functional action, and in giving a better tone to the principal powers of life. The impressions which climate makes on disease, and on the predisposition to disease are altogether different. The effects it has in the latter case, are relative to the state of the organs; in the former, to that of the functions. But we often in vain attempt to correct the functional irregularities, while the same deranged action exists in the organs themselves. In consequence therefore of an active and powerful cause operating upon the last during their early growth, and during the expansion of the constitutional forces, we may certainly hope to make this cause, which is best found perhaps in a favourable change of climate, of far greater utility, in the early periods of life, than it can possibly be in the more advanced ones.

SECTION II.

Of the influence of exercise upon the nervous system of females.

IT is not the physical character only of females that is influenced by the habits, which regulate their activity; but the moral one also. That high degree of susceptibility, peculiar to the sex, in so many situations; that sensibility which connects, by its fibres of communication, so many feelings and sympathies; that delicacy of mind as well as of form; that disposition to mental emotion and enthusiasm; seem to arise, in great measure, from the excitement of the nervous organs being more increased, in proportion as the muscular system remains in a state of quiescence. Hence in climates, where a high temperature does not permit much muscular exertion, the sensibility is more acute, the sensations are more active, and the passions more violent. From this unequal excitation of certain organs and functions, result particular determinations, which produce correspondent modifications and impressions; and from this want of harmony between parts, which from their general mutual relation, ought to act in concert, are produced those singular modifications of the moral existence, which show themselves, particularly in females, in the powerful and irregular affections of

the nervous system. While busy and active man is constantly transported beyond himself, as it were, in his close and hurried attention to the scenes in which he is an interested actor; the female, far less occupied externally, is more engaged by the internal emotions, and by a heart turned upon itself. And it follows that, in proportion as laborious employments occupy women, they lose great part of that fascinating delicacy, of that fine tact, which constitute a great source of their influence; and which seem to spring in a considerable degree, from the opposition of manners and character to that of the other sex. From this cause, in rude and uncivilized nations, the influence of women is lost upon society. Even in polished life the effect of violent exercises, such as hunting and similar pursuits, in giving a masculine spirit and character to the softer sex, are obvious. The habit of calling into energetic action the physical forces, blunts the sensibility of the nervous system; since in increasing the tone of the muscular fibre, they diminish the nervous sensibility. It appears to be connected with this cause that weakly children, who are less capable of active amusements than others, of the same age, discover very frequently a remarkable vivacity of imagination; a precocity of intelligence, which renders them more interesting. This circumstance has been very often observed in young subjects, who, in consequence of rickety affections, are restrained

from exercise; and, from the same cause, female children show greater forwardness of mind, and earlier talent of observation, than is apparent in the other sex.

Independent then of the effects of exercise, in increasing the tone of the muscular fibre, and communicating energy to the system, it may be rendered a powerful source of utility, in diminishing that morbid excess of nervous irritability, which is not unfrequently an inmate in the female breast. The susceptibility to those highly impassioned movements, which some minds are so peculiarly disposed to entertain, may be greatly modified by the action of the muscular fibres in exercise; which, in proportion to the external impulse it gives, renders the mind less alive to the internal impressions. So far indeed do we subdue the sensibility of the nervous system, by the habit of giving employment to the animal energies; that it is remarked of them who do the last, in the fullest degree, that they are apt to become insensible to the common tone of feeling. On the contrary, when the system possesses an extraordinary degree of irritability, so that certain impressions, which, in a well adjusted habit, are either indifferent or pleasurable, produce painful and inordinate action, we distinguish this state by the term nervous constitution. A predisposition to this temperament may be implanted by the

debility of parents, which various other causes may cooperate to strengthen, and confirm; and amongst the most valuable counteractive operations, in such cases, must we place exercise; which will be advantageous in the degree that it is rendered interesting; for then it communicates those determinations, which permit no longer the mind to dwell so intently upon every impression transmitted to the brain.

The order and march of nature, is regulated, as before observed, by certain rules which prove how uniform and economical she is in her dispensations; and that it is impossible to determine an undue share of vital energy to any particular organ, or system of organs, without making some other part feel a comparative diminution. We observe consequently, that, in proportion as we excite an extreme development and activity of the cerebral functions, the animal and muscular system is liable to suffer. This is sufficiently evident in the difference of personal appearance, between them, who are accustomed to great mental exertion, and them, on the contrary, who giving a complete predominance to the animal system, make that alone triumph. From the operation of similar causes, under the circumstances of that sedentary and inactive state, to which our domestic manners consign females of certain classes; their nervous organs develop a greatly increased irritability, and

they feel much more than the other sex, the effects of those domestic habits, which national taste and climatorial influence have established. In warm climates, we remark likewise some peculiar modifications of the moral life of females, from that precocious and increased excitement, which acts on the sensitive system. That degree of muscular debility, which in one case is the effect of warmth of climate added to inaction, follows in the other from the artificial heat and indolence of a chamber life; and in both, the consequence is an excess of irritability, dependant, in a certain degree upon the inactivity of the muscular system. The artificial causes just noticed, have always in countries of a low temperature, a strong tendency to produce the nervous excitability, which is natural to warm climates; from the action of that law of the living principle, which gives more activity to the faculties of sensation, when those of volition are in a state of comparative quiescence. We see this law of the living economy exemplified, not only in the nations of the south, and in females, who live in a state of seclusion, in the interior of their houses; but also in men, placed under the same circumstances. This morbid susceptibility to emotions and passions of an ardent character, which is however more peculiar to the female mind; made the Greeks and other nations of antiquity, conceive it had more relation to inspiration than that of the other sex; for which reason they always selected

females to play the part of oracles, as better constituted for displaying those outward signs and emotions, which have always been considered, amongst the superstitious, the best evidences of supernatural agency. In warm climates, where the nervous organs of females, are excited even more by natural circumstances, than in temperate ones by those which are artificial; the nature of such excitement depends greatly upon the moral and physical phenomena, which regulate the state of the system. The life there partakes greatly of indolent reverie; and, in proportion, as the inactivity of the animal frame produces an accumulation of excitability, it is expended in the indulgence of those sensations and emotions, which are allied to voluptuous impressions. But this is very different from that character of mental feeling, we think it our duty to cultivate; when, in proportion to that degree of nervous excitement, which circumstances may produce, we attempt to supersede the flight of a vivid imagination, the reveries of a visionary mind, by a more measured and dignified train of thought; by an early and serious attention to subjects connected with the happiness and advantage of future years; by a preparation in short, for the ordeal of a life, in which there is much to do, and much to suffer. Now our success in doing this will greatly depend upon the skilful management of the animal economy, as well as upon that of the mind; and in

allaying that morbid sensibility, which discovers itself in an excited imagination, in spasmodic affections, and enthusiastic transports, exercise forms a principal consideration.

Every important view therefore, connected with the future, shows the value of exercise to female life, as it advances to maturity ; after this period it seems to become less so, and this is the case also in the other sex. But by the order of manners and habits, in temperate climates, we are led imperceptibly to invert the rational and philosophical views with respect to exercise, which nature prompts us to take, and to think too little of its necessity in the early, and too much of it in the later periods of life. A strict attention to those circumstances, which are immediately relative to the different conditions of the system, in the various stages of life, will best enable us to rectify our views upon this subject. The natural disposition of the system to activity, so apparent in youth, is prolonged and continued in the male part of society by artificial excitements, arising from the character of the pursuits ; and by that accumulation of the sensorial powers which takes place during the temporary remission from habitual action. If in some countries the excitability, which is the source of that incessant restlessness, that stimulates to activity, is not accumulated, as it is in others, it must be attributed to physical as well as to moral

causes. While the indolence and inactivity of many nations of warm climates, appear to be the natural result of the agreeable and pleasurable sensations, produced by climate; the industry and activity of northern ones appear also to be the natural result of sensations of an opposite character, arising from the same source. In the former, the great and constant action which takes place upon the surface of the body, has some effect, not improbably, in exhausting the excitability of the system, and supplying the place of exercise. "The awkward constraint arising from rest in northern climates," says Mr. Orme, in his dissertation on the effeminacy of the inhabitants of Hindostan, "is the call of nature to throw off something noxious to the habit, or to quicken the circulation into warmth. Sensible of neither of these impulses and satisfied with the present sense of ease, the inhabitant of Hindostan has no conception of any thing salutary in the use of exercise, and receiving no agreeable sensation from it, considers it in them not obliged to it by necessity as ridiculous." We shall be more disposed to receive this opinion, when we consider that exercise, by its effects on the general circulation, and particularly on the capillaries of the skin in temperate climates, seems to relieve so remarkably the restless state of the sensations. In fact the sensible and striking difference between the active nations of temperate, and the inactive ones of warm climates, consists in the

state of the skin. In the one its functions are freely and duly performed without exercise, while in the other, exercise, or some other succedaneum, is necessary to produce this effect. Thus in cold climates, as in Russia, for example, where exercise does not relieve the skin, the warm or vapour bath is had recourse to for that purpose. Some travellers have declared themselves at a loss to conjecture the circumstances of utility attending this custom, which in the most northern districts, in Finland, in Ingria, at Archangel and in many other places is constant during the eight months of winter. But it is not to be doubted but that its effects upon the skin, are of great consequence to health. The Mougik, when deprived only a short time of the vapour bath, finds his skin begin to itch, and his first leisure hour is devoted to the well known remedy; for exercise, in countries so cold, has not that effect of determining to the surface, which it has in more temperate climates

Again in addition to these natural causes of activity in temperate climates, there are moral ones, which seem urgent, according to the degree of civilization. Some philosophers attribute all our energy of action to the *tædium vitæ*; and it must be confessed that our desires or aversions seem the motives of all our voluntary actions. But in the more advanced state of society man becomes active to relieve his sensations; for it

often happens, that the greater the vital energy which is present, the more troublesome becomes the feeling of restlessness and inquietude. It is in consequence of that relief, which in certain climates, and in particular states of society, the sensations receive from the exertion of volition, that they who experience it are ready to conclude, that man is happy and healthy every where alike, in proportion to his activity; and the inference they draw, is, that action is every where proper for him. But the tastes and feelings of an artificial state of society, are frequently calculated to mislead; since in many instances the sensorial powers are much too intensely acted upon, and an extraordinary degree of stimulation becomes necessary, in proportion to the exhaustion; for the excitability of animals varies inversely as the application of the stimulus, and a suspension of excitement with respect to the animal functions, enables the susceptibility to increase. We may remark that it is only amongst the more active and industrious nations that we hear complaints of the weight of time, and of the burden of life. In the state more approaching to what is termed the life of nature, the anxious feeling from which these complaints result, is not known. Inaction is deemed the best boon of life, and the curse pronounced on the disobedience of Adam, to give to labour the sweat of his brow, is felt the worst. This remark applies

to the inhabitants of countries which experience every variety of temperature.

The superiority of the human race over every other part of the creation, does not consist only in the capacity of voluntary exertion, but in the capability of extending the impulsions, which prompt it, and of varying them under the different circumstances of climate, education, and manners; so that while the happiness of society in its natural state, seems to consist in the paucity of motives to voluntary exertion, that of civilized life depends upon their number and extension.

In the state of civilized society, the female is subjected to the same exciting causes as the male; and not having a life of equal action, which, as just observed, tends to relieve the state of mental irritation, the effects are more apt to appear in the increasing emotions of the nervous system. We know by a law of the animal economy already spoken of, that the two great sources of motion of the animal machine, volition and sensation, never make great exertions at the same time, but relieve each other by their reciprocal action; for while we excite in any great degree our voluntary motions, the functions of the mind become comparatively passive; on the other hand, while we ardently employ the imagination, and engage the

mind, the muscles of volition feel less excitement to act.

“There exists,” as Richerand observes, “between the force of the muscles and the sensibility of the nerves, between the sensible energy and the force of contraction, a constant opposition, so that the more vigorous athletics, whose muscles are capable of the most prodigious efforts, and of the most powerful contractions, are but slightly affected by impressions.” But as Cabanis has justly remarked, the predominance of the nervous system may be found connected with strong as well as weak muscular powers; in the former case the sensations it produces are not only vivid, but durable; while in the last they are more fugitive and superficial, and communicate to the different functions an excess of mobility.

It is from this defect of harmony between the different parts of the animal machine and their correspondent operations, in which from the general mutual relations all ought to act in concert, that proceed those singular modifications of the moral existence which show themselves, particularly in females, in dispositions to spasmodic and convulsive affections, and in the vivacity and force of the impressions which belong to the nervous functions. In climates like our own where a high

degree of temperature is not an active cause in producing these effects, they are still occasioned in a modified degree, in the fair sex, by that state of confinement, which holding the muscles of volition unemployed, begets a proportionately increased excitation of the sensorial faculties. From the parts which women fill in the social order, and the institutions of domestic life, considerable activity is frequently given to the mind, as far as relates to the subjects of imagination and of sentiment; and where there is an excess of sensibility, those impassioned emotions and irregular excitements of the sensitive system take place which form a peculiar temperament. From this cause it becomes important that, in the early periods of female life, the first symptoms of a morbid sensibility should be resisted by the natural means which nature gives us; namely, the action of the muscular system in exercise, and this becomes both morally and physically of greater importance, before certain associations have established themselves as habits.

We may judge of the effects of exercise in correcting the irregular activity of the nervous organs by observing the influence of bodily movements on the moral character of nations. It appears the natural effect of the great animal indolence of warm climates to raise those ardent minds, which with difficulty command their emotions, or sub-

jugate their transports, and which entertain a remarkable activity with respect to the imagination. In temperate countries, on the contrary, the animal frame being generally roused into action by the moral and physical circumstances which surround it, is less disposed to the inordinate movements of the sensitive system. The continued exercises of the body which such climates excite, tend greatly to interrupt the functions of the cerebral organs, which are produced by a tranquil and continued action of the brain, to which muscular exertion acts as a powerful diversion.

The vital properties that animate living matter, are the source of the various phenomena which constitute the functions of the animal body; and in proportion as they are preserved in their due order, in their relative force, the course and duration of these phenomena may be prolonged. As our idea of life is formed on the observation of a certain series of these phenomena possessing mutual relations, and succeeding each other in constant order, so our idea of health is formed on the observation of the ease and vigour with which such a series of the vital phenomena is performed. In our researches after the best means of producing this effect, we are led frequently to consider that produced on the animal functions by the stimulus of exercise. But in considering the sources of

health, we are apt to enter into a most erroneous computation, and to estimate the manner with which the functions perform their offices rather as relative to the sensation of the hour, than to the duration of life. Thus the habit of eating and digesting a great deal, and using great personal exertion, is generally hailed as a strong proof of present health and vigour; but it is a much stronger proof that great excitement is given to the system; and the just inference is that a constitution subjected to such a routine, must deduct something of its present vigour from its future force. People who eat much, find generally proportionate exercise necessary; and inversely they who take much exercise, calculate on the necessity of taking a pretty large quantity of food; and indeed, under similar circumstances, both by a reciprocity of action may be favourable to the balance of present health. But we observe that the habit of very active exercise in the more vigorous and early period of life, becomes the indirect source of severe stomach complaints as life advances; for as the disposition to the more violent exertion relaxes in the course of the formation of those new tastes which are peculiar to the different epochs of life, the stomach feels the want of the usual stimulus and dyspeptic complaints are formed.

Nature seems to have intended animals to enjoy

life upon a scanty and precarious supply of food; but man, in social life, having food always at command, and being induced to take much more than is necessary for the wants of the system, finds it necessary to get rid of his superabundant supply by exercise and action; and this necessity for exercise proves the relative weakness of the digestive organs. If we closely observe the phenomena of animal life, we shall see that the loco-motive and digestive powers, are so completely in an inverse ratio to each other, that, in proportion as the activity of the assimilating functions increases, that of the muscular functions is diminished. Grimaud has well illustrated this idea of the constant opposition that exists between the two series of actions. It is in no kind of animals more distinct than in the carnivorous, which possess organs of sense of the greatest delicacy, together with muscles capable of the most powerful efforts; and yet powers of assimilation so feeble that their food cannot be digested unless it be composed of materials analogous in composition to their own organs. The organs of digestion in man, far from being in this state of natural debility, peculiar to those of carnivorous animals, are so much the reverse, that the best physiologists have judged, from comparative anatomy, that he is, in his structure, herbivorous. Now to none of the herbivorous animals does much exercise seem indicated by nature. The inference is therefore that in pro-

portion as man wants exercise to enable him to digest, must his digestive organs be debilitated, or the quantity of food he takes be too great.

There are in the system two living powers, which have a reciprocal influence upon all the operations of the body, and whose relation is as that of cause and effect, and whose action that of mutual sympathy and support; the muscles being always ready to employ this inherent power according to the impression conveyed to them through the nerves. These living powers, by the means of which the organization is capable of executing its purposes, are sensibility and irritability, as distinguished from the merely physical powers, which relate to the more mechanical action of certain parts of the system. By sensibility is understood the power of feeling, the capability of receiving an impression, of distinguishing the various modifications of sense; and it is that quality of the nerves which makes the system according to its various conditions, feel vigorous and healthy, or the contrary. By irritability we mean the property the muscles have of feeling and reaction upon the application of certain stimuli; a property which preserves them ready, each for its particular stimulus. But it is the former or the nervous power, that is the great regulator of the system, being subject to a constant variation, according to the excitements it may re-

ceive; while the energy of the muscle continues the same as long as its organization remains perfect. Now it is upon the contractile fibre that exercise acts in its effects in partially strengthening the limbs of porters and blacksmiths; for muscular flesh is harder, firmer and more oxydated according as the animal takes much exercise. But exercise has at the same time a general action, which extends to the nervous powers of the system, whose stimuli it exhausts, in a greater or less degree, according to the manner in which it is employed; for though the inherent powers of the muscle cannot be wearied or exhausted, the excitement and impression which belongs to the nervous system may be so. From this cause the great consideration which peculiarly interests the question of exercise, is the relative connexion in the human frame between action and duration, between the powers of expenditure and the powers of supply; for we observe that these last, depending upon the nervous function, lose their influence over the system faster than is done by the ordinary faculties of life, of which we have a strong proof in seeing the irritable state of the muscles continuing some time after the power of excitement in the nerves is quite lost. Hence because violent exercise strengthens the muscular fibres of a limb, and increases its apparent vigour, it does not follow that it will do as much for the whole system, and invigorate in equal proportion the general energies.

It is necessary therefore, that, in considering the constitutional efforts of great exertion, a proper distinction be made between the qualities of the muscular fibre and the nature of that influence which communicates to the muscle its tone and power. It was from the want of paying due attention to the general properties of the system just mentioned, that the adoption of such institutions as the athletic practices of the Gymnasium did great harm, even when nations were much nearer to a state of nature than they now are. The bad effects of these ill-judged attempts of the ancients, to render violent exercise a means of strengthening the constitution, were so evident as to draw forth the severe censures of the most celebrated physicians of antiquity. To what extremes some of the ancients carried their ideas of the curative as well as of the prophylactic effects of exercise, may be learned from Hippocrates' ridicule of Herodicus and Galen's discourse to Thrasybulus.

It has been asserted that the mechanism of the human fabric is constituted by nature to act so long according to its excitement; that the heart is formed to carry on the round of circulation, in proportion to its activity; since when its movements are hastened systematically and uniformly, the term of existence is shortened. Though this may not be strictly the case, yet the observation has a consi-

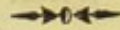
derable degree of justice, and we find few forms calculated for great longevity except where the pulse is remarkably slow; which shows that there is some difference between living to enjoy life, and living to prolong it. It was remarked on a former occasion, that the muscular fibre becomes firmer under exercise, which though it change feebleness into strength, tends progressively according to its extent to produce induration of the solids, and thereby hasten that rigidity of the fibre, which is incompatible with the healthy action of the capillaries, and marks approaching age. Perhaps to the circumstance of the human frame being worn out prematurely by excessive excitement may be attributed the superior longevity of women when compared with that of the other sex. This seems to have been the opinion of lord Bacon. Dr. Price has shown in his tables that there is a considerable difference between the probabilities of life in males and females, in favour of the last, and M. Kerseboom informs us, that during the course of one hundred and twenty-five years, in Holland, females have in all accidents of age lived three or four years longer than the same number of males. Observations to the same effect, and all equally favourable to females, have been made in Germany, Pomerania and Switzerland; and M. Deparcieux, at Paris, and M. Wargentin, in Sweden, have made similar remarks on the superior longevity of women.

On a philosophical view therefore of the properties of the system, and of the nature of life, we cannot doubt but that the violent impressions made by vigorous exertion upon the vital properties, have a considerable effect on the duration of their energies. In some of our domestic animals, as the horse for example, we have a striking proof of the effects which hard work has in producing premature decay; and a similar result attends the operation of the same cause in the laborious classes of society. But this relates only to the more violent and persevering exercises. Otherwise the influence of the corporeal movements on the physical as well as on the moral habits and dispositions, has no doubt under proper modifications the most salutary effects. If in advancing life we are too fond of associating the idea of exercise with that of health, when through the whole order of nature it seems so little dictated except in the gratification of some want; it must be attributed to our artificial habits of life, which not only require new means of getting rid of that excess, which appetite and indulgence throw into the system, but new sources of amusement also to relieve the highly excited mind. The human frame even under all the influence of artificial habits, seems uniformly to submit to the common law of animal life, in losing, as existence advances, that excitability and excess of vitality, which prompts to action in the early part of it.

In the stronger sex however the subject of exercise is one which seldom requires much care, since the male is happily at liberty, from almost the beginning of life, to pursue natural impulses. But with the female it is the reverse. The national prejudices, the domestic institutions, the influence of climate, all combine in placing fetters upon her, even in that early age, when the muscles of locomotion feel the influence of a superabundant vitality.—But from what has preceded, it appears that exercise is not necessary only to develop the bodily faculties, but also to give to the mental ones their due tone and energy; since the balance of the animal and muscular systems, with respect to themselves and the organic system, is not all that is required, but the balance of these with the nervous system. And if, on one hand, we secure through these means to the form its symmetry, to the muscles their qualities of strength and activity, to the organs of digestion and assimilation their due vigour; on the other hand we may expect through the same influence to communicate to the mind that firmness and consistency, which most effectually assist in securing it against the invasion of a morbid sensibility, and visionary imagination; and against that frightful torpor of the faculties, which seem so frequently to paralyze both the body and the mind.

CHAPTER V.

Of the effects produced upon the female system in early life, under circumstances relative to the influence of climate, and to the constitutional temperament, by the natural stimuli which foods produce.



SECTION I.

Of the effects of particular aliments upon the muscular fibre and animal system of females.

THE great influence which the state of the stomach, under the effect of certain foods, has upon the muscular fibre, upon the degree of irritability, and upon the order of the sensations, affords a sufficient demonstration, that the action of that organ may be rendered subservient, in more than one sense, to the interests of the system. Regimen therefore is not an unimportant part of the science of life; since under its influence, we see organized bodies become so variously and so profoundly modified in their internal parts, as to lose those dispositions they had received from original conformation, and acquire a susceptibility to new impressions and new habits, which relate not only to the physical functions, but to the moral and intellectual ones. There are therefore two points

of consideration under which we may place the subject of diet;—the one relates to the effects of its influence upon the muscular and organic systems; and the other to the same effects upon the nervous system.

It may be laid down as a maxim with respect to diet, particularly as it relates to the first part of life, that the least quantity of stimulus, which will preserve the functions of the body in healthy action, is the best. It is on this principle without doubt that a vegetable diet has been so strongly recommended by its advocates, as containing less stimulating matter than animal food, and furnishing the principal part of the nutriment employed in a state of nature. But it may be observed to them who argue on natural instincts, that the vegetable food of cultivation, is very different from that of nature. In countries where a vegetable diet is the principal source of support, the constituent principles originally imparted to it by nature, are less acted upon, and less changed by the intrusive arts of cultivation, than in climates like our own, where all the product of horticulture is the fruit of labour. While by cultivation we increase and improve, in the highest degree, some of the properties of vegetables, we diminish and destroy others, which are of the most essential use in the process of digestion. There is naturally a bitter principle in vegetable bodies, which is as necessary

to the assimilating process of herbivorous animals as salt is to that of the carnivorous classes. By cultivation we seem to decrease the bitterness, in proportion as we increase the nutritive qualities of vegetable substances. It has been assumed indeed that the importance of the former is in an inverse ratio with that of the last. But the effects of some of our nutritious vegetables upon the herbivorous race, seem to show that there are some exceptions to this conclusion. Mr. Sinclair in his researches, which are recorded in the *Hortus Gramineus Woburnensis*, remarks that if sheep are fed on yellow turnips, which contain little or no extractive, they are led instinctively to seek for provender which may contain it; which if they cannot find, they become diseased and die. The same person has demonstrated that no cattle will thrive upon grass whose constituent parts do not partake, in a certain degree, of the bitter principle, which acts as a natural stimulant, and forms an essential ingredient in the provender of herbivorous animals.

Moreover climate is another cause which produces powerful impressions and remarkable changes, equally on vegetable as on animal life. How cogently this cause operates on the former, we have the most marked evidence in its influence upon those plants, whose effects on the animal frame are most striking and powerful. The plant which under the sun of one country, and while flourishing

in its *solum natale*, is uniformly narcotic, may become by removal into another soil, cathartic, or assume some other equally opposite constituent property from change of place; the qualities which particularly distinguished it in one situation being greatly diminished or lost in another. Thus Senna by transplantation from Arabia into the south of France, undergoes as great a change in its virtues, as in its physiognomy. Correspondent changes take place in other instances, and from analogy we must conclude, that similar effects of climate are experienced in a greater or less degree by the whole vegetable class, under changes of climate and of cultivation; both of which alike vary the relative qualities of the constituent principles of plants. Since then under the operation of these powerful agents, we see the whole order of vegetable life put on such complete metamorphoses, and change their elemental properties and virtues with the same facility that they change their external aspect; the argument so often employed in favour of a vegetable diet, that it is a return to nature, can by no means apply under the artificial race of vegetables, which horticulture has created in our northernly climate.

Nature, as before remarked, when left to herself, raises frequently in the same vegetable several distinct and different ingredients, forming altogether a combination the most useful, which by

cultivation we often derange or destroy; since, as M. Virey* observes, by suppressing the growth of one part of a plant, we may produce an increased development in others. In converting single into double flowers by developing the stamens into petals, the efficacy of the plant is in many cases changed, as in the chamomile, *Anthemis Nobilis*; the virtues of which flower reside in the disc florets, and are of course greatly deteriorated by being converted into the double flowered varieties.† But while cultivation suppresses some qualities it creates others of the most valuable kind, as we see in the conversion of the crab into the golden pippin, and of the common colewort into the improved forms of the cabbage and cauliflower. Even the vegetable which furnishes us with what we term the staff of life, is, according to Buffon, a factitious production raised to its present state by the art of agriculture. From this we may deduce that those persons who would persuade us to feed our offspring on vegetable food, on the idea that such is the simple order of nature, reason upon a somewhat false theory; since even on vegetable nutriment, we may make great deviations from a natural diet, according as the original properties of vegetables are changed by cultivation, and climate.

* Journal complémentaire du Dict. des Sciences Medicales, tom. 2.

† Pharmacologia Page 88.

It has been argued by some writers that the capacity of our digestive organs proves, that nature never intended them for highly concentrated food, and that this idea is strengthened by the sparing manner in which she produces such aliment; since the saccharine matter of esculent fruits, is generally mixed with acidulous and mucilaginous ingredients, and the oleaginous principle of seeds, kernels and other similar substances, is combined with farinaceous matter; and neither the gramineous nor the leguminous vegetables present their nutritive matter in a separate state. But these arguments lose their weight when we draw a contrast in this respect between the food of gramnivorous and carnivorous animals. If it is natural to the organs of the first to take in their aliment in the least concentrated state, how very different is it with regard to the last, whose food is in the highest degree concentrated; being composed of materials analogous in composition to their own organs, which have powers of assimilation naturally so weak, that food of such description is absolutely necessary for them. From the circumstance of the digestive organs of carnivorous animals possessing assimilating powers so feeble, as not to be able to digest food, unless composed of materials analogous in composition to their own organs, while at the same time the relative force of the muscles is so great; we have a proof not only of the effects of animal food upon the muscular

fabric, but of its adaptation to weak powers of digestion. Chymical analysis shows a very considerable difference between the chyle formed from animal and vegetable food;* and such is the comparative rapidity with which carnivorous animals take in highly concentrated food, that more chyle seems sometimes thrown on the blood than can be immediately assimilated to it, as appears in the creamy matter in the serum of animals feeding entirely upon animal food.

An anatomical view of the human system, and particularly of those parts on which mastication and digestion depend, have led physiologists to conclude, that man approaches nearer to the herbivorous than to the carnivorous animal. But no general rule can be drawn from this circumstance, since in the different parts of the world which he inhabits, nature obliges him frequently to be omnivorous; and in the countries of the north he must be carnivorous or perish. But it is not alone from the quality of what is taken into the stomach that the constitution receives that impulse, which determines its character of vigour. Every movement introduced into the living economy, requires the aid and concurrence of all the causes which act upon the different organs, and of all the circum-

* See Dr. Marcet's paper on the analysis of chyle. *Medico-chirurgical transactions*, vol 6.

stances which tend to modify their internal dispositions. In every given result it is from the concurrence of all the causes, and all the forces which act upon the occasion, that the effect is produced; which will be proportionate therefore not so much to one particular cause, as to the collateral aids which second it, and to the various circumstances which conspire to determine the results of their action. Hence diet should bear a certain relation to that combination of circumstances which is always acting upon the phenomena of life; and which, under the refinements of civilization, has so frequently a powerful tendency to produce great weakness of the digestive functions. In feeble and delicate subjects particularly these functions vary so much that no general rule for regimen can be laid down. The appetite in such subjects is by no means a criterion always of the powers of assimilation and chylicification. We find in diseases of bad and imperfect digestion, that the appetite cannot satisfy itself with the most nutritive foods: in such habits the assimilating stages of digestion do not proceed as in stronger subjects. The process of chylicification seems to go on in alternate action with the first changes which are produced in the stomach, since our appetite for food ceases while the second process is advancing. From this circumstance we may see the impropriety and bad consequences of that habit of constantly filling the stomachs of young persons, which some parents are

so fond of encouraging; since by calling the stomach into action during the assimilating stages of digestion, we weaken and interrupt in the delicate this most important process.

The question then respecting diet, as far as concerns our species, seems not to be what particular aliment the natural conformation of our organs qualifies us originally to take, but what best suits the different circumstances of life, under the great and peculiar changes it undergoes in the various modifications it assumes. Indeed it appears an unfortunate and erroneous view, which some learned men have taken of the subject, to conclude that the weak and enervated stamina of highly civilized life, should be qualified to assimilate best and most advantageously certain foods, because they were adapted to their digestive organs in a state of nature. It is not the constituent properties of a substance that determine its wholesomeness, which depends on the action necessary to overcome its mode of cohesion and produce its solvability*. We see plants acquire under cultivation

* Le mécanisme de la nutrition seroit expliqué, si, après avoir exactement déterminé les différences de composition qui existent entre les alimens dont nous vivons, et la substance même de nos organes, nous pouvions voir comment chaque fonction leur fait perdre leur caractère pour les revêtir de nos propriétés; pour quelle part chacune coopère à la transmutation de leur partie nutritive en notre propre substance. Richerand de Physiologie tome 1.

new qualities, which they impress on their productions; and we find that under this acquired character, and those modifications which art has introduced, a soil somewhat different from the natural one is necessary. The same remark may apply to the regimen of animals under the changes they assume in the domestic state. Now the human race is that of all others, which is most subject to be acted upon by the operation of external circumstances, and most susceptible to the fortuitous application of those numerous causes which modify animal life so arbitrarily and so differently. Those multiplied sympathies, that active sensibility, that capacity of receiving and preserving impressions, which combine to make our organization assume a character suitable to the external circumstances which surround us; produce a correspondent change in the order of the functions, so that in different situations the human species is in a very different state with respect to the capacity of certain organs, and their action; and in none more so than in that of digestion. Hence though the question as to what was the particular food destined by nature for mankind, may be a point for agreeable or profound speculation, it can scarcely be deemed one of such great practical utility as some would persuade us; and perhaps impartially pursued, it would bring us to the conclusion of Daubenton, that man has no natural food.

The most rational views therefore with respect to regimen in early life, are those which refer, on the one hand, to climate; and, on the other hand, to the state of the vital energies and digestive functions. Under the first head we have to consider the diseases to which climate predisposes, and the state of the organs upon which it exercises its influence, in order to give to regimen a counteracting agency. When we consider that in our cold and damp climate, in proportion as we strengthen the stamina of life, we diminish in the young that constitutional delicacy which is the primary source of debility in the lymphatic and glandular parts, and with it that morbid irritability which is so prone to excite irregular action in the nervous and arterial systems; we may easily appreciate the importance of choice in the distribution of those supplies which are the source of all animal force. Indeed under the regulations of a well directed intelligence in diet, the early part of life will prove frequently a redeeming period, in which ailing constitutions may be snatched as it were from the most dangerous tendencies.

In the physical education of females the choice of diet must have therefore some relation to those diseases, to which the delicate state of their organs render them most susceptible. Climate not only modifies the properties of many articles of aliment by the action it produces in their constituent

parts; but varies the degree of adaptation on the part of the organs to their impression. But the influence of climate, which it behoves us most to be observant of, is the general determination it sometimes manifests in infusing the propensity to particular trains of diseases; and the effects of regimen, which it is equally most important to study, are those which operate to counteract similar propensities. Now the prominent morbid action of the atmospherical phenomena we experience, seems to be that which disposes almost uniformly to the diseases of debility; in correcting the predisposition to which a proper regimen employed sufficiently early may have great influence as a preventative. Such constitutional debility is the primary source of every species of scrofulous affection; whether connected with a morbid irritability, exciting particular parts; or with a general torpor, extending through the whole frame, and connected with a deranged and altered state of the glandular organs. The same constitutional delicacy disposes to pulmonary consumption, in endowing the internal membrane of the lungs with a too great susceptibility to certain agents, on the operation of which depends the development of disease. This debilitated condition of the living fibre, leading to a diseased action, is totally independent however of any acrimonious impregnation either of solids or fluids; and therefore in females, whose early tendencies lead to well grounded apprehensions of

some future visitation, from complaints of a similar character, preventive measures cannot begin too soon. Their success indeed will depend in great measure on that part of physical education, which relates to the dietetic plan, and on the proper adaptation of regimen to early indications and latent dispositions.

The principal character of that general disposition to those diseases of scrofulous and phthisical tendency in the vital energies, which result in some cases from defective organization; but more frequently from error in function, and the increase of certain morbid susceptibilities; may be distinguished with sufficient accuracy perhaps under three different temperaments. The first to be noticed is that in which a decreased irritability appears connected with a torpor and languor of the vital energies. In such subjects the appetite is generally inactive, the digestion tardy, and from being frequently incomplete, a disposition is formed to crudities and complaints in the first passages. The sensations possess little vivacity and the habits are prone to indolence. The circulation is sluggish with coldness of the extremities, and great sensibility to chilliness. The functions of absorption are consequently badly performed, and there is a marked disposition to glandular derangements, with a tendency to tabes or general consumption, rather than to consumption of the lungs or hæmorrh-

hage from that organ. There is a considerable proneness to tumefaction of the lymphatic glands, and deranged action of the secretory organs; the debility of the glandular system being sometimes evident even from infancy, in abdominal enlargement, and an unhealthy state of those glands by which the food is assimilated, and formed into chyle. Atrophy, insufficient deposition of bony matter, with irregular or obstructed growth, are frequently found symptoms of this temperament; and the pupil of the eye is generally large and fixed, with some tumefaction of the upper lip. The colour of the eye is for the most part, but not always, grey; the hair is variously light or dark, and the complexion pale, but liable to be suffused with partial and transient redness.

In temperaments of this character, where the production of warmth and the force of the circulation are so inconsiderable, the energies both of body and mind sympathize in the general languor and torpor. The state of the sensations, the order of the movements and the character of the habits, unite consequently in determining the indications to be pursued, of supporting the vigour of the system, and fostering the tone of the functions, by a diet at once nutritious and easy of digestion; and of such a diet animal food must form the most important and valuable part,

The second temperament which demonstrates with strongly marked traits the constitutional disposition to diseases of debility, is that which forms in several respects some approximation to the sanguine. That determination of blood to the head, which distinguishes the character of early life to the age of fourteen or fifteen years, is in this temperament morbidly active. And equally so becomes that constitutional change after this period, which carries the direction and impulse of blood from the head to the breast; rendering the term of adolescence and youth peculiarly liable to pulmonary hæmorrhage and diseases of the circulating fluids. Meanwhile the lymphatic system exhibits considerable weakness; and scrofulous affections of the joints and glandular ones of the neck are not unfrequent occurrences. This state of the physical constitution is combined generally with that peculiar one of the moral order, which discovers a strongly developed vivacity, a mutability of inclination and inconstancy of attachment, attended with great nervous susceptibility and irritability.

Another temperament which is expressive of debility in the vital powers, appears in those weak and irritable subjects, who with fine complexions have dark hair and eyes. In such constitutions the sensibility to external impressions is very great, and the mental affections have a force and viva-

city that greatly increase the interest of the character. In such subjects there is a great disposition to pulmonary hæmorrhage, though little to glandular enlargement; the phthisical diathesis being marked in the susceptibility of the internal membrane of the lungs to be acted upon by that agency which tends to form the disease.

In these two last temperaments, while the nervous system is disposed to perform so conspicuous a part, the animal and organic ones remain generally in a weak and debilitated state. This great irritability of the constitution is debility under excitement, and from its influence on the habit, that part which is weakest is in continual danger of undergoing a stimulation, which may force into action any inherent dispositions to disease. But diseases will often follow this state of the constitution, which are independent of any hereditary propensities properly so named. Thus scrofula may appear in a condition of great corporeal delicacy, and affections of the lungs may ultimately supervene: yet shall hereditary disposition have no connexion with the former; nor shall this again have any further relation to the pulmonary complaint than that it may produce a more than ordinary tendency in the internal membrane of the lungs to acknowledge the influence of agents which may dispose to the formation of disease.

Since therefore constitutional debility may prove the source of such dangerous affections, when acting upon the irritable fibre of a feeble frame; our most important object, in physical education, is to increase the energy of the internal organs. It is obvious in such cases how much depends upon the regular and proper supply of those general stimuli, that give constitutional strength; which are nutritious food, warmth and fresh air. Under such circumstances those aliments, the most analogous in their nature to the frame they are to nourish, which of course are animal substances, may be considered as the most proper. They are of easier and more rapid digestion, and contain more nourishment in the same bulk, than vegetable substances; and are not so much calculated to promote the formation of indigestions in the first passages, which derange the principal functions of the stomach and the organs of supply. The prevention of indigestion in the weak stomach, does not depend alone upon the quality or the quantity of aliment taken in, but also on the management of the system during the digestive process. The time generally supposed to elapse before digestion commences is about half an hour, and a state of muscular repose is highly favourable to this process particularly in its incipient stage. From the action of the diaphragm, exercise too soon after eating, may occasion over distension of the stomach; and by a general law of the system, we

know that too great distension of the internal organs, produces a contraction of their orifices. Exercise therefore, which tends to over-distend the stomach, in a full state, has the effect of assisting its contraction and expelling its contents, after the digestive action has continued some time, and is terminated.

The meals of the delicate, whose digestion is weak, should be followed by tranquillity and repose. Nor should the stomach receive another supply of aliment until its powers are restored. It was remarked, on a former occasion, that by calling into action the organ of digestion, during the assimilating process, we weaken and interrupt this important operation. In health the return of energy in this organ, is denoted by a return of appetite; but as we cannot wait always for this indication of a prompted meal, in weak and disordered stomachs, the interval of five or six hours between meals, should not be exceeded; while the quantity of food taken should be proportioned to the powers of the stomach, and its quality adapted as far as possible to the feelings of that organ. But in different individuals, the process of digestion varies considerably, and the returns of hunger are quick or slow according to circumstances. In proportion to that increased mobility and diminished vigour of the fibre, which occur so generally in females and children, the

stages of action will be more rapidly performed, and the periods of painful contraction sooner return. From this cause young people and delicate persons cannot bear long abstinence, and their habits of taking food should always be regulated by their powers of digestion.

It is from not sufficiently keeping in view the opposite conditions, in which the different states of society place the young, with respect to the vigour of the digestive processes; that some persons are ready to conclude, when they see the children of the cottage, who seldom taste any other than vegetable food, possessing constitutions so hale and strong, and wearing in their countenances health's highest expression; that too much stress may be laid on the presumed necessity of animal nutriment. And if in fact the offspring of the other classes of society were as much children of nature as those of the cottage, who live almost wholly in the open and pure air, and enjoy all that natural liberty so charming to childhood; the objection might have some weight. But the little inhabitants of the rural cot, when compared with those of cities, or with the offspring of the higher classes of society, are like the flowers of the forest beside the hot-house plant. There is also a striking difference between the children of the different social orders, not only in the stamina of life and the animal energies, but also in the sentient system.

Seldom do we observe in the peasant race that great sensibility of the nervous organs, which characterizes so frequently the better ranks of the same tender age, and has so much effect in agitating the vital properties. The mental sympathies which a refined education brings into play, and which act so powerfully on every other part of the animal machine, are not put in motion in the lower walks of life, and the constitution is wholly occupied therefore in developing its physical energies. The distinctions arising hence, appear the most marked always in the female part of the different classes, from the more arbitrary influence of the habits that appertain to certain orders. The peasant girl has not the progress of a robust constitution interrupted by the artificial creation of mental refinements, which appears to interfere not unfrequently, with the work of nature, and is a deduction made by the nervous system from the vigorous and healthy action of the organic one. Under such circumstances the powers of digestion are strong, and capable of acting on any kind of nutriment either vegetable or animal. But nature left to herself may in one situation preserve an energy of the digestive functions, suitable to the food she offers; while in another, where different habits prevail, a very opposite state of the same functions might render the same food inadmissible, even in the most healthy. It is not to food alone that we owe the strength of the stamina, but to those

opportunities which are afforded to the constitution, to avail itself of the natural resources that belong to it. When these opportunities are given under regular exercise and pure air, the system will often grow strong on a meager and vegetable diet. But when these active sources of vigour are superseded by the substitutes of impure air, close apartments, and inadequate exercise; the spare diet, which rendered strong under the former circumstances, will only increase the debility of the habit, and this particularly if it have weak stamina to act on.

Hence the different circumstances under which life is past, seem to impose the necessity of modifying in some measure the diet, which, in the substances that compose it, must be made relative to the state of the digestive organs. The comparative strength or debility of these, arises not unfrequently from the habits of life; and under different habits, the resistance aliment may oppose to the digestive process without inconvenience to the economy, is found to vary extremely. The same observation which applies to the habits of individuals may apply also to those of nations, in respect to the relation of food to the state of society. Vegetable food appears to have formed the principal aliment of the Greeks and Romans, in the period of their greatest simplicity and manliness; nor is it uncommon, in the history of nations, to observe a

change of regimen associated to that of manners. In our own country within a rather late period of our history, a considerable alteration has taken place in the diet of females, which seems to partake less now of substantial fare than it did formerly; and subsequently to this change the diseases of debility appear to have been on the increase.*

* See Mr. Strutt's view of manners and customs, vol. 3, page 110. Speaking of the time of Henry 8th, Elizabeth and some succeeding sovereigns, he observes, that "in those days, when coffee, with various other like slops were not known, it was no uncommon thing for the chief lords and ladies of the court to breakfast upon a fine beef steak boiled with a cup of ale, &c. &c."

SECTION II.

Of the effects of certain diet on the nervous system of females.

SOME preceding observations have tended to show that a great part of the physical debility peculiar to civilized life, is derived from that state of the human constitution, which presents the phenomena of a derangement in the equilibrium or regular expenditure of the living energy. Thus the increased excitement of the nervous system forms the peculiar distinction of the higher degrees of civilization; and in the case of females their domestic habits amongst ourselves have an influence in producing this effect, in proportion as habitual inaction and domestication create muscular debility. But diet also has some share in regulating the degree in which this effect takes place. It has been stated in a former chapter on exercise; that its utility extends not only to the circulating system, but that it has also a great influence upon the mind in regulating the disposition to nervous and spasmodic affections, and to those impassioned emotions, which are so frequently the attendants of females in the inactive confinement of their lives. We may apply the same observation to diet, and remark that its relative effects are not confined to the mere organs of digestion and assi-

mulation, but extend to the cerebral functions, and the sentient system. We know by the sympathy of the stomach with the brain, that the diet has great power over the sensations; hence active persons, who are living in a state of temporary indolence, feel themselves prompted to eat much more than usual, in order to allay a certain sense of uneasiness arising from the excess of excitability, which accumulates in the absence of customary exercise.

It is obvious that the strength of the constitution must depend in great measure upon the nourishing qualities of regimen, and its adaptation to the organs. But this is not all; it is not less certain that the state of the mind may be also in a degree dependant upon aliment; and this particularly in females, from the increased nervous stimulation some aliments have a tendency to create. We all experience the different effects which foods of various kinds have upon the animal feelings. We perceive in fact daily the influence of the stomach on the organs of thought, and that by acting on the nerves of the former by nutriment, we are enabled to modify to a certain extent the action of the brain. According to the operation of the aliment upon the digestive functions, and the animal system, the organ of thought becomes very differently affected; for correspondent to the effect of diet on the sensations, must be that on the

ideas. A full diet, in engaging the attention of the system upon the corporeal feelings, renders the intellect less susceptible, and the activity of the brain is diminished, of which we are easily made sensible by a full meal of animal food. Nor can there be a doubt but that the different state of activity of the nervous organs, in warm and cold climates, is in a certain degree the effect of diet. The vegetable regimen of the nations of the South, appears to have a considerable effect, in combination with their inactivity, in favouring that state of the sentient system, which is so nearly allied to voluptuous impressions; while the fuller diet and more active employments of the people of the North encourage a different character. But the former disposition, as far as relates to mental emotions, to reverie and a highly excited imagination, is a state which the artificial habits of cold climates, under confinement to warm apartments, tend naturally to produce, and it seems uniformly increased by a low and vegetable diet.

In the institutions dedicated to religion, the effects of a low regimen appear not to have been sufficiently considered, by the pious men who legislated for the cloister, when they introduced into the religious institutions of the North, the spare diet adopted by those of warmer climates. The philosophical and religious sects by which abstinence from animal food was considered as a

meritorious act, were all instituted in warm climates. "The school of Pythagoras flourished in Greece, and the anchorets, who, in the beginning of the christian religion, peopled the solitudes of Thebais, could not have endured the same system in a severe climate." The peculiar practices of religion may be said to have their geographical limits, and it has been deemed an error in them who introduced christianity into our quarter of the globe, to bring with it the austerities practiced by the anchorets of the East.—Some founders of religious orders, among other means of extending the empire of religion and virtue, have adopted that of reducing and weakening the members of their order by prohibiting animal food. The more rigorous forbade even the use of fish, and some enjoined the abstraction of blood with the same views; to be employed more or less frequently as circumstances might seem to indicate. Their intentions in establishing these regulations were doubtless the purest and the best;—they hoped that by reducing the physical force and weakening the energies of the system, the influence of the passions might be enfeebled with them. But it is not by a low and debilitating regimen that we can succeed always in moderating the affections and the passions. Such a regimen in an inactive state of existence, by depressing the animal system, is calculated to produce an increased nervous excitability; and to encourage that delirium of the

imagination, and those dangerous illusions of a visionary enthusiasm, which always attend in a greater or less degree, the life of seclusion. At the same time it may be observed, that, as in some morbid affections of the system, the mind receives a peculiar and characteristic tendency to certain trains of sentiments and ideas; so in very favourable cases, under impressions of languor and debility, it might be rendered more disposed to entertain profoundly the meditation of religion.

The excitement which a diet of animal food gives to the vascular system, appears to tranquillize the nervous by engaging the attention of the habit on the more animal sensations. The evidence of such stimulation is seen in the capillaries of the face; nor can we suppose such an action to be confined to the surface merely, but to extend to the internal parts; and the same circumstances, which render a full meal of animal food unfavourable to intellectual operations, make it so also to those of the imagination. In fact the effect of animal food tends greatly to diminish the sensibility of the system; an effect which was attributed to it by the old physicians.* The ancient *athletæ* were proverbially the most stupid of men, which was imputed to their living upon animal food, from the observation of its tendency to give the

* Galen lib. de caus. Morb. cap. 3.—Lacert: in vita Diogenis.

superiority to the muscular system, at the expense of the nervous; to render less acute the perceptions of the mind, and greatly diminish the general irritability of the habit.

Now this is precisely what we want to do in the generality of those cases of constitutional debility in females, where the sensibility of the nervous organ is too great, and a too highly sensitive mind appears connected with a tender and feeble frame. In such cases it were a happy exchange to sacrifice somewhat of the morbid sensibility of a finely constituted mind, in return for a constitution more physically strong. In fact the mental torpor of which Dr. Lambe complains,* as an effect produced by animal food, is, under the circumstances just referred to, a most salutary one; since it is the excess of sensibility, the extreme vividness of the mental affections, and the exquisite susceptibility to impressions, we perceive in such characters of constitution, that keep the animal system in a state of almost continual irritation and excitement. It is therefore by diminishing these that we may best hope to give new and more vigorous energies to the organs the most essential to health and life. Under these circumstances therefore, when the learned and ingenious author to whom reference has just been made, observes, in his zeal to recommend a vegetable diet; that there is no organ in

* Reports on regimen in chronic diseases.

the body, which under the use of vegetable food, does not receive an increase of sensibility, or of the power which is thought to be imparted to it by the nervous system; he certainly gives a most cogent reason against its exclusive adoption, in those delicate subjects, who with greatly reduced muscular and animal force, possess increased sensibility. In the more refined portion of the fair sex, the nervous system is disposed, from the circumstances already explained, to play generally a most prominent part. Far therefore from hailing that exquisite delicacy of feeling as an happiness, and attempting to increase it by a vegetable diet, the very reverse is indicated; and we are called upon to repress the too inordinate susceptibility of the sentient system, in order to strengthen the animal and organic powers. This extreme sensibility is not the natural feature of human life, but on the contrary belongs to circumstances in a considerable measure artificial; since the human frame when removed from the effects of an effeminating influence, seems to derive its regular march of force and vigour from the superiority of a different set of organs. However much we are disposed to be captivated by that fine mental display, that moral vigour, which so frequently develope themselves prematurely, in the weak and delicate of the fair sex; it becomes our duty to modify and restrain them, when contrasted with a greatly inferior degree of energy in the animal

powers. That regimen may be made one means of doing this, there cannot be a doubt; the effects of animal food upon the nervous organs, in repressing their activity, affords some valuable lights in regard to our regulation of the diet of those classes of females, in whom the cerebral functions discover precociously a too high degree of excitement.

The perfection of human nature, considered as a whole, must depend doubtless on the nice and just balance of the various parts; but this perfection is ideal, and it may be remarked that the different systems of organs, triumph more in opposition than in sympathy; since in proportion as one rises, the other sinks in the scale. In physical education it constitutes an important part of our task to preserve, as far as may be, this balance; because on this will greatly depend the comparative perfection and integrity of the system. In that fair rank of subjects, in whom the nervous organ has generally so decided a superiority, which declares itself in spasmodic affections, in irregular movements of the imagination, or in those fine mental operations which appear to feed upon the very energies of life, and to enjoy the best triumph amid the feebleness and decay of animal nature, our duty is obvious. We must endeavour to give greater force to the animal system and to strengthen the constitution, for it

has already been shown, that it is on physical debility that the principal diseases of early life, are founded. We may do this by exercise, as has already been shown, and we may do it also by regimen. The influence of the last, according to the qualities of the food employed, in disposing to particular temperaments, and in giving activity to the opposite system of organs, renders its due consideration an object of great importance.

It was before observed that the diseases of debility, as they affect the fair sex, seem to have suffered a considerable increase within the last age or two; and that within the same term an important change has taken place in the diet of females. Several writers, who have sounded the alarm on this subject, are fond of attributing this circumstance to the use of tea, which has consequently been loaded with their anathemas. It is true indeed that since the introduction of those fashionable diluents, tea and coffee, into our regimen, the solid and nutritious meals, which were formerly in fashion with ladies, have given place to a very different order of things; and this seems one cause why diseases of the nervous system, as well as those of general debility, have had so great an increase. It is not however to the use of tea that these effects must be attributed, but to the circumstance of the general plan of diet of females having become far less invigorating than formerly,

in consequence apparently of the introduction of a fastidious and false delicacy of taste on subjects connected with personal appearance. If tea now supplies the place of the stronger beverage with which it was formerly the fashion for ladies to wash down their breakfasts of animal food, it is no reason that it should supersede also the more solid nutriment; which in fact becomes more necessary in consequence of its use. As to the argument which has been often employed, and that even by medical men, that tea is debilitating to the stomach because it is a watery diluent taken warm, its folly were far more excusable in the mere vulgar than in the individuals of the learned profession, who have employed it. Both the Greeks and the Romans were accustomed for a considerable period of their history to take their drink warm. Such was the advice of Philostinus, an excellent physician of the Grecians, which advice they appear to have followed, since Lucian in his *Asino* adverts to his practice, as does also Arrianus in his controversies.

With respect to the Romans several of their ancient writers in prose as well as their poets, may be brought forwards to show that for many hundred years it was a custom with them to take their drink warm. Varro, in giving the etymology of the word *calix*, derives it from the latin word *calidus*, because warm drink was served in it.

Seneca* mentions the practice of drinking hot water in his time. Dion makes reference to the same custom in the history of Drusius son of Tiberius, and introduces the circumstance of Caius Caligula killing a host for selling hot water in the time of the funeral of Drusius†. Moreover according to Cornelius Tacitus, the plan of poisoning Britannicus was to bring his drink so hot, that to cool it he was obliged to call for cold water wherein they had infused the poison. Plantus, Horace, Juvenal and other poets speak of this custom in several passages of their works. Dr. Mead, it may be observed, attributed the great prevalence of Diabetes, amongst the moderns, to the habit of quenching their thirst with cold instead of warm fluids. On the whole therefore we may conclude that the temperature at which tea is taken, is rather a favourable circumstance than otherwise; but the general utility of this article of diet does not depend so much on its degree of nutriment, as on other considerations, connected with its influence upon morals, and which merit probably some additional remarks.

* De Ira lib. 1. lib. 2. cap. 25. † Lib. 59.

SECTION III.

Cursory remarks on the influence of diet upon the morals and happiness of the social orders.

THERE are two epochs in the diet of some nations, which may be termed the beginning of eras, and form a sort of revolution not only in regimen, but in morals and manners. The first is when intoxicating drinks or spirits are introduced into a country to which they were before unknown; the second takes place, when, in a country, partial to strong and intoxicating liquors, there is a general introduction of some favourite diluent beverage, which applies to general use, and supersedes in some degree the passion for the former.

The consequence of the first of these changes in the general system of regimen may be gathered from the history of many nations only partially civilized, to whom the use of distilled spirits was unknown, until their introduction for the purposes of traffic. The consequences are on record. The simplicity and happiness of comparative innocence soon gave place to violence, vice and misery; and new diseases arose with new crimes. The moral order not there placing those limits to the dangerous indulgence, which it is enabled to do, in

some measure, in better regulated societies; the fatal consequences were bounded only by the temporary failure of the supply; for in rude societies the passion for strong drinks is almost universal. The nation of the Ricaras described by captains Clarke and Lewis, in their travels to discover the source of the Missouri, furnishes an exception not less astonishing than admirable.

The second change or era produced by diet is less sudden and less striking; but replete with consequences as gratifying and useful, as the former is of those which are the reverse. Such has been the powerful and impressive effect occasioned by the introduction of tea and coffee into some of the European nations. The former of these has been termed on the continent the intellectual beverage, from its supposed favourable influence on the organs of thought. It is the Hippocrene of the poets, and the favourite drink of men of letters. Tea might not with less propriety be termed with us a moral beverage, from its operation upon the manners of a great portion of society. Not that it does this by any property it possesses of purifying the spring of virtue, as coffee is said to do that of genius; or of invigorating the sources of the morals, as the latter is supposed to do that of the imagination; but merely by its indirect influence in producing habits of life more conformable to good order, good morals and social happiness. The effects

which the use of this article of diet has wrought in these respects, have not perhaps been sufficiently considered; nor its utility sufficiently appreciated, as the source of domestic intercourse of the happiest kind. The heart improves as the habits become truly social; it expands to those generous and humane emotions, which elevate the sentiment, and rectify the conduct, in the degree that it enjoys the delights of domestic life. Every thing which increases the disposition to this felicitous intercourse, contributes to improve and better man. The first proof he gives of his egress from a savage state is the demonstration of this feeling, which multiplies in a thousand ways the sources of mutual sympathy and mutual happiness. In the lower classes the cherishing of this disposition is invaluable; because in proportion as it is wanting, the advance of civilization, and the progress of the moral virtues are retarded. It is not in the clubs of jollity, nor in the rude sports of assembled men, that such feelings are fostered; they must spring from a softer and gentler influence; which nothing appears more calculated to create, than that happy domestic intercourse which the social meal of tea introduces into the daily habits.

Amongst the pleasures of sense, that of the gratification of the palate appears to have the most powerful effect in determining the conduct of mankind. This pleasure is a natural impulse; and

when we consider that directed into an improper channel, it leads frequently to habits and indulgencies the most calamitous; it becomes a consideration of no small importance, to render it profitable, in a moral as well as in a physical sense. This is more the case amongst ourselves, as it is the misfortune of the lower orders of our population, that in the gratification of this natural propensity, they are too prone to indulge in the use of intoxicating drinks. Now in matters of taste we are more the creatures of habit than of reason; and therefore the means most likely to operate a reform in this respect, are those which at the same time that they gratify the palate, can substitute some mild and innoxious beverage in place of the more baneful ones. This has been done in some measure by the introduction of tea, and coffee has had the same effect in other nations. In fact in proportion as the taste for tea has made a progress in society, a new order of things has been established; hospitality has acquired new grace from the attendance of temperance, and a powerful advocate has thus arisen in favour of the influence of that sex whose influence is always a happy one. A more temperate spirit has hence been created in the lower orders of society, where it is most wanted, and this effect is progressive. Nor ought we to deem this a minor consideration, when it has been calculated, that in the reign of George the second, the annual

baptisms were reduced from twenty to fourteen thousands, in consequence of the injury done by the use of distilled spirits. Between the years one thousand seven hundred and twenty and thirty, the average christenings were eighteen thousand two hundred and three; between one thousand seven hundred and forty and fifty, they did not exceed fourteen thousand four hundred and fifty-seven.*

The manner in which the spirit of sobriety is introduced and cherished in the lower walks of life, by the operation of the cause just referred to, is well deserving of notice. The habits of inveterate drunkenness are generally laid early; they are sometimes hereditary, and transmitted from parent to his progeny; but they are produced for the most part in early life by the indulgence and example of parents, and by the custom of giving strong liquors to youth. In this manner the disposition to intoxicating drinks seems kept up amongst the lower Irish, as well as in many of our manufacturing towns. Now it is in the first part of life that the influence of mothers is so great in this respect, and has effects so good or so bad, according as it may be exercised in the domestic circle; and according to the dispositions it cherishes in the growing habit, even with regard to diet. From this source thousands of men have

* Black's comparative view.

received the first impulse to habits of drunkenness, and a most happy circumstance is it therefore that the introduction of tea has done much to banish the habitual use of spirits from the lower orders of females.

But in what manner this infusion may prove useful in diminishing the propensity to habits of drunkenness requires perhaps some explanation. Upon the question of food, people fall under a great mistake, who deem it of no consequence what the stomach is filled with, so that it afford sufficient nutriment. The happiness of existence depends, in a great measure, upon the animal sensations, which arise from the stomach, and which are produced by the action of certain stimuli on the coats of that organ; and according as the qualities of the food taken in excites those sensations, more or less of that vacancy or particular feeling is felt which disposes to take stimulating drinks. Count Rumford has well observed in his essays, that nothing more deserves the attention of the philosopher, than the consideration in what manner the enjoyment of eating, may to the poor, whose pleasures are not very numerous, be increased and prolonged. It is a maxim as ancient perhaps as the time of Hippocrates, that whatever pleases the palate nourishes. Now the greatest refinement in this enjoyment, has been introduced into the cottage, by the meal of tea, accompanied as it

generally is, by those social feelings, which soften and harmonize the heart.

The use of tea promotes, in most constitutions, sensations on the stomach, from its stimulative action, which are highly grateful; and the production of a somewhat similar excitement on the coats of the digestive organs, seem to constitute the chief recommendation of some articles of diet very generally used in other nations. Thus the garlic of the Spaniards, the spices of the people of the East, the coffee of the French and Dutch, have from this effect on the stomach, a considerable influence in diverting from the use of intoxicating liquors. If the Irish had in their damp climate, a warmer diet than their potatoes furnish, it is likely that whiskey would not be so generally used; and it is equally probable, if the Turks were permitted by their laws, to drink wine, the eating of opium would soon become less habitual.

It may be difficult to account very satisfactorily for the effects tea produces on the sensations; but we are not better able to explain the inebriating principle we find in strong drinks. The researches of analytical chemistry have not yet cleared up this point, nor is the mode of action in which the intoxicating influence is produced, whether by absorption, or through the medium of the nerves, better explained. Some wines which contain very

little alcohol, affect the head as soon as those containing treble the quantity; while those possessing the same absolute proportion of spirit, are found to vary considerably in their inebriating powers. It may be conceived therefore that such effects result rather from different principles, than one common element universally diffused. The action of tea on the stomach seems to be in some degree narcotic; and though narcotics differ from pure stimulants, they are still possessed of a true stimulant operation. That tea tends like the strong stimulants, spirits, wine and beer, to retard the digestion, there cannot be a doubt; and for this reason it may not always agree with weak stomachs, in which the digestive process is already too tardy. But it is this quality that renders it more valuable in general diet, since in moderately retarding this process, it preserves longer in the stomach that sensation of satiety which gives the feeling of strength. While the stimulants just mentioned produce these effects, persons drinking only water, have generally the digestion so much expedited, that a feeling of sinking and emptiness sooner takes place. From this cause water drinkers require more food, and are well known to have keener appetites than the drinkers of fermented liquors. Tea appears to have the same effect of rendering a smaller quantity of food adequate to the feeling of full support, and that without producing the dangerous consequences of stronger

drinks; and as one part of the art of diet consists in making less food answer the purpose of nourishment in a prepared than would have done in a natural state; another part extends to the consideration of those articles of food, which while they give those sensations to the stomach, that are so necessary to the happiness of animal life, produce also by an indirect influence effects equally salutary on the morals and manners.

Some authors have recommended on economical views, in place of the Chinese herb, certain native substitutes, which grow in our own gardens or fields; but it may be doubted perhaps, if we duly consider the influence of national character upon public taste, whether our own shores can ever produce any thing like a substitute. As the business of providing food seems always to have formed man's principle object of anxiety, it was natural, that in the painting of an earthly elysium, he should remove this source of care; and in such a picture poetry has generally represented nature as furnishing a gratuitous supply of her choicest fruits, in a garden filled with eternal bloom, and in a climate of unceasing spring. But it may be observed that this picture of a terrestrial paradise belongs properly to the writers of more southern climes, to which from the state of natural indolence, which there prevails, it is well adapted; whereas the industrious people of the North, pos-

sessing a very different character, and deriving new life and enjoyment from a vigorous activity, want motives to inspire that action, which is the zest of their life. These motives are found in the desire for things otherwise beyond their reach; and under this impression, instead of being disposed to live upon the plants of their own garden, they fix the eye upon things obtained with greater difficulty, and harder to purchase. Hence the love of foreign luxuries must not be attributed to caprice alone, but to an innate propensity to find a powerful motive to action and industry, in the gratifications of life.

Upon the whole as an article of general diet, particularly in humble life, tea, for the reasons just given, may be considered most valuable; and notwithstanding the anathemas of some learned philosophers and physicians, it is to be hoped that its use may increase, and become more general. Fortunate is it, in such a case, that the healthy are as little disposed to admit the intrusive admonitions of philosophy as of physic, on their innocent pleasures. Perhaps the views which both have sometimes taken of this subject, when they condemned the use of this article of diet generally, have been false and mistaken. Certainly in treating of regimen as applicable to particular constitutions, it is sometimes the duty of physicians to forbid the employment of certain foods; but it

is the business of the philosopher to take a less partial view of the subject, and in contemplating regimen as applicable to nations, to consider how far the morals, the good order and happiness of society, may be connected with the particular direction of national taste.

It has been well remarked by Cabanis,* that it is not alone by the quantity of the juices supplied for assimilation, that aliments repair the bodies of animals; they seem to repair them also, and that in a powerful degree, by the general movements, which, under their influence, the action of the stomach and epigastric region impresses and renews. Thus their effects on the state of the animal economy appear to depend not less on the character and degree of this impulsion, and on the excitation of the correspondent functions, than on the nutritive principles supplied. In every situation of life the human frame is so far under the influence of external circumstances, that the ideas, opinions and tastes depend in great measure, on the impressions they communicate. But these impressions are greatly under the influence of internal excitements, acting upon the nervous system, and thereby producing that innate operation which creates sensation. We know consequently that the modifications thus produced on the orders

* *Rapports du physique et du moral de l'homme*, t. 2.

and degree of the internal impressions, and through them on the general character, may affect in a singular manner those communicated externally. Now upon the former has diet an effect so evident, that we are accustomed to attribute the spirit and habits of animals to the qualities of their aliment, knowing that all aliments do not foster the same faculties, nor give a uniform aptitude to the same functions and pursuits. But the circumstances under which food is obtained, have often been mistaken for the effect of that food upon the character, for the habits of animals are determined by organization, and all that aliment can be required to do is to preserve the integrity of the last.

CHAPTER VI.

Of the effects produced upon the physical character of females,
from the excitement of the intellectual functions in education.

SECTION I.

*Of the sympathy between the animal and intellectual systems, and of
the influence of the action of the former in allaying the irritability
of the last.*

THE observations which follow respecting the operation of the intellectual functions, are not intended to comprehend the views of their influence upon the moral so much as upon the physical character. The action of the intellectual system is known to have the opposite effects of raising or depressing the general energies of the animal system, according to the nature of that action and its adaptation to the organ on which it exerts its influence. The first effect is often seen in the energy communicated to the whole frame by studies, and pursuits, which ardently engage the mind, and are agreeable to it; and we are enabled to obtain the same result frequently, when no marked predilection is manifested for intellectual pursuits, in proportion as we duly alternate the

exertions of the mind with active exercise of the body. The second effect seldom fails to follow mental irritation, under great personal confinement; when in the course of education, the cerebral organs are strongly excited, while at the same time the muscular system remains totally inactive, and the excitability there accumulated produces a great degree of general irritation.

To pursue the first object therefore which has in view the rendering of the employment of the intellectual power in education, a source of energy to the constitution; there are two indications which should never be lost sight of in the practical measures we adopt, in the treatment of females; and which both tend to the same end: the one is to prevent mental irritation by an adequate degree of muscular action in exercise; and the other to allay the corporeal irritation which confinement produces in the young, by a sufficient portion of mental excitement.

In turning our views to the progress of human life, there are certain phenomena which strike our attention from their influence in different periods of it; and amongst these are the successive determinations of blood to particular organs. The brain, from this cause, partakes of a very high degree of excitability in the early stage of life, to which the moral impressions we make in the course

of education are constantly adding. But independant of this last source of cerebral action, which in civilized life is always present in a greater or less degree; this is the period, in the order of things the most natural, when the intellectual organ receives the principal part of those impressions, which may be deemed proper to it, and of which the causes exist in itself. Then it is that the imagination begins the exercise of its empire, that the affections assume their character, that the dispositions proceed to develope themselves, and those sympathies arise which extend their ramifications, under mental culture, to so many objects.

It is by adapting the senses to the operation of circumstances, that we produce the capacity for receiving ideas. This capacity seems greatly increased or diminished in children having the same objects before them, according to the manner in which they influence the sensations. Our views in education are to increase the number of the last, as the source from which the ideas are derived; and it follows that the more numerous and extensive are the actual sensations, the larger will be the amount of materials on which the mind has to act, and the more complete the exercise of its faculties. But the new sympathies and feelings which we inspire in the progress of intellectual culture, and which form the essence we call mind, are so many springs by which we act upon the

vital properties, and keep up that incessant state of agitation, which, according to circumstances, raises or depresses the energies of the system. In the prosecution of this task, we are often instructed to accommodate at a very early period, the education to those peculiarities of character and genius, which are observable in the developing of the youthful mind. But it is not of less importance to be equally vigilant in adapting our system of intellectual instruction to the state of the constitution, and temperament; because it is during this period of probation, as it may be termed, that the power is given particularly, in the case of females, of forming not only the moral, but the physical character.

Notwithstanding the care with which we may be enabled to conduct education, it will always be found more easy to convey to the young, opinions than dispositions. On this account it is of the utmost importance to be attentive to the nature of the sensations which surrounding circumstances create, and which seem to furnish the groundwork not only of the ideas, but of the dispositions. Every part of the instinct of the lower animals, we may observe, leads to enjoyment, and the wise provision of nature ordains, that in consulting their sensations, they should be accomplishing the end of their existence, and that their ease and happiness and their natural and proper action

should be the same. Reason certainly might imitate instinct with great advantage, in the application of this natural law to the early treatment of human life. And if to this end the physical as well as moral characters of children were studied somewhat more than they are by them to whom their management is intrusted, the knowledge thence derived might greatly assist in the implanting of those early impressions which modify in a great degree future life. In physical education our first care should be to remove from the system all sources of irritation and painful excitements of particular parts. Early corporeal irritation, which arises so frequently from an injudicious mode of treatment, has not only an ill effect upon the system, but tends to destroy the materials whence the ideas are derived; since the capacity of employing them, which constitutes a principal part of the intellectual faculty, is thereby cramped or lost. Hence the vigour and extent of the reason, will depend frequently on the due balance of the various functions of the organic system; and the developing of the faculties, on the nature of the sensations. Not unfrequently in fact do we see the mental faculties of young persons rendered torpid by the unfavourable character communicated to the last and by a treatment which excites anxious emotions. Any cause which determines the train of ideas by an undue preponderance into particular channels, has a

tendency to narrow the capacity ; for though the entertaining of certain series of ideas, connected with some important subject, may lead to much useful knowledge on certain points ; yet when preponderating trains are employed to the seclusion of others, which are necessary to the views of wisdom and happiness, the intellectual operations are no longer regulated by the just measures of reason.

There are some parents who are fond of pursuing a system of mortification towards their children, and are weak enough to think that a certain sum of early pain and vexation, forms a necessary part of the initiation of youth into the world. But they who are qualified to consider the relation of diseases by remote sympathies, will have no difficulty in conceiving in what way mental uneasiness may become the source of great physical evil, particularly in very young persons, who generally possess a fibre peculiarly irritable and have great sensibility. Such a cause not only lays the foundation in many cases of a bad temper, and malignant disposition, but promotes the action of the latent tendencies to disease.

A frequent origin of diseases, according to the ablest physiologists, and according to the mass of facts, which experience daily presents to us, arises from the increased momentum of blood to certain

parts of the system. Thus the anxious sensations of children may produce this impulsion to the head, as the lacrymatio which so generally accompanies such feelings, and implies an excessive determination to the capillaries of the part, sufficiently testifies; and it is by unloading certain branches of the arteries of the head, that from this source is experienced that sensible relief, of which there are few but must have been at some time or other conscious. The influence of mental affections, according to their different character, in removing or producing disorders, has been often treated of by authors, and some have attempted to explain their *modus operandi* on principles equally adapted to the influence of every other cause of morbid or salutary change. But as we in vain attempt to form our calculations of vital action, by the invariable nature of the laws which preside over physical phenomena; we shall as vainly endeavour to explain the operations of the mental affections, upon the general system of any pathological reasoning or deduction we are enabled to make. Nor is this important. We have only to observe the manner in which strong feelings act to judge of the comparative influence of less powerful impressions. Correspondent to the degree in which sensations exert their influence, a reaction is produced, which we distinguish by the term emotion. The agitation produced by the first sensation, is immediately communicated to the whole nervous

system; and according to the nature of the impression made upon the mind, a commensurate sympathy is felt in the animal economy. To reiterated or continued emotions, affections succeed; considering the term applicable to an unpleasant as well as a pleasant state of the feelings: thus a certain train of agreeable emotions produce those affections which increase the force of the vital energies, while emotions of a different nature tend to depress them. Feeling as we do at all ages how much our relish and enjoyment of life depend upon the state of the mind, we cannot for a moment doubt its influence at that early period, when the frame is most susceptible. Under circumstances of great anxiety with what activity do the vital properties sympathize!—With what rapidity do they pass from the highest to the lowest degree of energy!—The whole habit feels disordered,—the muscular fibres lose their tone and the stomach becomes affected:—such is the subserviency we involuntarily pay to the nervous influence, which to the animal system, is what the sun is to the flower. What indeed has aptly and poetically been termed the sunshine of the mind, has in every part of life the same happy effects; but its presence is the most indispensable in that early stage, when the developing of the intellectual and organic system, may be said to depend in no small degree upon its influence.

The interest which appears due to this subject will be increased, when we consider that the great natural susceptibility of females makes them peculiarly allied to suffering, and gives them a conformation little favourable to mental tranquillity. So much is this the case in civilized society, that it often happens that few in number are the merely physical causes of evil, in comparison with that inexhaustible moral source which is derived from the disposition to create sorrows by imagination; to perpetuate them by reflection; and to multiply them by apprehension. Now the natural refuge of the sex from such causes of misery, is that organization which renders the emotions fugitive in proportion to their violence. But by education we diminish this great natural spring of ease and consolation, in the degree that we increase the disposition to reflection, and turn the mind upon itself. Yet such is the first aim of intellectual instruction; and the new condition in which we thus place the mind, proves the delicacy and tenderness with which the task should be performed; so that in proportion as we render the system susceptible, we may diminish the sources of irritation and pain.

But it is our business in many cases to pursue the means of diminishing rather than of increasing the action of the intellectual functions. When we observe a weakly physical organization united to

that exquisite delicacy of perception, that finely constituted mind, cognizable in some delicate females, at an early age; we have reason to suspect that the energies of life are far from strong. That precocity of intellect, that brilliancy and exuberance of imagination, which parents are so fond of contemplating in their children, conceal too frequently under a flattering surface a frightful danger. In the strict economy which nature practices, this extra-development of the intellect can scarcely take place but at the expense of some other part of the animal or organic system; and in those young subjects in whom it is remarkable, particularly when accompanied with weak stamina, it behoves us to attempt to balance the general powers, and to counteract this inordinate action of the intellectual functions by adequate muscular movements in exercise. The records of navigators furnish us with the accounts of different tribes of savages, who are willing to barter, for a present gratification, their most essential necessities; in civilized life we are somewhat too apt to reverse this picture, and to make the sacrifice not of the future to the present, but of the present to the future. Such is the case when in our anxiety to give our children accomplishments which shall decorate the years to come, we overlook the important wants of the present hour; though they are essential to the health which can only secure the arrival of that

distant period which such decorations are intended to embellish.

By aiming therefore at this mental brilliancy, where the powers of life are weak, we run the risque of destroying the very basis upon which it is founded; and of rendering the glare short lived in proportion to its brightness. In both sexes the finest genius appears often connected with peculiar delicacy of constitution; and, under similar circumstances, it behoves us to be vigilant, lest, in our too great anxiety to give expansion to the former, the last should suffer irretrievably. Where an enemy lies in ambush in the constitution, its advances are made frequently under cover of those accomplishments, elegant or literary, with the display of which it is so natural to be pleased. But it seems supposed that the studies of females, from the lightness and little profundity of their nature, are less likely to be dangerous to the health than those of the other sex; yet from this very cause are they frequently more so; and hence in fact one reason why their health more frequently suffers at school than that of boys. The more light and superficial is the character of study, the lower degree of interest does it convey. In commanding less the activity and exhausting less the excitability of the mind, it increases greatly the irksomeness of confinement. From this and other causes, amongst which may be generally considered

an inadequate degree of muscular exercise, the female habit, particularly in the early part of life, displays an organization of the most irritable and susceptible character.

Our great object therefore in conducting the education of females, under the circumstances just described, is to modify the action of the brain by communicating greater and more regular movements to the animal system. In the performance of this task, it becomes our business not unfrequently to rectify the errors of nature, as well as those which proceed from artificial life; for there is a natural precosity of the cerebral functions in many female subjects, whose physical powers are characteristic of very weak stamina. Instead therefore of expending the vital energies of such constitutions in further exciting, by a too close confinement to study, that action of the intellectual functions, which is already too great; a contrary system should be adopted, and brought into practice, by calling the muscular and animal parts into frequent and vigorous action.

Again, in some females, the mobility of the constitution is so prevalent, that they are incapable of that attention which mental labours require, until the irritability of the muscular fibre is exhausted by well adapted exercise. Indeed some philosophers have remarked of themselves, that

in order to enjoy their moral faculties in perfection, they found it necessary that the vital energies should be in some degree weakened. The difficulty of conducting the business of mental improvement, in habits of the aforesaid description, may be best diminished by attention to the state of the physical properties; and by adapting our treatment to the irritable condition of the muscular fibre. We may employ every means in our power, to promote mental activity, to form the early associations, and inspire a studious emulation; but unless in doing this we consider the relation which the mind has to the physical organization, and their reciprocal reaction, our progress with respect to intellectual improvement will be small; and what is worse, while we cultivate the speculative principles of our nature, the sources of a healthy action of the vital functions may be greatly impaired.

There are reasons deduced from the nature and properties of animal life, which account for that principle and love of activity we observe in the young of almost every species; since it is in this early age that the spirit of animation is greatly accumulated. According to the influence of habits, we are enabled to supply or otherwise, as life proceeds, the sources of this active principle by art; and this forms a peculiar and characteristic distinction between the artificial and

natural state of society. While in the last there is no excitement to action beyond the impulse of physical wants; in the former a degree of irritability is always present, which varies as the usual resources of active employment are diminished or increased. If we are not always sensible of its pressure, it is because we are continually exhausting it in some interesting pursuit or pleasurable amusement, in the suspension of which its accumulation soon becomes distressing unless relieved by new means of expenditure. While females possess from their conformation, more of this natural irritability than the male, they have from their more tranquil life, less of that artificial irritability, which is acquired by active habits. The consequence is, that, while in adult age, muscular exertion is of little consequence to them, its necessity increases in early life. The vivacity and sprightliness of the early age of the fair sex, are generally greater than appear in that of boys; and from not being exhausted in active exertions of the muscular system, it acts more on the imagination, and the nervous organs. From this cause it follows that under those strong impressions, which greatly disturb the animal system, and pervert its usual order of action; while frantic and convulsive emotions agitate woman, the male remains quiescent in mute and motionless grief,

Under these circumstances it is not sufficient for them, who have the care of female youth, to consider only the action of the mind upon itself, with respect to mental improvement; they must also consider its reaction upon the vital properties with a view to health. The charge of educating females, becomes on this account, in regard both to moral and physical considerations, a task far more delicate and even more difficult, if executed properly, than that of educating the other sex; since the development of the future depends so much upon the management of this stage of life. The suppleness of the female organs is so great, that, even in the apparent uniformity of their existence, causes are constantly produced to act strongly upon their susceptibility; and to raise propensities to indulge one particular affection or class of affections more than another. It is sometimes possible to remark at a very early age, indications of great irritability and sensibility, or the reverse; which furnish a clue with respect to the proper means of producing certain modifications of the natural dispositions, and making most useful impressions. In that period education both physical and moral has an almost unlimited influence: and though it cannot remove the impressions of nature, yet it may tend to alter the quantities of those sensitive and irritative motions, on which depend the disposition, order and action of the functions. The energies which are roused in the course of a

well directed education communicate a wonderful degree of activity to the whole system, and appear frequently to give it a new character. In the conducting of such a task it will often be found essential to relieve the irritable state of one set of organs, by giving increased action to organs of a different order. Thus according to what has been previously observed, our views with respect to exercise are not confined to those which embrace the functions of the organic system, but extend also to those of the cerebral organs. In the irritable and highly susceptible state of the last, we have in this a resource, that operates with great effect, in allaying those vivacious and unsteady emotions of the mind, which prevent proper efforts at application. It produces this effect by exhausting in general movements the abundant excitability, and thereby producing that tranquillized state of the sensations, which enables the mind to make useful and energetic efforts,

SECTION II.

Of the manner in which from the sympathy between the muscular and intellectual systems, mental excitement may act in allaying corporeal irritability.

THE mind would be capable of much greater exertion than usual, with less fatigue, could we find motives to command volition; for when the volition is strongly exerted, the vital properties are not sensible of fatigue; or perhaps the sensorial power of volition, from raising agreeable ideas, may produce a pleasurable sensation, which excites in its turn new volition. It is easy to conceive in what manner the efforts of volition, in the pursuit of some interesting object, or train of ideas, produce the same inattention to small external stimuli, and to casual inconveniences, as when they are absorbed by the sensations of pleasure. Serious and interesting employments relieve from restlessness and ennui; and on this principle it follows, that the more intently the attention of young persons is fixed upon their studies, the less irksome and fatiguing will they prove. Application therefore should be early taught as the necessary condition of life, and as the best introduction to its best enjoyments. In fact the more early this task of probation is begun, the less will be the difficulty attending

it; on which account the system of a celebrated writer on the subject of education, which recommends a child to be taught nothing before twelve years of age, seems peculiarly objectionable. The mind, like the body, possesses the greatest flexibility in the early years of life; and we cannot too soon accustom it to employ its own powers, and give it that kind of exertion, which may strengthen it, as exercise strengthens the body. Habit which blunts physical sensibility, sharpens that of the intellect, and increases the facility of execution in all the operations of the understanding. But if on one hand it is our duty to make mental labour the necessary condition of early life; on the other hand, it is not less so to consult in doing this the natural feelings, and impulses, and to keep in harmony the general functions, so as to make the plan of physical education correspond with what may be termed the instinct of the system.

The sympathies connecting the inferior orders of the animal world with that state of existence, in which they are destined to perform their various parts, are regulated and bounded by certain prescribed laws; but the sympathies, which affect the human species, admit of a much wider range, from the more comprehensive faculties which distinguish it. The consequence is that the powerful reaction of the manners of civilized life

upon the constitutional energies, has its source more frequently in moral than in physical causes. Such causes however are closely connected with some property in the animal economy, which is homogeneous with the principle of life, and has a constant effect upon the vital energies, and their functions. This property is denominated excitability. This astonishing and inexplicable property, which is always inherent in a certain degree in the living frame; and is that which is capable of being acted on by external powers, so as to produce the phenomena of life; is liable to constant variation, according to the operation of those peculiar causes, which regulate and determine its proportion in the different organs. The prominent characteristic of this property is, that its accumulation and expenditure are in the inverse ratio of the power which excites into action the living fibre.

Now one of the most marked effects of civilization is to increase the natural degree of its development. Hence from the influence which the progress of civilization has upon the mental and social affections, we may easily conceive that a great source of distinction between a rude and civilized state, consists in the comparatively high degree in which this property is accumulated in the cerebral organs in the last mentioned condition of society. This susceptibility to nervous ex-

citation, which is caused by the new impressions received in the course of education, creates a correspondent change, in the physical as well as in the moral properties of our nature; and it is the midst of these new circumstances thus produced, that is formed that refined and irritable mind, that flexile and yielding organization, which constitutes the character of civilized life.

In the important business of intellectual education, the greatest difficulty seems to arise from the minds of young people being incapable of appreciating the end in view. It is this absence of attractive motive which renders application so intolerable; for a child will sit voluntarily several hours over a game or puzzle, the motive of which it comprehends, that cannot give the attention of an equal number of minutes to a task. We give the designation of motive to that excitement which produces the motions of volition, as we term that irritation of the contractile fibre, which is the cause of animal motions, stimulus. In the latter the stronger are the different stimuli which act on the fibrous motions, the more powerful are the energies communicated to them; and in the first the stronger the motives are which act upon the sensorial faculties of volition, the greater are their exertions. Our operations in education, which make such constant demands upon the sensorial faculties of volition, render it necessary to

inspire correspondent motives, to act as excitements; but as the difficulty is to make the motives we would create sufficiently intelligible or sufficiently interesting to youth, they are too often deficient in inspiring that energy of the will, which is necessary to second our views and prevent the animal system from suffering irritation and fatigue under mental application. Could we render the interests we would inspire equally active with the exertions we require; or could we employ the mind sufficiently to exhaust the natural irritability of youth under confinement; our aim would be greatly forwarded. While the system is ^{under} upon any influence which communicates great interest or great pleasure, the vital properties act vigorously, and the natural functions proceed with a healthful alacrity; and, under the excitement of correspondent sensations, the tone of the mind is equally happy.

With a view therefore of conciliating these feelings of the system and reconciling, at the same time, the mind to the business upon which we wish to employ it, the idea has been entertained of teaching children in amusing them. Such a plan, it has been conjectured, might furnish the possibility of securing application without producing that sort of fatigue, which creates disgust. But it may well be doubted if similar plans of instruction do not set out on an erroneous prin-

ciple, since they never communicate the power of commanding the attention, but tend rather to dissipate it. In the task of education, it is not the habit of employing the attention in one way only, that we aim at; but the power of varying its object, and still urging it with the same effect. The acquiring of knowledge only by amusement, forms not that habit of application, which it is the great end of education to acquire; and which is to be acquired only by systematically forcing the mind to labour. Such a habit, far from being injurious to the system, is the reverse, since it relieves the fatigue of a more indolent state; for the indolence of civilized life, unlike that of rude nature, forms often the most wearisome and painful portion of existence. From the state of the organization in early life, there is a peculiar degree of natural activity present in the frame, and this seems the best period therefore for our turning that activity into certain directions which may suit the wisest purposes of life. And if we observe attentively this early age, we may discover therein, as developed in the actions of childhood, no small share of mental perseverance. We see children voluntarily return to new attempts and persist in new trials after repeated failures, in things at the execution of which they aim.

This active principle which distinguishes more

or less the early stage of all animal life, obeys, in the human race, the common law of living matter, in losing its energy from time to time with the gradual exhaustion of the spirit of activity; unless that energy be excited and renewed by adequate motives. It is from the ill-timed and ill-judged attempts to infuse these motives into the young, that we so often see their natural activity changed into indolence, and that they prefer doing nothing to the tasks assigned to them. The art of education seems therefore to consist in adapting the natural activity of the young to the new pursuits in which we engage them. The talent of application, when once acquired, extends with equal ease, to every subject, holding as it were the mind in subjection; but when this talent is exerted merely for amusement, though directed for a time towards study and the sciences, it will, when no longer subjected to the restraint which gave its first direction, pursue amusement through some easier routine than that of labour and instruction.

Again, with the view of saving young people some part of the pain of application, it has been advised to begin education with the natural sciences; forming therefrom methodical kinds of exercises, calculated at the same time to divert and instruct. But the opinion that youth should be spared the labour of eliciting attention to sub-

jects unconnected with pleasurable ideas, seems liable to strong objections; the least of which is, that such methods of communicating the elements of general knowledge, and of facilitating the entrance into learning, may contribute to render superficial through the very facility of attainment. These attempts to make knowledge easy, instead of making it interesting, result from the erroneous idea, that the physical inconveniences, which the system sometimes suffers during its attainment, proceed from too great demands being made upon the mind; whereas in reality they have more frequently a source the very reverse of this, and arise from these demands not being sufficiently great or impressive. The constraint and fatigue of application, as before observed, are felt in proportion as the mind is partially and inadequately employed, since the sensorial faculties of volition and sensation cannot be strongly exerted at the same time.

From this cause, if it were possible to make instruction a mere amusement, one would seriously regret the discovery of such an art. A similar system of education would dissipate the attention instead of concentrating it, and training it as ought to be done to the habits of application and study. But there is little danger of a like routine being rendered practicable, for sound education can never be made a course of mere

amusement. It must be by labour that we teach youth to love labour, and education should so far be made a useful initiation into those scenes of mental trial, which begin and end only with life; and which await more or less the most happy.

Moreover the plans of sparing labour by forming methodical kinds of amusement from the sciences, appear too mechanical a process, depending upon habits which are reiterations of the same acts; and perhaps the education of slaves in some countries, such for example as Russia, where they are trained to the imitative arts, approaches somewhat to this mechanical routine. The peculiar manner in which they are there said to excel in imitation, may be satisfactorily accounted for on this principle. This power of imitation without conception, may be compared to that of memory without imagination. By memory is understood the unmeaning repetition of words or numbers, in the order in which they are received, without any voluntary efforts of the mind, except the exercise of the capacity of reminiscence; as reiteration in mechanical processes is carried on without the efforts of conception. In the instance therefore just mentioned, the imitative faculty of the slave may be increased from the circumstance of his talents being undivided by various pursuits, and bent to one object, from which they are diverted neither internally

by the irritability of genius, nor externally by the delicate interests of refined society. But the discipline to which we submit our children is very different. What forms the foundation of our hope in education, is that the spring of exertion is strengthened by use, and reacts in proportion to its extension; for the mind like the body, acquires under habits of employment, both facility and strength.

With respect to the ordinary methods of instruction, to which we generally subject females, it may be presumed that a great part of the difference between the minds of the sexes, proceeds from this circumstance, that the light and irregular imagination of women, is not sufficiently subdued by early application, nor trained enough to labour and exertion. From this cause arise, in great measure, the irritability of the sex, and the disposition to be unfavourably acted on by the confinement which education requires. The lightness of their studies, which little engross the mind, increases the animal susceptibility to the sources of external excitements; and it follows that its resistance to them will be increased, in proportion to the feeling of interest in its employments. It is apparent therefore that the character of the pursuits of education, may affect not only the moral but the physical character.—Notwithstanding England is deemed one

of the countries of the world the most favourable to the female part of society, it may with confidence be asserted, that the disparity between the general mind of the sexes, is greater in this than in most other countries; and if this be the result in some degree of the peculiar constitution of our national manners, it is still more so that of the ordinary system of female education.

In proportion therefore as we are enabled to furnish successful motives for exertion, and to adapt the activity of the young to their pursuits, may we hope to succeed in giving that happy energy to the mind, which is calculated to operate favourably both on the constitution and character. This should be our first and leading object in the management of the female mind. But when the activity of the mind does not accord with our views, the ground of our expectations rests upon the knowledge that the mental resources will become strengthened by use, and improved by habit, if they be acted on in concordance with the just views of health.

With respect to the motives for mental exertion, it appears that the excitements which act as such, are very opposite in the different sexes. While the studies of the male are directed and advanced by views to the part he shall afterwards play in life, and the consciousness of

the absolute necessity of mental labour acts as a constant source of stimulation; it is otherwise in the case of females. It follows therefore that in their education, we must depend principally upon the second resource mentioned; namely, on the effects of habits, and of the regular action the mind thus acquires. From the circumstance of our principal hope in female education resulting from this last mentioned source, the importance of training the mind to application becomes evident.

It may be observed in this place, that any remark made here, on the character and nature of study, would be totally irrelevant, were study influential only upon the moral part; but far from having only this limited influence, it exerts a great and important effect on the general system, on the irritability of the fibre, and on the affections of the nervous organs; and so far is its operation connected with constitutional considerations.

The principal advantage which boys derive from studying the classics, seems to arise from the habit thus acquired of steady application to one subject. It must not be supposed therefore that the utility of instructing females in a language, is confined to the trifling benefit of expressing themselves in a foreign idiom; since even in them we may well calculate on the ad-

vantage derived from the close training to application, which such a study requires. In fact there can be little doubt but that the teaching of a dead language to some females, would have the same good effects in subduing the imagination, and training the mind to habits of attention, as the learning of the mathematics produces in the other sex. Mr. Locke recommends the study of geometry even to them who have no intention to become geometricians, and though they should certainly forget the demonstration of every proposition; because the habit of closely pursuing the labour of definition, gives the faculty of following up a regular train of ideas. The late bishop of Landaff appears to have entertained the same opinion, as he says that two months spent in learning to demonstrate every proposition of the first book of Euclid, would confer the habit of close reasoning and attentive reading through life. Now the study of languages seems capable of being made an auxiliary full as important to the female, as that of mathematics to the other sex; since it is so well calculated to give the mind a peculiar command over the train of its ideas, and to exert a favourable influence with respect to the imagination; exercising at the same time the habits of attention, memory, and judgment.*

* L'étude de la Grammaire exige la même suite et la même force d'attention que les mathématiques, mais elle tient de beaucoup

In addition to this source of improvement, the reading of history seems capable of being rendered a most advantageous one to the female. When we consider that mothers are enabled to exert an important influence in the early part of life; and that many celebrated men have been more indebted to the mother than to the father, for the first expansion of that intelligence which has led to eminence; no study appears better adapted to enlarge their resources of utility. In the events it brings before us, in the variety of characters, in the combination of causes, in the developing of consequences, a most extensive field is laid open for the exercise of the understanding, and for the employment of reflection; which is rendered doubly inviting by the credibility of the circumstances, by the elevation of the characters, and by the great interests involved; so that whether the mind be formed for contemplation or

plus près à la pensée. La Grammaire lie les idées l'une à l'autre, comme le calcul enchaîne les chiffres; la logique grammaticale est aussi précise que celle de l'algèbre et cependant elle s'applique à tout ce qu'il y a de vivant dans notre esprit: les mots sont en même temps des chiffres et des images; ils sont esclaves et libres, soumis à la discipline de la syntax et tout-puissant par leur signification naturelle: ainsi l'on trouve dans la métaphysique de la grammaire l'exactitude du raisonnement et l'indépendance de la pensée réunis ensemble; tout a passé par les mots et tout s'y retrouve quand on sait les examiner: les langues sont inépuisables pour l'enfant comme pour l'homme, et chacun en peut tirer tout ce dont il a besoin.

L'Allemagne par Madame de Staël.

action, for public or private life, the same improvement may be obtained, and equal resources found for fixing the attention and strengthening the judgment. All persons, observes Polybius, have two ways of improvement; one arising from their own experience, and another from the experience of others; and he adds that since the first of these ways exposes to great labour and peril, whilst the second works the same good effects, and is attended by no evil circumstance, every one ought to take for granted that the study of history is the best school, where he can learn to conduct himself in all situations of life. It is from the records of history that we teach our religion, and on them we found the strength of its precepts; and though sacred history be the more important to virtue and happiness, yet it is not the only one which may be rendered productive of the most useful lessons. But to secure these important advantages, history must not be taught only as a chronological table; the ascertaining of dates, the remembrance of facts and anecdotes, is a mere mechanical part. Events must be traced to their causes, the original motives, the secret springs of actions must be examined, the consequences, whether direct or indirect, must be diligently and thoroughly developed. It is in this task that oral instruction might be rendered so serviceable, and it is much to be regretted that it is so little employed. But this species of

instruction demands a far greater display of mind and more diligence, patience and research on the part of the instructor than the ordinary routine.

Not a small advantage arising to the female mind from the study of history, would be the furnishing of an antidote to the love of romances; a species of reading calculated to be highly injurious, from the false colouring it gives to every thing connected with real life; and from its having a powerful tendency to encourage that visionary and romantic state of mind, that unfixed and restless imagination, which it is the first business of a good education to correct. It may be objected that the difficulty of making children understand the moral relations, which constitute the great utility of history, disqualifies them from profiting by such study, beyond the exercise of the memory and mechanical remembrance of names and dates. But the progress of the pupil in history, may be compared to that in painting; where the rude outline may be traced by the hand, which is yet incompetent to fill up the picture, and dispose the lights and shades. The mind in one case has an object before it, as the hand has in the other, and it is the steady direction and application of both that is the principal thing at first required:—the talent which is necessary to master the more delicate traits, and more difficult points, must be the work of labour and habit.

This subject rises in importance when we consider, that, while with respect to the male, there are two sources from which the mind, manners and temperaments are formed; namely the education of private and scholastic life, and that of the world with all its various distinctions of professions and pursuits; with females on the contrary the private and domestic education is every thing. It is that which forms not only the manners and morals, according to the discipline to which the mind has been subjected; but it is that also which regulates the irritability of the fibre, determines the character of the constitution, and commands the sources of health and strength or otherwise, according as the physical education has been conducted.

This recommendation to bring the powers of the intellect into action, by promoting the capacity of application to serious subjects, and subjugating the mind to labour, has in view most important advantages. It is very certain that in the usual way of conducting female education, in consequence of the discipline being almost exclusively directed to superficial acquisitions; the powers of the intellect are little called into action. But the injurious consequences which follow are not confined to those which affect the state of the mind; they have not unfrequently an equally unfavourable influence upon the physical

energies, from the accumulated mental irritability acting as an excitement on the morbid dispositions of the system, and producing those affections of the nervous organs, which derange in the highest degree the general frame. We see this irritability in many cases a powerful source of constitutional excitements to various diseases. It will be less active when the mind is most engaged; for the confinement and restraint of studious pursuits will be always more fatiguing, in proportion to the languor and event of interest which attend them. From this cause many of those morbid actions of the system, which take place under the confinement of education, and which are so commonly attributed to too great application; arise in reality rather from the mental efforts not being sufficiently exerted than too much so. Confinement with books before the eye is not always application; and when it is not so, the physical nature is not only apt to suffer, but the comprehension is rendered more equivocal, the disposition more fickle, and the attention less capable of being fixed, from greater impatience of restraint.

In fact from that constant mutation of impression natural to young people, and the loss of interest which the novelty of one hour will experience in the following one, it is impossible to depend on those alluring means of playing the mind into knowledge, and cheating it into learn-

ing, which some have so much recommended. The only well founded ground of our hope must arise from our success in strengthening the powers of the mind by regular habits of attention to some serious subject. The greatest and most dangerous enemy of the happiness of future life in the female is that visionary and unbridled imagination, which acquiring new force from her sedentary pursuits, requires to be subdued and fixed by some interesting and profitable study. Removed by the constitution of society, at least with us, from taking any share in the more active concerns of life, the fair sex has seldom the advantage of having the education directed by wise and profitable views to ends equally so. It is dedicated therefore principally to the attainment of those accomplishments, which can be said to adorn only a small portion of life, of those acquisitions, which are intended more to make others feel and admire than the possessors themselves; for generally these attainments regard much more the person than the mind, and are devoted to the vanity of a superficial display, to the fopperies, the frivolities and coquetry of that short period between entering into society and being fixed in it. In such a system self is always made the prominent object, and every view is directed by a personality which derives from itself all the motives for exertion. The misfortune is that when the views which have animated this period

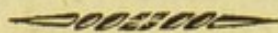
of life pass away, the useful and productive talents necessary to adorn and charm the progressive stages of life, particularly of single life, are too frequently found wanting, and there is something too much like *ennui* and disappointment mixed with the future. Life loses much of its interest and its profit; nervous and hypochondriac affections become generated; and against these, the resources of the female are much less numerous than those of the other sex, and must consist almost entirely of those derived from herself.

But if mental exertion is recommended upon the wisest principle of moral and physical good, it must be pursued in harmony with the physical order, so far as regards the sensations, by which the early part of human life is regulated in its most important processes. The affections themselves are not governed by principles, but by sensations; and because we cannot trace them to principles, we are in the habit of calling certain affections natural and intuitive. We know very well that in morals, nothing demands greater delicacy in the part of parents or guardians than the choice of methods by which we may succeed in directing the lives of children without alienating the heart; for whatever has the effect of causing physical irritation, has a tendency to destroy those happy dispositions of the mind, which foster the nobler affections, and give the character its most

useful traits. But as in such cases the structure of the mind is affected through that of the general system; it is easy to see that the last must be an equal sufferer. It were vain in the first case to think of sacrificing the affections to the hope of communicating instruction, because all lasting influence upon the conduct will end with the power of sentiment. And in the last case it were wrong to frustrate the natural impulses of physical instinct by views of rigid discipline and confinement; because we diminish our power of forming the constitution as well as the mind, in proportion as we do violence to those feelings upon which health and pleasure depend.

CHAPTER VII.

Of clothing and its relation to health, under different circumstances connected with atmospherical impressions.



SECTION I.

Of the circumstances upon which depend our capacity of resistance to the transitions and variations of climate.

IT has been well observed by a medical philosopher of great reputation, that if a definition of life were required, it might be clearly established, in that capacity by which the animal preserves its proper heat, under the various degrees of temperature of the medium in which it lives. The more perfect animals possess this power in a superior degree, and to the exercise of the vital functions this is necessary. The inferior animals have it in a lower degree; in a degree however suited to their functions. In vegetables it appears to exist, but in a degree still lower, according to their more limited powers, and humbler destination. The sap of plants does not freeze, when the thermometer stands at only a few degrees below zero: in placing the bulb of a thermometer in a hole in the trunk of a tree during

winter, the fluid sensibly rises. "As the capacity of preserving nearly an uniform temperature in all the varieties of climate and seasons, is a criterion of life in the more perfect animals; so among individuals of the same species, the degree of this capacity may be considered as a criterion of the strength of the living principle."

The regulation of the animal temperature is a striking illustration of that operation of the vital powers, which has much attracted the attention of physiologists. Indeed the properties of the human system are not less remarkably shown in its capacity to withstand extreme cold, than in that it also possesses of resisting heat. But though the health of the body is not permanently interrupted by variations in the temperature of the medium that surrounds it; yet a few degrees of increase or diminution of the heat of the system produces the most fatal consequences. If therefore a knowledge of the laws which regulate vital heat, is a most important branch of physiology; the practical application of that knowledge to the uses and habits of life, is not less so; since on this so much depends the health and well being of the system. Moreover the importance of this subject and its practical utility must increase in proportion to the advance of civilization, from the increased susceptibility to external impressions, which such a state begets and cherishes; and the

consequent necessity of due attention to the state of the skin and its clothing.

This susceptibility of the habit, which has just been mentioned as a consequence of civilization, and which appears in the sensibility to the external air, and demands so much attention to the coverings of the body, depends upon the state of the external skin, and its powers of reaction. Now the most certain and natural means of subduing this morbid susceptibility of the habit, is to preserve a healthy condition of this external membrane, and the regular action of its superficial vessels; since it is this action which supports the due discharge from its emunctories, and enables it to resist those slight changes of atmospherical temperature, which so often throw it into deranged action, when cold and moisture are suddenly applied to any part of the body.

The remarkable sensibility of English constitutions to be acted upon by climate, forms a striking feature in the history of our diseases. Observation and experience sufficiently demonstrate that the first deviations from health begin generally in derangements of the skin. These are attended by obstruction of that insensible perspiration, which is continually passing off through the external pores; and by a consequent interruption in that part of the circulating system, the functions of

which perform a very considerable share, in preserving the equilibrium of the different organs, and the balance of their action. The torpor of the capillaries produces, according to its extent, a determination of the fluids to the inner and larger vessels, and we find a continual and most intimate connexion, between the external skin and the mucous membrane, which lines the passages into the internal parts. On the regular order of this communication does health depend; and when a person sitting in a warm room, with a draught of cold air blowing on the arm or the neck, suffers the incipient symptoms of cold, it is in consequence of its interruption. From the sudden effects of this partial current of cold air, a torpor is produced in the extreme cutaneous vessels of the part, upon which it blows, and this torpor in one part is soon after followed by an excitement in some other. In such cases the mucous membrane generally sympathizes; an instantaneous sneezing is produced, and a subsequent inflammation of that membrane takes place, which passes gradually down the windpipe into the chest, and occasions the irritation of cough. By this organization not only our external surface, but our internal organs, are placed in immediate communication with the surrounding atmosphere, the impressions of which it becomes necessary to modify to the state of the different parts, by due attention to clothing.

Our capacity of resisting cold however does not depend altogether on the quantity or quality of our coverings, but on the state of the skin itself; through the medium of which part we come not only in contact with the external world, and feel the different effects of the various qualities of matter, acting upon the system, and exciting the cutaneous vessels of secretion and absorption; but the buoyancy of the spirits and the vigour of the mind depend on the same agency. Our business therefore in physical education, is not only to guard the skin against external impressions, by an artificial covering; but to diminish its natural susceptibility to such impressions, by the means best adapted to its healthy condition. It was remarked, on a former occasion, that the difference between the natural and artificial state of life, consists, principally, in the excess of certain stimuli, applied in the last; and in the inequality of that application. Now this is exactly the case with respect to the skin. Though the human system possesses, in a preeminent degree, the faculty of preserving a temperature peculiar to itself, independent of that of the atmosphere, by which it is surrounded; yet does it of all animal bodies most require artificial protection. Its susceptibility renders it highly sensible of every change of temperature, and it is easy to see the reasons, why, in proportion to our refinement in manners, we have diminished the protection to

be derived from clothing, in its most simple state, which consists in a uniform covering and unvarying mode of dress.

“The refinement of modern manners,” observes Dr. Currie, “introduced linen teguments next the body, and abolished inunctions of the surface. Hence the warm bath has become less safe, as opening the pores of the skin, and exposing the naked body to the chills of evaporation; and thus through the greater part of Europe it no longer forms a part of the regimen of health.” But it may be observed that the refinement of modern manners endangers the system still more in the case of our females. It does this by the use of rooms heated almost to the temperature of the warm bath, without any adequate safeguard from dress on exposure to great sudden transitions, and on rushing half naked from such rooms into the night air of our cold and damp climate, after wearing during the former part of the day much warmer coverings.

The perspirable matter which appears on the skin of the European, consists nearly in a pure lymph which is soon evaporated in perspiration; and it is in the far greater rapidity with which it is dissipated in warm climates, in comparison with the more unctuous discharge of the natives, that renders those climates so dangerous to the

former. While the profusion of the discharge debilitates the system, the cold produced by the too sudden evaporation from the surface, becomes dangerous, particularly when increased by incidental causes, such as sudden transitions or exhaustion. Now the habitual confinement in apartments heated to a high temperature, produces in the delicate and highly susceptible frames of our females, effects in a great degree similar to those just described; so that not only the chill and dampness of the night air must prove highly dangerous in being likely to produce a torpor, and constriction of the extreme vessels, and consequently a morbid derangement in the circulatory system; but that similar consequences may be occasioned by any accidental or partial change of temperature. The susceptibility of the frame to such impressions depends not only on the constitutional strength of the system, but on the healthy state, and vigorous action of the surface; and it is necessary to attend to both these circumstances in considering the subject of clothing.

Still however there seems great reason to doubt the propriety of the advice of some writers on this subject, who have recommended our females to follow the example of the Dutch ladies in increasing the quantity of their clothes, while they render their apartments proportionately cool.

It may be observed that the temperature of a sitting room, should seldom be below sixty, Fahrenheit, and that standard has been declared, by very high medical authority, the most proper for the apartments in manufactories where young persons labour. To the custom just mentioned however has been attributed the comparative small susceptibility of the mucous membrane, and the infrequency in Holland of those coughs, and catarrhal complaints, which are so universal amongst ourselves. But this reasoning seems by no means conclusive, since the Russians are equally free from such complaints though their customs with respect to the temperature of their apartments are the reverse of those of the Dutch; the habitations of the wealthier classes being kept at an unvarying temperature of 14° of Reaumur. Indeed to this last circumstance has been attributed by some observers the far less frequency of strumous phthisis in Russia, and Lapland, than in Iceland and Greenland, where it is said to be a frequent occurrence. It may be observed moreover that the means the Dutch women employ to keep themselves warm, have a worse effect upon the constitution than any which can possibly result from warmer apartments. This is the use of stoves to the feet, which consist of an earthen pot filled with turf, coal and ashes, placed in a wooden box with a perforated surface, to which

the feet are applied, while they protect themselves against the cold of their apartments, which are large and ill warmed, and which we should deem comfortless, by the large quantity of clothes they wear. But this method of employing stoves is far from innoxious, as their habitual use to the feet, not only tends to produce great susceptibility to coldness in those parts of the body; but increases the disposition to constitutional derangements in their nervous and feeble habits, where a languid circulation and phlegmatic temperament generally prevail.

Again our climate, it may be remarked, is very different from the moist and foggy one of Holland, being far more variable, and disposing more to affections of the mucous membrane, from the greater prevalence of the winds which affect the state of the skin. Our East and North winds are not only cold but dry; they seem to produce that unpleasant sensation so generally experienced by carrying off too suddenly the heat and moisture of the surface. It is well ascertained in fact that the conversion of moisture into vapour, greatly diminishes the warmth of the bodies from which the moisture is taken away. When the great dryness of the air is associated, as it ordinarily is with us, to the winds from the North or the East, it acts not only upon the insensible perspiration, but ap-

pears to contract the very mouths of the exhalants, and to embarrass their functions; as is proved by that feeling of inquietude and impatience, which many constitutions suffer under their influence. The sensations which travellers experience in high and mountainous situations, is explanatory in what way an air, which is peculiarly keen and dry, acts upon the living surfaces, when freely exposed; and the action of such an air upon the membranes of the eyes in very high regions, shows its effects on the mucous membranes. But the least favourable quality of our climate is its diurnal changes, its sudden transitions, to which that of Holland seems much less exposed, since the temperament and diseases of the Dutch, are those which are peculiar to a climate, more regularly humid; and from this cause their climate must be considered less productive of catarrhal affections.

It is a just observation of Dr. Woolcombe, that few subjects relating to health, are so generally misunderstood, as the effects of temperature; or so completely under the control of popular prejudice. Nor can there be a doubt but that this prejudice, in favour of cold, contributes, in many instances, to augment the disposition to disease. The erroneous impression respecting cold winters, seems first to have struck the attention of that accurate observer Dr. Heberden;

though the bills of mortality will always prove, that disease and death are uniformly and prodigiously augmented by any extraordinary increase of cold. In fact amongst the numerous vulgar errors, which are current, and have a fatal influence upon manners, may be reckoned the prevalent one, that by exposing early age to a great degree of cold, we harden and fortify the constitution. The degree in which cold has this effect, must depend upon the powers of reaction, existing in the system to which it is applied; which powers are very unequal in the human frame. In the very young and very feeble they are always weak. All medical men who have had opportunities of attending much to the diseases of children, must observe that the families in which they are least exposed to cold in winter, are generally the most healthy; while those who are treated on the erroneous principle of hardening them, by the improper exposure of their tender bodies to the severe weather, are scarcely ever free from disease; for diseases which otherwise might have remained dormant, are thus brought into activity.

Under these circumstances it is important to support the general reaction by the assistance of proper clothing. But there are certain states of the system in which the reactive powers are more easily called on to exert themselves. That of

active exercise, for example, is extremely favourable thereto, while passive exercise is less so; and hence a much greater degree of cold may be borne, when the body is under movement, than when stationary. The former condition rouses this principle of the system into activity, which otherwise remains torpid; and hence the confinement of young people in cold rooms, far from hardening, tends to produce consequences the very reverse.

But the strongest proof that in opposition to the vulgar opinion, the power of the constitution to support a great degree of cold, is rather weakened than strengthened by exposure, appears in the effects of northern climates such as those Russia and Sweden, on frames accustomed to a more southernly temperature. In such climates a stranger from the more temperate latitudes, far from growing more hardy, and more capable of resisting the cold by residence, is found to brave the severity of the first winter with much greater success than the second; and this better than the following one; and far better even than the natives themselves, who, if the common prejudice were just, would be hardened by habit almost into insensibility. Baron Larey in his observations upon the retreat of the French from Russia,* remarks

* Larey's military surgery.

that the nations of the South of Europe, endured the cold with less inconvenience than the Dutch and Germans of the army; and individuals of what he terms the bilioso-sanguineo-temperament, with dark hair and brown complexions, with less than those of the opposite appearance. He quotes the authority of a physician long settled at Moscow, for saying that the French inhabitants of that city, could walk the streets with impunity, during the depth of winter, in clothing comparatively light; while the Russians wrapped in their warm pelishes could hardly resist the cold. Observations to the same effect of the operation of the climate of other northern countries on the human constitution, have been made by other travellers. The Canadians are said by Lambert* to feel the cold much more than the Europeans on their first arrival, though after a lapse of two or three years, they become equally sensible to it with the natives. In fact it has been asserted with great confidence that the natives of warm climates, are capable of associating themselves to the most cold and rigorous countries, with far greater facility than those of temperate or cold ones, provided the heat of the former is not excessive. Doubtless the hot stoves so much in use in the severer cli-

* Lambert's travels in Canada vol. 1. ch. 7.

mates have some share in producing the increasing susceptibility to cold.

The effect of cold has no favourable operation, therefore, where it is so great as to destroy or depress, in a very high degree, the power of reaction in the capillary and perspiratory vessels of the skin; for, in the more rigorous climates, exercise does not produce that glow of warmth, which attends it in the more temperate ones; and even in the last, the feebler constitutions will not exert the capacity of reaction under the more moderate degree of cold. But on the other hand where the temperature is not too low, nor the habit too feeble, to produce this salutary oscillation of the vessels, by which a new stimulus is given to the functions of the glandular organs; the exposure to cold under proper modification, tends doubtless to diminish the susceptibility to atmospherical transitions.

It appears then from what has preceded, that the principal object to be considered, in the adaptation of the coverings of the person to the state of the health, is the power of reaction existing in the system, in order that the former may be suited to the feelings and demands of the last. The degree of cold to which we subject the system must be salutary, or the contrary, as this indication is attained. But while, for the fore-

going reasons, it is our business in the treatment of the young to guard against the consequences of having the natural susceptibility of the habit too strongly acted upon by sudden transitions, and undue exposure; and this principally by a proper attention to dress; on the contrary it is our object to diminish in every possible way the susceptibility as far as possible by moderate exposure, by dresses as light and uniform as may be, and by active exercise; taking care however always to keep in view the different constitutional powers of the system. Thus if we observe general debility,—if we see a weak chest,—or internal organic disease, we cannot consistently expose such a subject to the same degree of cold as a stronger frame, without an increased attention to clothing; because while in such a habit the powers of reaction are weaker than common, the sensibility to atmospheric impressions is increased, in an equal degree, from the feebler energies of the system.

The same attention to warm clothing is required in that delicate state of the constitution which bespeaks the scrofulous diathesis. The idea which some persons entertain, that a warm dress tends to increase constitutional delicacy, and to promote the morbid susceptibility, which weak constitutions feel to external impressions, leads naturally to the equally erroneous one of the supposed good effects of the exposure to cold in

hardening the living animal fibre; because it acts on certain inanimate bodies by bringing their parts closer together.

Under the influence of this sentiment too generally received, it is supposed that delicate constitutions ought to be early exposed with great freedom to atmospheric changes of every degree. Yet to any but the grossly ignorant or thoughtless, it must be apparent, that this is the period of life in which attention to the clothing in feeble constitutions, ought to be observed with unremitting solicitude, under all circumstances of exposure to atmospherical cold; since on the regulation and preservation of vital heat, by the coverings of the surface, depends one great means of supporting the vital power.

There are two states of the surface of the body, under which cold is supported, in a very different manner, and in which its effects are in opposition; the first is, when the exposure is made under circumstances of a sufficient degree of internal energy or external clothing, to rouse the cutaneous vessels into vigorous reaction; the second where exposure takes place under circumstances of an opposite nature, and partial chills and a torpor of the capillaries follow. In the former case the tone of the solids is directly increased, and a lively and pleasurable feeling communicates

itself to the various parts of the system, with an increase of vigour in proportion to the spring given to the moving organs. In the last case, from the contractile power of the heart and arteries being tardy in overcoming the collapse of the capillaries, the vital energies feel depressed, and the effect of cold is debilitating; and this effect may act generally upon the system at large or partially upon the most susceptible parts.

In fact independant of general constitutional debility, which should induce us to employ a warmer dress uniformly, as a protection against atmospherical vicissitudes; there is very frequently debility of a more particular kind, which demands a marked attention to be given to the clothing of certain parts of the body. This observation is particularly applicable in a very frequent degree to the state of the chest; which part in females, during the early period of life, is generally speaking, too little protected by dress; though there are the most important reasons, why it should be otherwise. Our knowledge of the human frame shows, that the humours take a particular direction according to age, and that the constitutional movements receive an impulsion at different epochs of life to different organs;—that all the organs do not obtain their full development at the same period, and that they become successively the particular centres of excitability

and excitement,—of action and reaction. Thus during the first years of life,—during those in fact which extend from the earliest infancy to the thirteenth or fourteenth year, the volume and preponderance of the brain produces a determination of blood to the head. All the new and varying impressions, which are daily made upon that organ, tend to give it a particular activity;—they are vague;—they are unformed; but they constitute the materials which in the course of a long and gradual development, become the source of the sentiments and affections, of the tastes and feelings. Now from the last mentioned period, that is from the fourteenth or fifteenth year, to the concluding term of youth, the humours of the system take a new direction, and there is a particular determination to the chest. It is from this time that the spitting of blood, pulmonary hæmorrhage, and the various pectoral affections, are so decidedly active, and the disposition to them is so fatally increased.

Such being the natural course of the humours of the system, we may conclude that their determination to particular parts, and more especially to the pulmonary organs, is liable to great occasional increase, in climates like our own, where the pectoral congestion is so frequently produced by atmospherical variations. These effects are always liable to be felt in proportion as the chest

is left exposed to the inclemency of the weather, and an inadequate attention is paid to the external coverings of the body, which renders this an important consideration always, but particularly so in feeble and delicate habits.

In what manner the negligence with respect to the coverings of the body, may act in producing thoracic inflammation, or other fatal affections of that organ, at the period of life, when they most frequently occur, may be explained in the words of a physician of the first character and celebrity. "The branches of the intercostal vessels, which are very numerous, piercing through the substance of the intercostal muscles, communicate a good deal by anastomosis, with the external vessels on the sides of the chest. Hence whatever may act upon these external vessels, so as to excite contraction in them, may be supposed capable of producing an accumulation of blood, as well as an increased action in the inner branches of the intercostals, many of which are distributed upon the pleura. Many of the inhabitants of this country, from their mode of dress, have their chests much exposed to the influence of a cold and very uncertain climate, and hence the blood is frequently thrown inwards into the small vessels ramifying upon the pleura. For these reasons probably the pleura is more liable to inflammation than other membranes investing ca-

vities which have no external opening. This is so much the case, that one can hardly examine the chest of any person, who has arrived at the adult state, without perceiving more or less the traces of a present or former inflammation.”*

But it has just been shown that in the advance of the form to maturity, there are other causes for this liability to excitement in the chest and pulmonary organs; from the increasing internal impulsion of the humours to this most excitable part of the system. These causes coupled with others arising from the atmospherical variations of a capricious climate, render attention to the coverings of the chest in delicate females a subject of vital importance, particularly in an age when the diseases of that part have increased amongst us to a frightful extent.

It may be observed with respect to those diseases connected with consumption, and particularly with respect to that class of them, the roots of which are congenital; that, according to circumstances, they may remain latent through a long life, or be brought early into a fatal activity. Which of these events shall occur will depend very frequently on the degree of that attention, which regulates the external coverings of the body, and establishes the healthy condition of the skin.

* Baillie's morbid anatomy p. 53.

SECTION II.

Of the means of producing some salutary modifications of the animal susceptibility to atmospherical impressions.

FROM what has preceded it is obvious that there are two considerations, which belong to the subject, and which relate to the condition of general health, as well as to that of general or local debility. The first is to lessen, as far as possible, the susceptibility of the habit to atmospherical impressions; and the second that of guarding against them by proper coverings.

1st. On the first head it may be observed, that the state of the reaction in the vessels of the skin, may depend on two causes; namely on their own powers of action; or on those of the general powers of life. The habits of physical education may have great effect in producing the first, when the second are not naturally strong; as well as of giving under every circumstance a comparative vigour to the last. It may hence be deduced that the most important part of the physical treatment of females, relates to those habits, which are calculated to endow them with the power of resisting those morbid effects, that arise from the variations and transitions of climate.

On this subject it has already been recommended, when the female constitution is feeble, and gives early indications of great delicacy, that the physical education should be made more uniform than it usually is, with that of the other sex. This should extend particularly to the abatement of that early restraint and confinement, which always impedes the progressive developing of feeble organs, and has an unfavourable effect on the powers of life. The best means certainly of doing this is to expose the person pretty freely, but under proper protection from dress, to the open air, and to atmospherical changes. The interior parts of our habitations are kept in a state so artificial, that it is only in the external atmosphere, that the system can overcome that morbid susceptibility, which often trembles to feel the native breeze. It was before remarked that a great advantage which attends the inhabitants of warmer climates, is that from the openness of their dwellings, they are enabled to inhale an unvitiated atmosphere, in the innermost apartments, where it is permitted to circulate in full purity. We can give our females this great advantage, only by enlarging the boundary of that secluded and sedentary life to which we doom them, and by diminishing, by hardy habits, the sensibility of the organs.

An important reason why we should accustom

constitutions, which from their feeble powers appear liable to the invasion of future diseases, to the open air, arises from confinement producing an aversion to the stimulus of a pure atmosphere. The most vitiated air of confined dwellings becomes in such cases more grateful to the lungs, from its being less stimulating probably, as we see phthisical patients are relieved by breathing hydrogen; though under its influence the powers of the system languish, and the progress of the disease becomes accelerated. The incapability of the lungs, in such cases, to receive and decompose highly oxygenated air, is proved by the ease derived from breathing air which is in part decomposed by heat. Hence the inspiration of a pure air is exercise to the lungs, while locomotion is exercise to the body, and produces a free action of the vessels of the skin between which and the lungs, there is a constant sympathy. The correspondence between these parts is not that however of mere sympathy, but one which arises from a free intercourse and relative action of vessels; for whatever reduces the action of the skin increases that of the lungs. This circumstance renders it of great consequence in all cases of a weak chest, and where pectoral disease exists, to pay great attention to the state of the skin; the condition of which is frequently peculiarly connected with the rise and progress of phthisical affections.

There are some animals that experience a gradual decline, when removed from a warm into a colder climate, and a similar cause produces in an equal degree effects unfavourable to the human constitution, in the natives of tropical climates, who transport themselves into the northern latitudes. Thus the influence of climate appears to affect our very organization, and to render the parts less capable of resisting certain impressions. It is obvious then that by keeping females constantly in an artificial atmosphere of too high a standard, we may disqualify their constitutions for their native air. In such cases it is not against the inclemencies and irregularities of particular seasons only, that we have to guard, but also against the regular and ordinary degree of atmospherical cold. Thus causes are constantly acting in civilized life to produce those feeble constitutions, which are unequal to the support of even an ordinary degree of cold without well guarding the surface. In fact the simple standard of thermometrical admeasurement by no means affords a correct test of the temperature as it affects the human body, nor can any numerical scale, however correctly adjusted, ascertain or express the modifications produced by wind and moisture, in the various relations they bear to the feelings of the system. And if this be the case more or less in vigorous health, in how much greater degree must it have place, when

the susceptibility of the habit is greatly increased by the high and impure temperature of a close domestication.

The habits of confinement in heated rooms seem to give a premature expansion to the organs. The Russian women of rank and fortune have this precocious development of organization as much from the use of stoves, as have the more southern Asiatics from natural causes. This effect may be supposed to follow in some degree the habits of our own climate, in proportion as they partake of an artificial state of excitement, from the stimulus of greatly increased warmth. Yet our climate is so favourable to exercise in the open air, that we have not the apology of either colder or warmer climates, for not paying more attention to this indication, as it appears marked in early female life.

Keeping therefore always in view the two conditions of general and local debility, and guarding against them, as far as possible, by the external coverings of the body, it is an object of the first importance, in the young, to diminish the susceptibility of the frame to atmospherical impressions, by accustoming it to the variations of our changeful climate. The various manner in which the human frame is acted upon by external impressions, may be said to depend altogether

upon the habits of life, and the different modifications they receive either under the natural influence of climate or the artificial influence of manners.—By those habits we either increase or diminish the sensibility of the organs, and greatly change in so doing their relation to the ordinary functions of life.

It is perhaps in consequence of the more favourable modification of the physical education of the stronger sex, that we seldom see it exhibit that unhappy languor which appears so frequently in the female, and is not only a great deduction from the natural charms of the person but a formidable enemy of active health and active goodness. We may observe that the animal economy forms a system in which there is a general correspondence, and in which the functions feel a mutual sympathy. From this circumstance we may infer that a due regard to air and exercise when young will prove one of the best means of counteracting that languor of habit so fixed in some feminine constitutions; since as the excitability varies inversely with the application of the stimulus, and a suspension of the animal excitement enables the former to increase, we may conclude that the intervals of exercise will produce new dispositions to activity. All persons in the habit of taking exercise feel this natural effect follow, and in fact this accumulation of

vitality upon rest, is the means by which nature herself excites the young to the exercise so necessary to the developing of the various parts of the system.

In the task of strengthening the constitution against climate, the bath, particularly the shower bath, is capable of being made an admirable auxiliary. Nor is the tepid or lukewarm less active in producing this effect than the cold. The former indeed might be rendered peculiarly useful in delicate frames, where the skin from the variety of external impressions to which it is exposed, is liable to become diseased. And when we consider how much depends with respect to the balance of the relative functions of the different organs, upon the state of the external skin, its condition cannot be made too much the object of solicitude and attention. In fact no part of the regimen of health appears so capable of being rendered an instrument of profit either to the weak and delicate, or to the vigorous and healthy, as this under consideration. Its temperature admits of so varied a modification that it may be adapted to the opposite state of the sensations, and to the different powers of constitutional reaction. The feeblest habit, where there exists no congestion in the internal organs, will be found generally to increase its powers under this admirable pro-

phylactic, and be enabled to support better all the vicissitudes of atmospherical irregularity.

2nd. Under the second point to be considered, which is that of guarding against atmospherical impressions by external coverings; some remarks may be made on the circumstances which should regulate their application. If we observe the manners of nations, and particularly those which regard dress, we shall find, that, in their original state, they are always suited as much as possible to the peculiarities of climate and temperature, under which they were formed. Hence we might be led to conclude that as manners improve, increased resources of art would enable us to diminish the evils of nature. But it is easy to see the reasons why, in proportion to our refinements in manners, we have diminished the protection to be derived from dress in its most simple state, which consists in an uniform covering; whereas the fashions of our dress are continually varying the degree of protection, they are intended to afford.

The great difference between the morning and evening dresses of our females, is calculated rather to increase the danger resulting from a variable climate than the contrary. But as the fashion of dress is under a very different empire from that of medical philosophy, it were a vain hope that danger should teach caution to them, who, priding

themselves on personal risque, appear to consider the post of danger that of honour. It is said to have been one of the extravagant humours of the late emperor Paul of Russia, to forbid in the depth of winter, all his subjects, civil or military, the use of any sort of pelisse; after which he published an ukase, enjoining them to stand still and open their cloaks as he passed by, in order that he might see they were dressed according to his order. This affords not a bad picture of the capricious tyranny which fashion exercises over her votaries. But it is to be hoped that many who are the willing slaves of her mandates, and despise all precautions about themselves, may nevertheless think them not quite unnecessary with respect to their children.

Our climate receives some of its most unfavourable qualities in regard to health, from the circumstances which are, in a certain degree, the sources of its convenience. Hence some have deemed it unfortunate that its inhabitants are not exposed to that continued severity of cold, which might oblige them to protect themselves accordingly by warmer clothing; for were the obligation more imperative, danger would not so often arise from ignorance or neglect. While the singular flexibility which distinguishes the human constitution, added to its remarkable power of resisting external impressions, and of adapting its mobility to

circumstances, render it capable of enjoying health and feeling pleasure in the most opposite situations, and in climates suffering equally the extremes of heat and cold; they are nevertheless unable to qualify it to support with impunity the sudden and frequent changes of atmospherical transition.

But under climates either very hot or very cold, there is an uniformity of temperature, for which the natives are obliged to be always prepared; and it appears pretty certain that from the operation of this physical necessity, the inhabitants of the coldest climates in Europe, suffer much less from the cold than we do in England. In such countries, for instance, in Russia, the accurate observation of cold, and the means of defending the body from its attacks, are as much matter of study and science, as that of guarding against the excessive heat of the South. It is indeed surprising to a stranger, says a traveller in Russia,* to hear people of the lowest orders in life, and even the very peasants of the country, talking with the utmost familiarity of the degrees of the thermometer. From the circumstance of our climate being so extremely temperate at the same time that it is so variable, it does not lay us under that strong necessity of guarding against its

* James's travels, vol. 2.

transitions, which is so indispensable in countries where the heat and cold are extreme; yet from this characteristic variableness it demands perhaps more than any other, a marked attention to be paid to the coverings of the body. Nevertheless it is pretty evident that the continual variations people are fond of making in their dress, according to season is a bad system. It increases the susceptibility they feel to aerial impressions, and it were best perhaps to adopt a regular and uniform plan of clothing; and to make the immediate covering of the skin always the same, without regard to the change of seasons.

This uniformity of dress, with respect to the immediate covering of the body, is certainly of the utmost importance; and the question as to the advantage of making woollen teguments next the skin a more regular part of clothing, has been much discussed. When we consider the constant connexion of the skin with the internal organs, and the equally uniform impression produced on it by the flannel tunic, it cannot be doubted but that, in many states of the constitution, it may be highly advantageous, and capable of producing the happiest results, though there are exceptions to so general a rule.

In treating of this subject, it should be considered that in the human system far more than in

the lower animals, a connexion exists not only between the climatorial influence, and the state of the skin, but between this last and the internal organs, which depends greatly on the influence of habit. For example many persons in the earlier periods of life excite the skin in a peculiar manner by the great degree of exercise they take. When in the order of the animal habits, the taste for exercise becomes greatly diminished, and the skin undergoes less stimulation, dyspeptic complaints not unfrequently become established. In such cases the regular excitement given to the skin by the use of flannel, is calculated to produce a very favourable effect on the digestive organs and on health.

Under these circumstances it appears that the very reverse of the common maxim applies. People who take arduous exercise are recommended to wear flannel, but from the causes just given, it is far more necessary often to them who use the least locomotion. In climates where the skin from natural causes acts the most powerfully, we find uniformly that active exertion of the body forms by no means a necessary part of the regimen of health. Hence where this action of the cutaneous vessels is not produced by the influence of climate, nor yet by exercise, the effects of woollen teguments may be most salutary.

Though the change in our climate from woollen to linen, may have materially diminished diseases of the skin, it has certainly increased, in an extraordinary degree, some other complaints, and none more than consumption. Indeed those diseases of the external membrane of the body, which were encouraged perhaps by the wearing of flannel, may have had great weight in preventing phthisis. The observations of medical men have frequently been drawn to this subject, and it is a remark by no means very novel, that affections of the chest are apt to follow the disappearance of those of the skin, in constitutions previously disposed to them. The increased susceptibility of the skin in consequence of the effeminating effect of our refined manners, has rendered this change doubtless in many cases a most baneful one. In respect to the degree of attention to the external membrane of the body, the difference between ancient and modern manners is most striking. Under the influence of habits far more simple and more hardy than our own, the ancients appear to have given much greater attention to the state of the skin. Yet perhaps it were nothing less than a just inference to conclude that our warm apartments render woollen teguments necessary in very many instances to the present state of things, for the same reasons that formerly the use of the warm bath made them indispensable.

The changing of a highly heated room for the external cold is not perilous, provided the heat of the system fall not too suddenly below the standard of health. It is observed by travellers in Sweden, that the women seem to suffer less from the extreme cold than the men. In Russia, where the apartments are kept at an unvarying temperature of about 14° , the natives go without inconvenience from these warm apartments into the air, while the mercury in the thermometer is 23° , and sometimes 33° of Reaumur below the freezing point; and where a decrease of 34° of Fahrenheit, in the course of a single night, is not uncommon. But the dress of the Russian is always correspondent to the circumstances surrounding him. As in heated and ill ventilated apartments, a degree of fatigue and lassitude is felt, which superinduces a disposition of the system to undergo a sudden loss of heat, the protection of warm clothing is necessary to prevent such a consequence. It is by taking this precaution, that the inhabitants of cold climates are enabled to pass from their stoves into their frozen atmosphere, without risque of deranging the functions of the system. Such precautions seems however to occupy very little the attention of our females, notwithstanding the victims of such neglect are signally numerous.

Physiologists observe that the functions of the skin are in many respects analogous to those of the

lungs, for in both cases carbonic acid gas and water are evolved, and oxygen absorbed. It is obvious therefore that we facilitate the functions of the respiratory organs, in keeping up those of the skin. The intimate connexion there is between the last and the mucous membrane, which lines the passages into the internal parts, appears but too clearly in the ordinary affections produced by atmospherical transitions. It is by its influence on the skin, and through it on the internal organs, that cold is favourable to the development of scrofula, and its consequences, strumous consumption; both of which may be best counteracted by the artificial warmth produced by clothing, and well warmed apartments; since under the warmth of tropical climates these do not appear as original diseases.

Under these circumstances it is evident that the part of physical treatment, which refers to the state of the external skin, and the regulation of its coverings, is a most important one. The subject however rises in importance in those delicate frames which form a great portion of the female world, for with proper attention thereto we shall often find weak habits acquiring increased and more vigorous health; while those which are marked by any peculiar indication of feeble stamina,—of scrofulous and phthisical dia-

thesis, will find therein their best protection and security.

In the young subjects, whose constitutional dispositions are characteristic of the last mentioned diseases, the wearing of a flannel tunic under the linen, appears a most necessary precaution. An objection has sometimes been made to the use of flannel, that it expends in weak constitutions too much of the sensorial power or vital energy. But these seem however very little exhausted by stimuli acting upon the skin, through the medium of dress, in comparison of what they are by those which promote the increase of fibrous action in exercise. It has been well observed that the state of the body, "in relation to the susceptibility of being affected by cold media, has more reference to the kind than degree of previously existing heat; or more correctly speaking, although an equal quantity of actual heat may be present in the system, such heat may be abstracted with greater or less facility, according to the mode in which it has been generated." As the secretions of perspirable matter occasioned by exercise, are produced by the increased action of the capillaries of the skin, owing to their being more powerfully acted upon by the greater velocity of the blood, they are of a warmer kind than those which are occasioned by the stimulus of external heat or of dress, and more likely to be

succeeded in delicate habits by partial chills, and a fall below the proper standard of temperature.

It is in proportion to the equable discharge from the various emunctories, particularly of the skin, that the susceptibility to diseased action is diminished either from external or internal sources. The generation and flow of perspirable matter is produced and regulated by various exciting causes, of which the clothing acts as the principal external one; since by its means the cutaneous vessels are supported in that condition, which is most favourable to the regular secretion and discharge of the perspirable matter. This action of the cutaneous capillaries is more under the influence of external impressions, than any other of the secerning vessels, in consequence of the latter being regularly accustomed to ninety-eight degrees of heat, the internal warmth of the body; whereas the cutaneous vessels being nearer the surface, are constantly exposed to be acted upon by atmospherical variations.

The weak and delicate being generally chilled or overheated with nearly equal ease, it is of the utmost consequence to preserve in them the healthful action of the skin, and to guard it against unfavourable impressions. Cold extremities, while other parts are hot, and a dry, and a husky skin, instead of that soft and bland feeling it

communicates in a healthy state, originate generally in too little care being taken to protect the surface of the body; and the catalogue of evils and fatal ones too, which result from this cause, is such as might astonish those unreflecting people who deem the state of the surface of little consequence.

The prejudices which some persons entertain of the debilitating effects of woollen under garments, in exciting a too great discharge from the surface of the body, do not appear always well founded; very often it has the contrary effect. The perspirable matter being a pure lymph in our climate, unlike the unctuous fluid produced by the inhabitants of the torrid zone, is speedily dissipated by evaporation; which process of evaporation is always increased by exposure to the influence of the external air. Hence flannel, instead of producing in such cases a profuse discharge, which debilitates the system, actually restrains it, by equalizing the action of the skin and rendering it more uniform. “The warmth of the wool and fur of beasts, and of the feathers of birds, is undoubtedly owing to the air in their interstices; which air being strongly attracted by these substances, is confined and forms a barrier, which not only prevents the cold winds from approaching the body of the animal, but which opposes an almost insurmountable obstacle

to the escape of the heat of the animal into the atmosphere. And in the same manner the air in snow, serves to preserve the heat of the earth in winter. The warmth of all kinds of artificial clothing may be shewn to depend on the same cause.*

It were upon the whole impossible to lay down general rules for clothing any more than for diet. As a standard rule, the best is, to make not only the covering of the skin uniform, but the general dress as much so as possible. Whether the former should consist of a woollen or of a linen texture, must depend on circumstances, connected with the powers of the constitution, with the predisposition existing in the frame to disease, and other considerations which will always depend on the powers of reaction, and on the energies of life.

Nothing is more common than to hear complaints against the constant fickleness of our climate, and its daily transitions. But the variations of temperature are much greater in warmer climates, where the diurnal range of the thermometer is sometimes astonishing. A great part of the diseases we are in the habit of attributing to our climate, arises from the neglect of proper precau-

* Rumford's Essays, vol. 2.

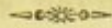
tions. They who wish to secure to their children health, in such a climate, ought to accustom them freely to such vicissitudes as its continual variations make felt, in some degree, even in the closest recesses of our dwellings; and the means of being enabled to do this with security, is to employ that kind of dress, which, in every degree of temperature, may preserve the reaction of the surface, and the free and healthy tone of the capillaries, without loading the person with a superabundance of clothes.

Persons often attempt to account for the presumed greater frequency of colds, which they suppose to take place in the spring and autumn, by the greater variability of the temperature at these seasons. If this be the case, the greater security from colds, and their ill effects in the warmer months, must proceed from the increased action of the skin, as the total range of the thermometer is greatest in summer, and consequently the scale of variations in the temperature is then more extended. By this regular action of the skin, which we produce by warm clothing, we diminish the effects of the changeableness of climate, by maintaining the equilibrium of temperature in the system, and by preventing the ill consequences of partial subductions of heat; for it may be observed that it is not so much the general vicissitudes of temperature either with respect to heat or cold,

which for the most part prove injurious, as their partial applications. In this country, as a general rule, the best principle of personal safety, is constantly perverted from a too great apprehension of general, and a too great fearlessness of partial exposure to the varieties of temperature. The common prejudice of the danger of going from a hot room into the cold air, seems much overrated, since the more heated the system is on leaving a room, the longer will it retain its heat, and the better resist the external cold; though if it be in a state of profuse perspiration, it parts with its heat more quickly than otherwise, and requires better protection from dress.

CHAPTER VIII.

Of the general views to be attended to in physical education, under the dispositions produced by climate or manners to particular diseases, to obviate their occurrence.



SECTION I.

Of the general causes which are influential in producing particular diseases.

IN the preceding parts of this work, a cursory view has been taken of the influence of those circumstances upon female organization, which are referrible to the habits of civilization, and to the effects of climate, in that period of life, when the sentient organs are most alive to the various sympathies of pleasure and pain. In considering the impressions to be produced by the early treatment of female life, it has been deemed necessary to make some remarks, not only on the general influence of the phenomena of nature on the human frame, but on the modification of this influence as relative to habits and manners; since the effects of climate may be very different, in the various ranks of the same country, from the operation of causes connected with the state of society. It hence appears that human institutions have so much effect on natural

phenomena, that the bodies whose constituent parts were originally the same, may be greatly changed in their action and duration by the effects of our interference.

The changes which take place under the institutions of highly civilized society, do not relate only to the increased susceptibility of the animal frame to the surrounding phenomena; but to the reaction also of the moral upon the physical order. At every step of our progress we extend our sympathies; and our connexion with the things which surround us, is not only enlarged by infinite and innumerable ramifications, but our sensibility to those various impressions, which act on the functions of life, is greatly and often morbidly increased. Hence in fact results the greatest difficulty we have to encounter in the treatment of the young, which is that of reconciling our moral views to the physical order. A late author* somewhat too sanguine, perhaps, has asserted, that, "when the study of our common nature shall have assumed a station among the pursuits, which no person of education can have neglected without discredit, corporal blemishes and defects will seldom be suffered to take place." But it may be observed that these blemishes and defects to which he refers, have their foundation in circumstances

* Dr. Beddoes.

which depend less upon general knowledge than upon public taste. If the national taste which directs and modifies customs and habits, were more frequently conformable than it is to the knowledge and experience we have, such irregularities would seldom appear.

The habits we are in of attempting to modify the character to our views in the progress of education, and to stamp on it new impressions, make us too apt perhaps to overlook the consequences of those innate sympathies connected with organization. We observe in the manners and history of some rude nations, a remarkable tenderness with respect to the unfavourable impressions of external agents on the character of children, which is absent frequently in more civilized life. Procopius asserts of the Goths, that they carefully removed all painful agents in the treatment of their offspring:—they would not permit the infliction of corporal punishment, lest in the order of that sympathy which exists between the moral feeling and physical organization, bodily pain might act unfavourable on the energies of the mind. Nor is this trait, according to the evidence of many travellers, an unusual one amongst the rude nations. Without pretending to say that such a rule of conduct may not be carried too far, we may assert that the principle of it is a just one; for certainly

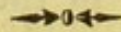
nothing can be more wrong both in principle and practice, than that opposite system, which leads many parents in civilized society to imagine they are serving their children, in rendering their early life a period of suffering and penance; by exposing them to the sources of irritation and trouble, as a necessary state of probation for future life.

The great improvement we observe in the health of females, as they advance from adolescence to youth, in which progress they appear to leave behind them the infirmities and sufferings of their more juvenile years, has its origin not unfrequently in the diminution of that sensibility of temperament, which, during those years, was a constant source of derangement in the physical order. This sensibility when acted upon by many of those causes of irritation, which are produced in the progress of education, becomes a means of excitement to latent disease; for the commonest cause of evil to young people, and the point in which parents most frequently fall into error, is the not placing a sufficient guard against the disturbance of the natural functions. Whatever disorders the harmonious correspondence of the properties upon which the vital movements depend, has a tendency to this effect. From this disposition of certain organs to assume a baneful superiority under different circumstances,

it becomes an important consideration in physical education, to modify such determinations, and balance as far as possible the action of the various parts of the system. Parents appear frequently to conclude that their offspring receive a particular character of constitution, or disposition of habit, from nature, and that it remains therefore for them to acquiesce in the propensities so communicated; but what is termed nature is very frequently only the effect of habit, and nothing is more certain than that the physical as well as the moral order, may receive a new direction by an early and well timed interference. Thus the tendencies which the organs assume to certain trains of action, under the influence of climate, are in innumerable instances modified or counteracted by the influence of habits and manners, according to their character, and according to the favourable or unfavourable manner in which they operate upon the energies of life.

Climates have however a powerful influence in determining the organs to certain trains of action; and this may be increased so far by the habits of life adopted under them, as to give a peculiar determination to the character of the constitution. It has been remarked, on a former occasion, that this influence of climate under the operation of our manners, is peculiarly active on the female constitutions; and the consequence of this combi-

nation of effects in our country, seems to produce a marked disposition to certain morbid habits of action. The effects of these appear peculiarly exemplified in the frequent occurrence of the scrofulous diathesis, and of the phthisical temperament,—and perhaps it may be added in the tendency to certain irregularities of form.



SECTION II.

Of the scrofulous diathesis or temperament.

UNDER the general disposition, which exists in our climate, to those affections which are generally termed scrofulous, it is a subject of the highest importance to parents, to be made acquainted with the causes which prompt the constitution to put on such morbid action, in order that this disposition may be early obviated.

The diathesis termed scrofulous, is rather a constitutional predisposition to fall into certain diseased actions, than a real disease of a specific nature;—rather a debilitated state of the living fibre, and a diseased action dependant thereupon, than an acrimony of the solids or fluids, proceeding from hereditary taint or constitutional impregnation. The view which is often taken in society, in considering it a disease arising from the heredi-

tary transmission of acrimony of humour, occasions great evil, as it leads to the belief of its being inevitable, and induces a disposition to wait for the appearance of symptoms before any thing is done to relieve the constitution; while, as it is in fact only a latent tendency to disease, early means properly employed might generally succeed in counteracting it. Any morbid action in the constitution, which promotes debility, will be liable to prove an excitement to this latent disposition, in which case it will assume a character according to the constitution upon which it acts. But under proper treatment, the eradication of this disease from the habit, is attended with little difficulty; and from this cause, under the advantages of a proper physical education, the early part of life will prove a redeeming period: a period in which we shall be enabled to counteract hereditary dispositions, to correct morbid susceptibilities, to strengthen weak stamina, and animate with increased vigour the sources of vital energy.

The disease therefore having in very many cases no connexion whatever with hereditary taint, is always liable to be raised by the occasional debilitating causes, to which the constitution is subjected. This is proved in a manner sufficiently satisfactory by the circumstance that the natives of tropical climates, where scrofula is a disease totally unknown, become scrofulous on coming

to this country; and the same thing has been observed of some of the inferior animals, and of the monkey species particularly. If this proves, on one hand, that the scrofulous diathesis may be produced by the concurrence of circumstances, quite independant of hereditary causes, it shows on the other hand, that our climate produces an aptitude to the impressions, that dispose the organs to put on those actions, which constitute this temperament. These impressions seem to exist, in a greater or less degree, in all habits under the influence of our climate, which give indications of feeble and debilitated action of the organs of life.

As therefore there is a natural enemy, for so, under certain circumstances, it may be termed, in the climate, which is ever active in exciting that diseased action, in constitutions disposed to receive it by that state of organs, which is favourable to its operation; it is a point of the greatest importance, in them who conduct the physical education of young persons, to make themselves acquainted with the best means of enabling the system to resist the early impressions of this morbid influence, which a variety of concurrent circumstances may produce in the female habit.

In the sanguine temperament, which is so peculiar to the nations of the North, the heart and circulating system enjoy an extraordinary activity;

but this state of the system which secures such force to the circulation, is kept up by active employments and exercise in the open air, from which the fair sex is in great measure debarred. From this circumstance, combined with others peculiar to our manners, as they are referrible to certain classes of our females, the energy of the heart and arteries becomes diminished, and there is a less vigorous movement of the whole system of vessels, upon which the activity of the vital principle depends, while the impure and artificial temperature to which they are too much confined, increases these morbid effects. Upon this state of the habit, the influence of climate acts, as well as that of other collateral and debilitating causes, and from the sympathy of the lymphatic and absorbent systems, the scrofulous or lymphatic temperament is formed, and becomes developed in early life.

In order therefore to counteract this tendency of the constitution, whether it proceeds from hereditary disposition, or is formed by the effects of surrounding circumstances, upon weak stamina; the principal indication of prevention and correction, is to support the tone of the circulation, and give energy to the heart and arterial system, by the means best calculated to produce this effect. We shall succeed, as remarked in a former chapter, in effecting this, in proportion as we

communicate that healthy activity to the frame, which increases the energy of the digestive apparatus, and favours the action of the functions, facilitating thereby all the necessary secretions, and invigorating every part of the organic system. The lymphatic and absorbent vessels feeling the influence of these impressions, the torpid organs are roused into those increased efforts, which assist the processes of chylication and sanguification; and hence is furnished the best explanation of that remarkable acquisition of energy, made by some temperaments, under those habits of physical treatment, which are calculated to give tone to the circulatory system.

Nor would it be difficult perhaps to show, that all the most effectual means, which have been resorted to, of resisting the formation of scrofulous affections, have been founded on this principle, which applies to the strengthening of the languid powers of life, by means already explained in the chapters upon exercise and diet. Even the influence of the sea and the sea air, the good effects of which have been attributed to causes so various, appear in reality to result rather from this source, than from any other more recondite one. In this air, the virtues of saline impregnations, may be deemed probably rather chimerical, considered independent of that purity, for which it is so remarkable,

notwithstanding the opinions of many authors, both ancient and modern, to the contrary.

Whoever has had an opportunity of observing the effects of the sea air, during successive voyages, upon those young and delicate subjects, who bear about them the marks of a scrofulous diathesis, and of weak stamina, cannot but be struck with its effects, in communicating a remarkable energy to the constitution. Under such circumstances, the activity of the vital powers, and the vigour of the system, are often increased in a wonderful degree, and a new activity seems to animate every part. These effects are the consequence of the action of pure air on the digestive organs, for strength and vigour arise from the conversion of food into perfect blood. Nor can there be a doubt but that many of the diseases of the absorbent and lymphatic vessels, which produce, in the sequel, strumous phthisis, proceed from the disorders of the functions of the stomach and assimilating organs. The constitutions of young people appear to resist such disorders, in proportion as the general tone of the habit is supported by the activity of the digestive processes; for general debility, by inducing irritation, tends to promote the action of any disease to which a latent disposition may exist in the system. The most important consideration, therefore, in the task of guarding against the diseases of which we

treat, is to strengthen the stamina, and give new energy to the constitutional powers, by furthering and supporting the functions of digestion.

The human species, in almost every part of the world, is obliged to resort to the aid of art against the influence of climate; and even in the state the most removed from refinement, it enjoys a great degree of security and protection against the effects of natural causes, to which the lower animals are so constantly exposed. But the extent of this security is so different, in different parts of the world, that many of the physical modifications, under which man appears, result in great measure from the comparative operation of this cause. In many cases we see that the refined attempts at security from climate, has effects just the reverse to what they are intended, since instead of rendering climate more supportable, by modifying its unfavourable influence to the feelings of the constitution, they tend to debilitate the last, and weaken the vital powers to the common impressions of climatorial influence. This is precisely the case with respect to many scrofulous subjects, and it is under this state of the constitution, that we find so much advantage in obtaining a climate more genial. Indeed, with a marked disposition to the scrofulous diathesis, in the early part of life, the removal to a warmer climate, or to a warmer situation, in the same climate, would

doubtless prove the most powerful source of counteraction. It has just been observed, that what we term scrofula, is very frequently generated by the effects of climate, totally independant of any hereditary disposition; and that men and quadrupeds, transplanted from their native hot climates into colder latitudes, become continually scrofulous. From this circumstance we may judge of the baneful effects of cold on certain habits, in producing all the symptoms of this disease. And since, in weak frames, we cannot always depend on the power of the system to generate its own warmth, it follows, that, in such cases, the advantage of a temperature, adapted to the character of their temperament, which requires warmth from their feeble powers of reaction, is very great; and that a residence proves genial in proportion as it secures this advantage.

But this warmth of the air should be combined with purity; and hence the difficulty of obtaining from apartments artificially heated, the advantages of a warmer climate. In such constitutions therefore, where the strumous diathesis is peculiarly marked, the system of transplantation, if it be so termed, before recommended, should be adopted. The period of education gives parents an opportunity, which should never be lost, of considering this circumstance in the situations they choose for their children. It is not the

change of country, which is in every ones power, nor will it be adopted always by them in whose power it is; but most people find themselves enabled to exercise a useful discretion, with respect to the schools at which they place their daughters; and, in scrofulous habits, this should always be exerted, in obtaining a warmer and more southern residence, if possible, than that from which they are just taken, or than home supplies.

It was the opinion of the late Dr. Gregory, and also of the American Rush, that life might be lengthened and the inconveniences of old age retarded or mitigated, by emigrations into warmer climates, after the age of fifty or sixty, according to circumstances. But people who have lived to this age in their own climate, have certainly the prospect, under ordinary circumstances, of a fair proportion of life. Moreover at this period of existence, few persons will feel disposed to expatriate themselves, or enter on a speculation, from the fullest success of which, they must lose more in comfort, probably, than they could gain in duration. It appears therefore that the change of climate may be recommended, with far more general views of utility, in the earlier stages of life, and prove a more useful resource, so employed, of increasing physical energy; for it is highly worthy of remark, that small changes may pro-

duce, in this tender age, the most favourable revolution in the system.

It is from this view of the subject, and from the peculiar capability of the young constitution, to adapt itself to circumstances, that we may infer the advantages likely to result from change of climate, and temperature, upon a somewhat lower ratio, than that which requires the removal into another country; and which is to be found in the choice of particular situations for education, on the principles already explained. It is from this influence of increased warmth upon the system, that arises very frequently those alterations in the constitution, which we are fond of attributing to change of air. In fact this influence, which seems in a great measure overlooked, is frequently a most favourable and most active one, and a resource of great value to weak and scrofulous subjects.

In proportion, therefore, as we find the difficulty of supplying this wholesome and genial feeling, in the manner here pointed out, we should increase our efforts to generate that which is equally natural, by accustoming young people to find in themselves that capability of action, which produces a vigorous and healthy warmth. This may be always acquired by taking regular and frequent exercise in the open air, under the pro-

tection of a proper dress; for the value of the excitement produced by active habits, under such circumstances, cannot be too much insisted upon. When this source of that powerful reaction, which is so necessary to support the vital functions against external cold, gives place to indolence and inaction, in an impure atmosphere, as occurs so uniformly in the economy of female life, the temperament undergoes frequently a correspondent change. The want of that healthy stimulation of the circulating forces, upon which a vigorous reaction depends, is felt on the functions. When the coldness of climate is united to moisture, the effects which follow, under the influence of the habits just mentioned, evince that torpor and debility of constitutional action, which are attended with great languor of the vital forces and digestive organs. The tissue of the solids partakes of that soft and spongy texture, and possesses that redundancy of cellular substance, which furnishes a strong constitutional disposition, under the action of a cold temperature, to that scrofulous temperament, in which an inertness of the lymphatic vessels and glands prevails, with great weakness of the absorbent system, and a correspondent inactivity of the general organs. But upon the value of exercise in strengthening the frame, and giving energy to the digestive viscera, enough has been said in a former chapter.

In constitutions which partake of the scrofulous diathesis, great attention should be paid to warmth of dress, and to the regular use of the warm or cold bath; and the diet should be nutritious with the free use of animal food. To a too decided partiality for vegetable diet may be attributed, not unfrequently, those indigestions, in young persons, which are encountered generally with purgative medicines. The excessive rage for giving medicines of this class, which now prevails, and the fashion of attributing almost all diseases of young people, to disorders of the first passages, has evidently one bad effect, in withdrawing the attention from that general consent of parts, and that balance of the action of the various functions, which demand our vigilance, to employ it in exciting one particular part of the living economy, into forcible and preternatural action, which is always followed by a correspondent degree of debility. Without questioning the great utility of purgative medicines, on proper occasions, it ought not to be forgotten, that the indigestions we employ them to remove, must almost always be produced by errors, either in the quantity or quality of the food; on which account it were far better to prevent the cause, by a proper attention to regimen, than to produce temporary relief only by means, which frequently weaken the powers of the stomach, which purgatives too freely given, certainly do.

There are circumstances connected with the state of repose, which render it peculiarly important, that young scrofulous subjects should be indulged with a large portion of sleep. Mid-day repose should also be encouraged, for in fact the perversity of occupation and industry, which denies to the frail and debile form this indulgence, seems a contravention of nature's design. "Most animals sleep shortly after their meals, and there are few climates in which men do not allow themselves the same indulgence. In these countries this is not so generally the practice, and it may be a question whether it is not by an effort that we first acquire a habit not natural to us, and overcome one which we originally found to be almost irresistible, and to which perhaps we should be compelled to submit, if we were not able to suspend the process of assimilation in the nervous system."*

* Transactions of the Irish College, vol. 2.

SECTION III.

Of the consumptive tendency in early life.

THE great number of young persons annually swept away from amongst us by consumptive disorders, proves too fully how unavailing are the powers of the medical art, to arrest the progress of this frightful scourge, at that period of the complaint when medicine is most resorted to. This observation applies to all the different species into which authors have divided the disease, according to the temperament, on which it is founded. This deadly march of a cruel and unrelenting malady,—this almost undeviating fatality of impulsion, which it assumes, after it has secured its possession, renders it a most important object of inquiry, as to the resources which the physical education of the female, may afford against so formidable an evil. Certain is it indeed, that in subjects, where the character of the constitution, or hereditary taint seems to threaten the developing of unfavourable symptoms in the future, the preventive measures cannot begin too early. And in fact their eventual success must depend upon the early anticipation of morbid indications, in the very origin of their formation. The only way to combat this merci-

less enemy of juvenile life, with any hope of success, is to counteract its most early attack on the constitution.

The temperaments most susceptible to the attacks of this malady, have been cursorily described in a former chapter, to which the reader is referred.* In either of the temperaments there described, it behoves relatives to take the alarm, when they observe those apparently doubtful appearances, which deny health, yet scarcely confess disease:—when a change of usual looks, a frame soon wearied, a falling off of appetite and spirits, a breathing easily hurried, an indolence of habit, a distaste for usual avocations, a cheek sometimes hectically flushed, a growing emaciation, and a lingering debility threaten something eventful; particularly, if to these symptoms be added a diathesis confessedly scrofulous, and a form distinguished by some of the features which mark the phthisically disposed.

But in habits previously disposed to assume this constitutional character, the wisest plan is not to wait for the appearance of morbid symptoms, before we commence the work of strengthening the system, by those means most likely to succeed, and which have already been pretty clearly pointed

* See Pages 138 139 140.

out, as they relate to regimen, and other prophylactic plans of improving the stamina. What however will prove the most redeeming treatment, in constitutions of this description, as well as those more decidedly scrofulous, will be the removal in the early part of life into a warmer air, than the native one. This resource in fact applies particularly to that early and interesting period of female life, which teems with future good, or with the reverse, according to the direction it receives from surrounding circumstances; and according as the energies of the constitution shall be cherished by due attention to the natural wants; for it may be observed, that in almost all constitutions, there exist the latent seeds of strength and weakness; and which shall flourish and obtain the superiority, must depend, in a great degree, on the treatment of early life.

A more genial temperature, and a warmer climate than the native one, will frequently enable the constitutional powers of feeble habits, to assume new and greater energy, and to overcome in a certain degree the state of natural delicacy, which leads to consumptive affections. A fuller and more vigorous development of the whole system follows, and hence the incalculable advantages which might be anticipated, from sending such subjects for some time, to the southern parts of Europe, or, in fact, to almost any part of the

Continent. If, under proper patronage, eligible seminaries of education were established, for English females, in favourable situations in France, important physical advantages might result; for there cannot be a doubt but that many who now perish prematurely, might thus be saved. In those young and tender females, whose frames, in proportion as they advance in age, seem to unfold symptoms of weakness, and in whose families an hereditary taint, may appear to exist, two or three years of this most critical period of life, passed in a warmer and more southernly climate, might produce the happiest effects. The resistance made to that vigorous expansion of the system, which full health requires, might be removed in a genial temperature, and, in proportion as the constitution became strengthened, it might overcome even hereditary dispositions. There are many to whom this idea of sending their children out of the kingdom will be a very unsupportable one, but even such may still adopt the principle, on which such a measure is recommended by consulting the situation to which they are sent to school at home. The consideration here noticed, with respect to climate, is one of primary importance, as it at once supplies the place of so many cares and attentions which are otherwise indispensable, with respect to the business of adjusting temperature and supplying warmth; for these are of as much consequence

frequently as the proper supply of food, since when cold does not produce active disease, it operates not unfrequently in preventing the necessary development of the natural powers.

These observations are intended to refer to the general effects of comparatively warm climates, on constitutions, which have shown a tendency to strumous action, under a greater relative degree of cold. These effects upon the human constitution, have been sometimes observed on a large scale, as we see in the observations of Dr. Broussais, on the comparative rarity of pulmonary consumption, amongst the French troops, after entering Italy. The remarks also of Sir James Maccrigor, during the service of the English army, in Spain, which are accompanied by official documents, prove that the deaths from Phthisis pulmonalis, while the army remained abroad, were very few, in comparison of what took place at home. The disease, in its early stage, was checked, and the disposition to it appeared suspended, in great measure, by the climate of the peninsula. But these good effects were evident only in that incipient stage of its progress, before any very marked symptoms had shown themselves. There may be some countries, even on the European continent, where the genuine British phthisis does not seem ever to originate; and Dr. Somers, who practised some years at Lis-

bon, asserts this of Portugal; but the principal view in migrating, under the circumstances here explained, is to obtain a uniformly higher temperature. The object then to be sought, is not so much to look for a country, where no consumptive diseases are found, and no atmospherical excitements produce a similar action upon the pulmonary organs, as to find a climate which bears steadily a higher relative degree of warmth than the active one. We seem by this change of climate, while yet the constitution remains originally sound, to remove the disposition to those systematic affections, which produce diseases of the lungs.

Another great resource, which, in such constitutional tendencies, has been much looked up to, both as a preventative and a cure, is the sea air. But on the effect of this remedy, professional opinion has been greatly divided. This collision of opinion seems to have arisen, on many occasions, from the different stages of the complaint, in which the remedy was employed; since, according to the principle which regulates this application, the effects may prove in the highest degree salutary or the reverse.

The opinion of the influence of the sea air, in opposition to the progress of consumptive affections, particularly of those connected with scro-

fula, has long been a popular one. We may trace it through the whole records of medical history. Some of the old physicians seem to have attributed all its salutary effects, to the saline particles with which they considered it impregnated. But a modern author has carried this opinion much farther, since he has asserted that seamen are little liable to consumption, from the truly scrofulous consumption, being in great measure prevented, by the use of salt and salt diet.* Such an opinion, from a man of the talent of Dr. Trotter, and whose official situation in the navy, gave him so enlarged an experience on the subject, appears singular; since, in reality, the very reverse of this assertion, unfortunately, is the case. Such a diet, far from preventing consumption, proves a frequent source of it, in that character of dyspeptic and secondary phthisis, which is common amongst sailors, to which a salt or bad and meager diet appears greatly to dispose. This species of phthisis, is distinguished by a deranged state of the digestive organs, by impaired appetite, by tenderness of the epigastric region, cough and dyspnæa, which are troublesome in different degrees. In this disease, the affections of the digestive organs seem to precede that of the lungs. There is generally a sallowness of the complexion, a sinking of the muscles, a failing of the

* *Medicina Nautica*, 3 vol.

strength, and other symptoms of deficient sanguification. The causes which produce this species of consumption, sufficiently account for the great increase of the disease, in our navy, with the protracted state of the late war.*

In confirmation of the remarks here advanced, respecting the increase of consumptive diseases, in fleets, in proportion to the period the navy has been formed; we may observe the difference in the proportion of such complaints, in the numbers admitted into the naval hospitals, in one thousand seven hundred and eighty, when the fleet was recently formed, as the French war began only in one thousand seven hundred and seventy-eight; and in one thousand eight hundred and six, and the three following years, when the navy may be said to have existed as such more than twenty years; for the short peace was a mere truce. In the first period referred to, namely, one thousand seven hundred and eighty, there were eight thousand one hundred and forty physical cases admitted into the royal hospital at Haslar, exclusive of surgical patients, and of this number two hundred and eighteen only were consumptive patients, which made one in thirty-seven. In one thousand eight hundred and six, there were admitted into the royal hospital, at Plymouth, under the care of

* Dr. J. Johnson attributes this increase to a different cause. See Practical Treatise on the Liver &c. &c. Page 193.

one of the physicians, five hundred and sixty-one sick, of whom ninety-four were consumptive; in one thousand eight hundred and seven, three hundred and eighty were admitted sick, of whom fifty-seven had the last named disease. In the following year, the number of physical patients received, was four hundred and sixty-three, of whom eighty-three were consumptive, and in one thousand eight hundred and nine, five hundred and seventy-three sick persons contained the portion of seventy-four phthisical patients, which, on a calculation, makes one case of consumption to every six patients. And as of three hundred and sixty-eight deaths, one hundred and seventeen arose from the disease just mentioned, the loss from it was nearly one third of the whole mortality.*

These returns may demonstrate the various effects of a sea life, upon consumptively disposed habits, at different periods of service. In the early period, or first introduction, it operates in the most salutary manner, upon young scrofulous habits; not however in consequence of a salt diet, as Dr. Trotter states; but from the effects of pure air, and active exercise, combined with other favourable circumstances, which

* See Medico chirurgical transactions, v. 6. Sir G. Blane on the health of the navy.

give new activity to the stomach and digestive organs, and increasing energy to the constitution. For these good effects, the action of vomiting, upon which so much weight has been laid by various writers, well prepares, from its immediate operation upon the chylopoetic viscera, and from emulging the biliary ducts. In the latter stage or during the advanced period of naval service, the effects of salt diet, however, show their full influence in the impaired state of the stomach and digestive apparatus, and in the debilitated condition of the vital stamina, when the original disposition to scrofulous consumption, returns in the shape of dyspeptic phthisis; and it may be observed, that, in the advanced stages of the disease, the sea air has an influence as unfavourable, as it possesses a contrary one, in the earlier ones.

When medical men have sent their consumptive patients, as they have long been in the habit of doing, to the shores of Italy, and the Mediterranean, or to Madeira and the West Indies, they appear frequently to have been in doubt, on what ground they should found the expectation of relief; whether from sailing, and a temporary residence on board a ship; or from change of climate. If we refer to the numerous authors, who have written on the subject, this question appears still undecided. The principal points therefore upon which information seems wanted,

in guiding opinion upon the subject, are two. The first refers to the effect of sailing on the disease, independent of climate;—the second to the influence of change of climate, in the different stages of the disease, independent of any thing connected with the sea.

1st. With regard then to the first consideration, it is well known that the custom of sending consumptive patients to the sea, for the benefit of a voyage, is by no means of modern date. The Roman physicians sent such patients to Alexandria, in Egypt, and both the Plinys have recorded the success of this practice. But amongst the great number of physicians, ancient as well as modern, who have recommended sea voyages to the consumptive, we observe a remarkable difference of opinion, with respect to the source of the expected advantages, and the grounds of their recommendation. Some expressions of Celsus* lead us to conclude, that sailing was recommended by him, rather for the sake of exercise, from the motion of the ship, than for the change of air, as he makes *vehiculum* or *navis*, a carriage or a ship, the two principle remedies for the complaint. But Aretaeus seems to have taken a different view of the subject, and to have advised sea voyages, in the expectation that some proper-

* Celsus lib. 3. cap. 22.

ties peculiar to the sea air, might dry up the ulcers in the lungs of the phthisical. The physicians of a later period, who have followed the example of their predecessors, in the recommendation of sea voyages, have placed their expectation of their favourable results to effects equally various. While some have considered the sickness produced by the motion of a ship, the principal source of utility, and others have expected more from change of climate, or the properties of the air; by a third party, the vapours of the tar, with which ships are supposed to be impregnated, or the kind of gestation, which sailing affords, have been considered the principal source of advantage.

Under these circumstances, a voyage and change of climate seem to have been recommended, and are so, very generally, in the present times, without any regular and precise view, entertained by medical men, as to the advantages to be expected. The consequence is, that the stage of the disease, in which such remedies have been recommended, has been as little considered as that in which they are likely to be serviceable.

The period however in which this remedy is employed, is of the utmost importance, and on it depends all its salutary consequences. As to the manner in which a voyage acts upon young sub-

jects, in removing the disposition to scrofulous consumption, what has already been said, may be deemed a sufficient explanation. It does so, as before observed, by the united effects of active and passive exercise, and by affording the purest air; by giving, through these two channels, that excitement to the system, which developes the energy of the digestive organs, and favours the action of their functions; facilitating thereby the secretion of a healthy bile, and invigorating every part of the organic movements, and the circulation of the vital fluids, through the whole abdominal contents. The lymphatic and absorbent systems, feeling the influence of this impression, the torpid organs are roused into increased action, and hence is best explained that remarkable acquisition of energy, made by some feeble constitutions, after a short residence at sea. An attention to this circumstance, may best explain the period of consumptive diseases, when this remedy can be serviceable, and recommended on just principles. But when hectic is formed, when the purulent stage is established, none of the effects just described can be obtained, or indeed hoped for; and therefore the influence of the sea cannot be in any way useful, and would, on the contrary, prove in most instances, injurious.

It is probable that to the opposite effects of the

sea, upon the different stages of the complaint, must be attributed, in great measure, the discrepancy in the opinions of medical men, upon this subject. Dr. Clarke in his remarks on the climate and diseases of Rome, says,—in reference to consumption; “The physicians on the sea-coast, send their patients into the interior of the country, and those in the interior to the shores of the Mediterranean or Adriatic, according as they fancy the air of the one or the other preferable. From Genoa they send their consumptive patients into the interior, deeming the sea-air injurious to them. From Naples they frequently send such patients, and for similar reasons, to Rome. From Rome, on the other hand, they send their consumptive cases frequently to Civita Vecchia, on the shores of the Adriatic, and occasionally even to Naples. Formerly Galen and Celsus sent such patients to Egypt; but probably, in this case, the voyage was considered of more importance than the change of air.”*

The remarks which have been made on this subject, tend to elucidate, under what circumstances, a visit to the coasts of our islands may be useful, or the reverse; for where the sea would be serviceable, the sea coast, properly chosen, cannot be otherwise; and on the other hand, where the sea

* Medical notes on the climate of France &c. by J. Clark, M. D.

would be attended with injurious effects, the coast cannot be recommended on sound principles. Hence, in those young subjects, when the scrofulous diathesis begins to establish itself upon a weak and debile state of the vital powers; when an atrophy of the glandular system is joined to feeble stamina, and the constitutional powers are unequal to the healthy development of the system; the sea air will generally be found highly useful, and the sea coast may be resorted to, at proper seasons, with the best views of advantage. But these good effects can be promised only previously to the existence of organic disease, and particularly in the consumptively disposed, before disorganization of the lungs has taken place. If there be any well marked hectic present, the sea coast is at least of very doubtful advantage, and perhaps had better not be resorted to; because that exciting influence, which acts upon the general system, and gives, under different circumstances, energy to the vital powers, will tend, in this case, to increase the hectic, and augment the general irritation. In fact, when the disease is confirmed, the purity of the air appears frequently to increase the worst symptoms, as the lungs then possess a high degree of sensibility, which derives relief rather from a reduced than a pure atmosphere, and from this reason, under such circumstances, the advanced stages of these complaints never do well at sea. The incapacity of the lungs to receive and

decompose highly oxygenated air, is proved by the ease derived from breathing air which is in part decomposed by heat. It may be observed moreover, that, in subjects, where there is much cough, and to the effects of scrofula and glandular affections, are joined an irritable and disorganized state of the pulmonary organs, and a sympathetic fever, we have little to expect from the sea coast.

On the contrary, the sea air is capable of producing the most advantageous results, in those weak habits, where there is evidently a consumptive tendency, without any actual formation of disease; where, without symptoms decisive of any marked organic disease, there appear general lassitude and debility, and want of vigour in the system, to forward the full development of the various parts. It has been already observed, that the influence of the sea acts powerfully upon the young subject, in counteracting the scrofulous temperament, but that this is only prior to any very determined disease. The same observation may apply to the sea coast. In both alike the same causes, which were extremely favourable and salutary, previous to the formation of pulmonary disease, may have very opposite effects after that disease has established itself, and pure air; which has been spoken of as a source of invigorating the vital energies, and of establishing an

effectual resistance to the formation of pulmonary disease, cannot always be very favourable when it is formed, for the reasons already given.

2nd. On the second consideration, respecting the influence of warm climates, upon diseases of the pectoral organs, it may be observed that its salutary effects depend greatly, as in the former case, on the period at which they are employed ; and, that like the former remedy, however useful it may prove, in the early stage of the complaint, it is injurious or nugatory, in the more advanced one.

A great deal of useless inconvenience and misery, arises to patients, from sending them abroad, in that period of the disease, when the consumptive symptoms have so far advanced, that the complaint is become confirmed. It is not a small privation to such invalids, to lose the consolatory attentions of their relatives, and the comforts of an English home ; but what is still worse, is that, in such cases, particularly where suppuration and ulceration have taken place, the progress of the disease is always more rapid ; an observation which applies, under similar circumstances, to the influence of all warm climates upon the natives of colder countries.

This consideration however seems so little to

determine the advice given by many physicians, to their consumptive patients, respecting the change of climate, that we frequently meet invalids in France, and in Italy, who are already in the last stage of phthisis, and have just been sent over as if merely to die amongst strangers.* This practice with regard to a late removal from home, so far regulated the views of naval medical men, at the principal naval hospitals, a few years back, that they were in the habit of sending out to the West Indies, and the Mediterranean, their consumptive invalids, in the worst and most hopeless periods of the complaint. The practice was however subsequently abandoned, as far as related to the former place, in consequence of the representation of experienced practitioners, who, in the course of their service in warm climates, had observed their effect in hurrying on the fatal event, in advanced stages of the complaint. This experience accords with that of the medical practitioners of the army, who served, during the last war, in the Peninsula. They who have had the fullest and best opportunities of long observation, bear witness to the mischievous effects of the

* "It is no unfrequent thing, observes Dr. Clarke, to observe in the newspaper obituary reports, the deaths of persons at Paris, or some other place "on his way to the South of France." This is some consumptive patient, sent abroad probably in the last stage of his disease, to have the short career he had to run shortened, and to die long ere he reached the place of his destination."

climate, upon our invalids, sent over in the advanced stages of the complaint; in which cases they observe the disease seemed to march with more rapidity, than even in the native climate, from the increased susceptibility of the habit being more acted upon, by the increased degree of atmospherical warmth.

Some of the physicians, the most distinguished for talents in Italy, have recorded much the same sentiments on this subject; and have declared worse than merely unprofitable, the custom of sending our hectic countrymen to die on the Italian shores. Indeed on this question the most conclusive evidence might be obtained, to show the total impropriety, and even cruelty, of sending patients, in the advanced stages of consumption, to any part of the continent. But in the earlier stage of the complaint, we have reason to look for different results, from the same resource. In those young habits, where there is great susceptibility to phthisical symptoms; in the delicate branches of scrofulous and consumptive families; and in juvenile frames which bear the expression of that general debility in the vital power, which exposes them, in their native air, to the attacks of our most fatal diseases; the greatest advantages doubtless might be obtained from early change of climate, for a given period. Even where the lungs are already somewhat implicated, by incipient disease;—where

tubercles really exist, and that in a state of irritation; a residence for some time abroad might have a redeeming influence, and secure, under proper precautions, health for the future. But where suppuration has actually taken place in the substance of the tubercles, the writer of these observations can add his own experience, which however limited it may be, has been obtained nevertheless in tropical climates, and in various parts of the continent, to the authorities already adduced, that no permanent benefit is to be expected from change of climate.

To subjects of the former class, whose complaints are yet incipient, the choice of particular situations may be matter for consideration, but what seems to be of the greatest importance, in such selection, is that the new residence should afford, as much as possible, a steady temperature, above that of the native clime. When such a prophylactic has been resorted to, it should never be forgotten, that, on the return home, the proper means for strengthening the constitution, and giving habits capable of resisting the inequalities of the native climate, should be diligently pursued. What these are, has already been sufficiently pointed out, in the recommendation of pure air, regular exercise, proper diet and a constant use of the cold bath.

SECTION IV.

Of the relation which the irregularities in the female form have to the habits and manners of life.

IF we examine the most celebrated statues of antiquity, the *chef d'œuvres* of ancient art, we may be led to conclude that the type of ideal perfection, in the human figure, assumes a somewhat different character, in different ages; and that the standard of elegance of form, in ancient times, bore in some points, a contrast to that of our own. Certain it is, that a modern Venus, would be very sorry to possess the legs and ancles of the Venus that "enchants the world." Perhaps also, in some other points, the modern taste is that of ultra-delicacy. Linnæus wisely places, amongst the monstrous varieties of the human species, those taper waisted damsels that were, a short period since, considered the standard of human perfection, in our quarter of the globe.*

This fashion however of contracting the waist, which some authors of a neighbouring nation, formerly accused the English females of carrying to an excess, that must produce eventually a degenerated and deformed race, has now given place

* *Unceæ puellæ, abdomine attenuato, Europæ.*

to a somewhat wiser and better taste. But the errors of domestic habits remain when those of a changeful fashion have passed away; and, from this cause, the former are often more dangerous to the symmetry of the form, than ever the last can be. Our domestic manners, for instance, are a continual source of the curvature of the spine in our females, as those of the Hindoo and negro nations are of the curvature of their legs. From causes which have this source, and from the physical treatment, adopted with respect to the young English females of the better orders, it has followed that there exists more deformity in those ranks of our fair country-women, than in the same classes, in any other part of the world, and that perhaps in a very considerable proportion. The deformity here alluded to, is not that of nature, but of habit, and the circumstances which lead to it have their rise in our domestic institutions.*

There is more or less deformity seen in every part of the European continent, but it has almost always its origin, in natural malconformation, or in scrofulous disease. A striking distinction is therefore to be found, in the primary cause of that description of deviations from a regular type, which are peculiar to foreign nations, and which mark our own. The origin of the last is, for the

* See Chapter 3rd.

most part, in the first instance, muscular; and in a greater or less time, the bones, whose action depends on the muscles, become implicated: the origin of the first begins generally, as just observed, in the bones themselves, from that peculiar disease of the constitution, which we term scrofulous, or in malconformation from birth.

In making some observations, in a former part of this work, upon the influence of national manners, in producing these effects, it was said, that, in walking the streets of Paris, we frequently meet deformed persons, but that such persons are generally ricketty subjects of the lower orders, or suffer from the effects of scrofulous affections or caries of the bones. "That species of deformity," it was added, "in the production of which the muscles are most concerned, and which is so frequent an occurrence amongst our females, is seldom found, perhaps, upon the continent. This may be satisfactorily accounted for by the different local state of domestic manners. As these causes apply to very opposite ranks of society, in the two countries, the classes most affected with deformity are of course very different; and while, in England, the rich; in France, the poor, suffer almost exclusively the weight of the evil. From the manner of building practiced in Paris, and the large towns, in France, the poor are obliged to lodge in the cellars and garrets; and, in conse-

quence of their crowded state, in such situations, the scrofulous affections of the bones, fall principally upon them; while, in England, the cause of deformity, arising far more frequently from the effects which our domestic habits produce, upon the muscles of the trunk, than from any other cause; the better classes of females, who are the most rigidly subjected to the discipline of our institutions, are principally affected.”*

It is the opinion of a celebrated traveller,† who has spent many years in the new World, where the human form appears in all the beautiful symmetry of nature, and no personal defects meet the eye; that nations, whose skin assumes the deeper complexions, possess naturally the power of resistance to irregularities of this kind, which is not enjoyed by the fairer races. He thinks this is partly independant of the effects of civilization, or of the organic debility produced by the habits of refinement. There can be no doubt but this opinion is correct, in fact from what has preceded, it will be evident that there may be two sources of debility, which affect females particularly; the one natural; the other artificial. The first is derived from the influence of climate, and is shown in the greater constitutional debility of the females of the North, who have not the advantage

* See page 43,

† Humboldt,

of those active pursuits and employments, which communicate so much vigour and energy to the male. The second arises from the influence of those artificial habits, which are peculiar to their domestic institutions. Some authors have asserted, that the influence of the North is always accompanied with a degree of relative debility. Reisbeck is of this opinion, and has made an estimate of the comparative strength of the inhabitants of the cold and warm climates of Europe, from historical events, in favour of the last. He observes, that it is a striking proof of the bodily weakness of the Northern nations, that they always become enervated when they have been sometime in the South, which they never could cope with long, whereas no history informs us, of the climate of the North, having ever been fatal to the strength and activity of the Romans.*

But we want not any force this argument might give, to discover the sources of the debility of the organization of the females of the North, compared with those of warmer climates; particularly in those classes, which feel most the effects of a refined civilization. If such are the natural impressions to which the strongest female frames are disposed, under the influence of those natural phenomena, which act in our climate upon the

* Reisbeck's travels Vol. 3, l. 59.

vital organs; the susceptibility to such impressions must be greatly increased, in the candidates for that fastidious delicacy, which is so much valued in the higher walks of life. This taste for delicacy of form in the fair sex, is, perhaps, laid in nature, since it forms the principal feature of that contrast to the character of the other sex, on which the foundation of the influence of the female seems every where laid. But this passion is certainly carried much too far, when it renders the sex so ambitious, as they sometimes appear, of rivalling the divinities of Homer, in the lightness of their fare and in the delicacy of their appearance.*

Upon this subject, however, taste will prevail in preference to any graver reason. But it should be considered, that in the measure that debility is increased, there is greater necessity for general muscular relaxation, and that the frame requires indulgence, in proportion to its delicacy. In fact, it may be asserted with confidence, that the irregularities of form, which have a muscular origin, may be almost always traced to some error in the physical education, and to some mismanagement in the treatment of the person. It has already been explained pretty much at large, in a preceding part of this work, in what manner such causes may

* Οὐ γὰρ σίλον ἐδούσι, οὐ πίνουσ' αἰθοπα οἶνον·
 Τούνεκ' ἀναίματος εἰσι——καὶ ἀθανάτοι καλεοῦνται.

arise out of the common discipline of domestic life. It is there observed that "the domestic habits of temperate climates, are contra-distinguished, generally speaking, from those of warm ones, in making far greater demands, than is done in the last, upon the extensor muscles which support the frame erect; the relative weakness of which part of the human system, in comparison of the flexor muscles, is evident, not only in infancy and age, but in every part of life. In temperate climates, a far greater portion of time seems passed in the erect and sitting position, than is the case in the higher latitudes. Indeed in the domestic customs of some countries, and the observation refers particularly to our own, the exorbitant demands made upon the vertebral muscles, in early life, are often succeeded by consequences highly productive of deformity. The operation of this cause applies principally to the fair sex, as is apparent in a great part of the female population of some manufacturing towns, who are engaged all day in sedentary occupations. Nor is it less so in women of the better classes of society, who, in the course of education, that critical period of female life, when the foundation of future health or disease is so often laid; are kept all day long in positions, which make incessant demands upon the extensor muscles, without any intervals of adequate relaxation, or relief to the wearied parts. From this cause the structural defects of females

certainly arise, in a degree far greater than seems generally suspected; because such habits are considered as relative to their general usage, rather than to their effects upon particular constitutions, or indeed to their common consequences.”*

On this account and from this constant influence of our domestic habits, in producing impressions the most unfavourable to the female form, it has been attempted, in the course of these observations, to impress the propriety of rendering regular recourse to the recumbent position, at least once in the middle of the day, an uniform part of the physical education of the female; particularly where the constitution is delicate and the powers of life are feeble. In making some remarks on a former occasion on the influence of manners and usages upon females, it was observed, that these causes have not only a general, but a particular operation. The last arises from “those restrictions and limitations, which refinement practices arbitrarily, to form its own peculiar distinctions. It is the operation of these, by acting unfavourably upon the form and constitution, in cases where it is too much in opposition to the indications of nature, and the instinct of the system, that becomes the source of those peculiar impressions of debility, either structural or organic, which we find no

* See page 53.

where more frequent than amongst ourselves ; in that fair class of society, upon which the habits of domestic life, in all their various modifications, exert a most commending and absolute influence.”*

We determine our idea of the progressive improvement, we make in the arts of life, by our success in adapting our manners to the advantage of the system, and the amelioration of the race. Upon this principle have been founded the customs of nations generally, though a very opposite one has sometimes determined the usages of particular classes, in proportion as artificial manners have become established ; and there cannot be a more striking example of this than the discipline of our domestic habits, in respect to what relates to the subject just mentioned.

Mothers and the governesses of seminaries for female education, who have daily experience of the difficulty, which the efforts of volition find, on the part of the young female, to keep the form in the erect position during the whole day, are too generally disposed to fly for assistance to artificial support. But by employing stays, and other such inventions, in similar cases, they are certain to increase the irregular action of the muscles and of making them act partially on one side, instead of preserving the balanced action which is natural to

* See page 12.

them. Our females, in fact, would be better formed, if there was an entire abandonment of the part of dress here referred to, during the early part of life. Were it otherwise, it might be inferred from our habits, that the interference of art were indispensable; that the frame must be propped up to preserve it straight, and that the fibres of the body are like those of trees, which harden as they grow. But whoever views the human form in countries where very different customs prevail, in this respect, to those adopted by ourselves, will be convinced, that the preservation of straightness depends on nothing so little as on the constant observance of an erect attitude. Indeed this continued exertion to keep the form upright, tends to frustrate such intention, since from this excessive fatigue, the muscles become more loosely governed by the nervous principle, and less obedient to the dictates of the will.

The science and knowledge of man is frequently extended, to the cultivation and improvement of the inferior parts of the creation, and the application of the principle of a just and wise intelligence to the animal and vegetable world, has promoted the progress of those orders, to which they have been particularly extended, to a state of great comparative perfection. If then his care to render more beautiful and more useful the inferior parts of the creation, has been crowned with success,

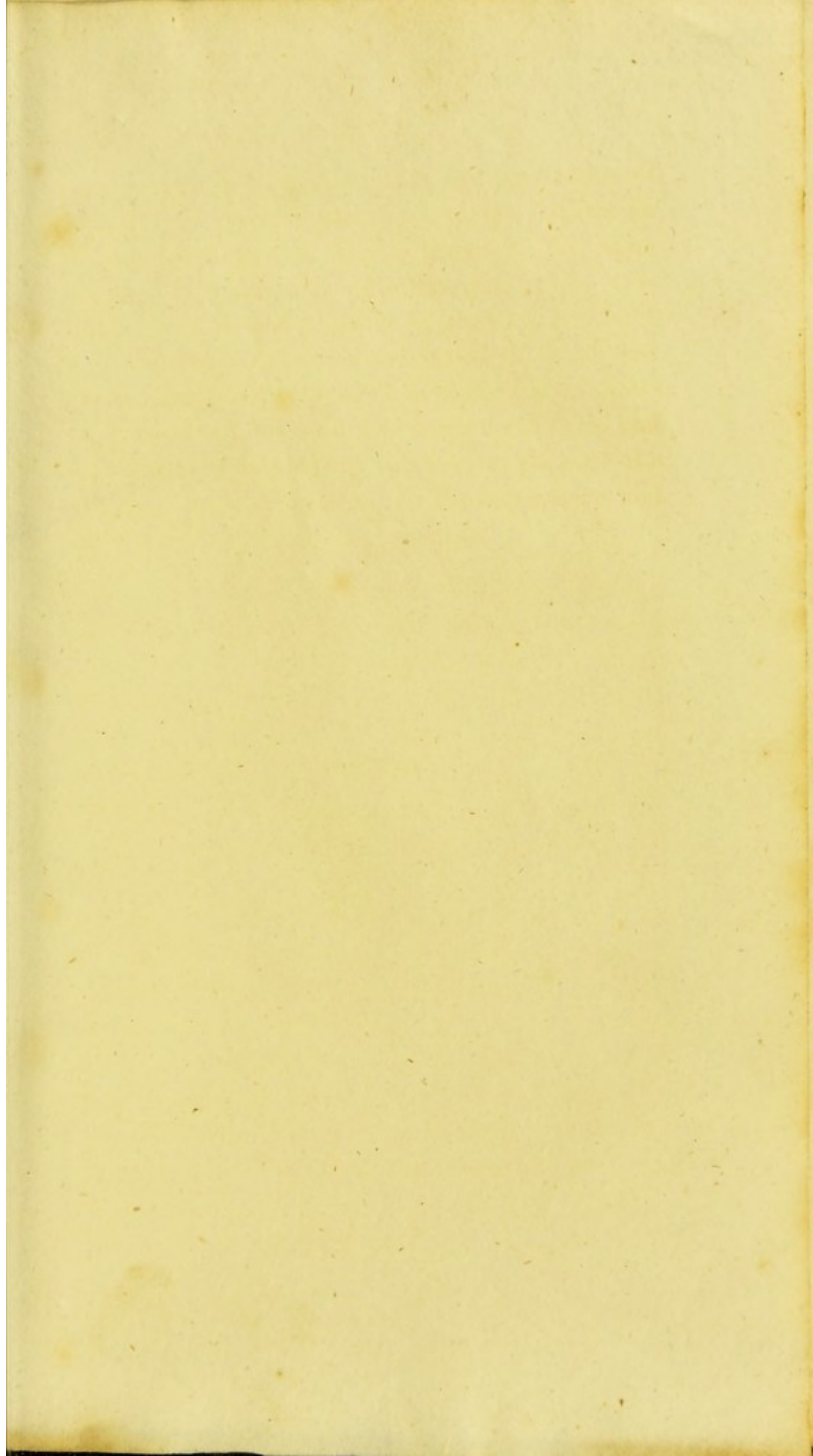
may we not well conceive, that the application of equally well directed principles, to the cultivation of our own species, might prove in the same degree profitable and advantageous. Yet certainly the pride and pleasure of showing the finest dogs and horses, the best cultivated of fruits and flowers, must fall very much beneath that of showing a family of fine and well formed children, and all the arts of improving the inferior parts of the creation, must give place to the importance and interest of improving our own race.

THE END.

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THE END









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