

Scrofula: its nature, causes, and treatment; and on the prevention and eradication of the strumous diathesis / [William Tyler Smith].

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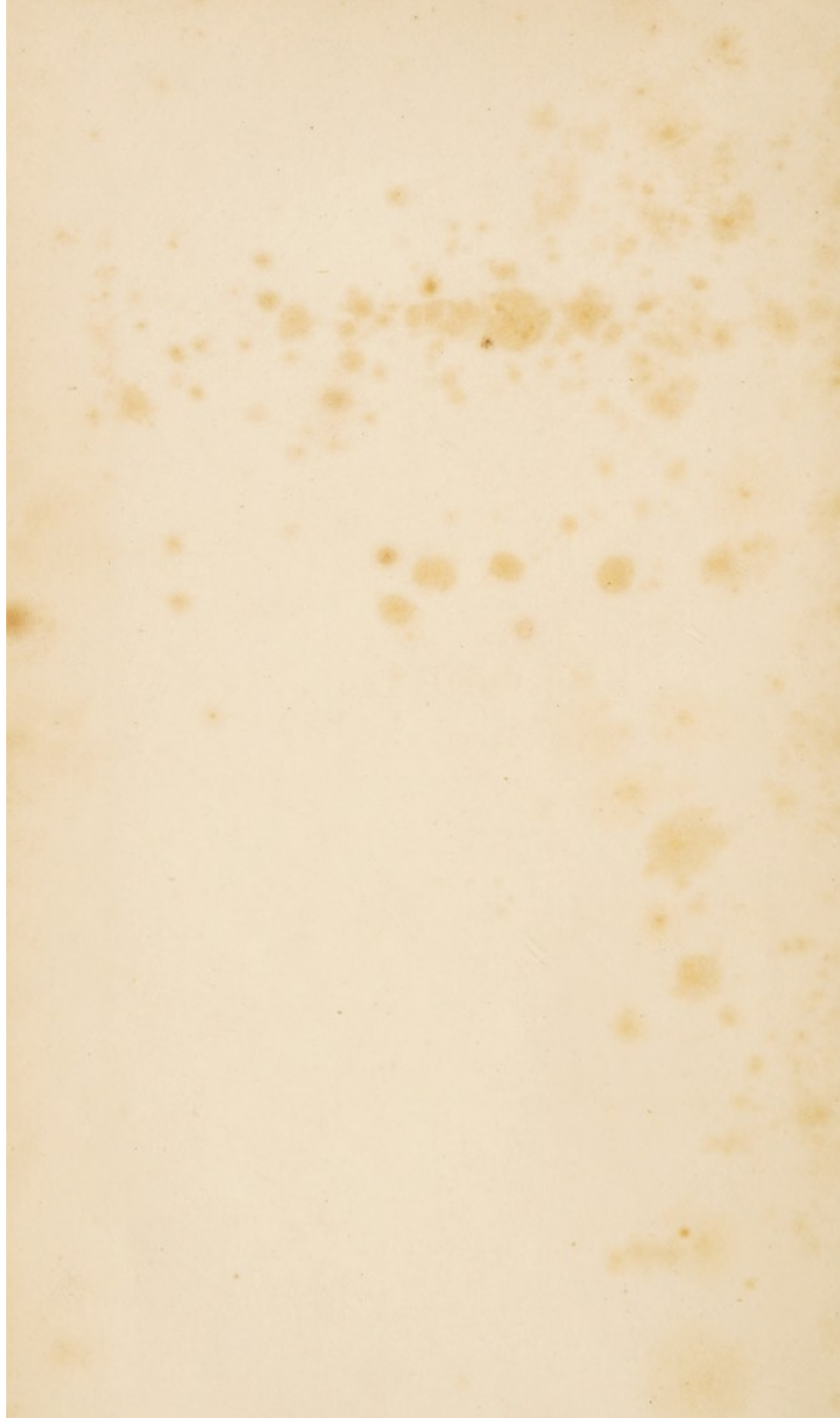
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SCROFULA,

&c. &c.

SCOTLAND

NATURE AND TREATMENT

OF THE

SCOTLAND

STROMON DIAHESIS

WATER AND AIR

LONDON

JOHN CHURCHILL, ST. MARTIN'S STREET, ROYAL

1844

W. T. Stevens
May 31. 1855

SCROFULA:

ITS

NATURE, CAUSES, AND TREATMENT;

AND ON THE

PREVENTION AND ERADICATION

OF THE

STRUMOUS DIATHESIS.

BY

W. TYLER SMITH, M.B.

LONDON :

JOHN CHURCHILL, PRINCES-STREET, SOHO.

1844.

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P R E F A C E.

IT is now many years since any work specially devoted to the subject of Scrofula has appeared in this country, though scrofulous disorders are acknowledged to be more prevalent than any other class of diseases whatsoever.

It is equally certain that scrofula, in its various forms, is, in spite of the advance of medical science, increasing rather than decreasing; and that the diffusion of the Strumous Diathesis is one of the most powerful causes of physical degeneration which exists.

On these accounts, and from having had considerable experience in the management of the disease, the Author is induced to hope, that he has rendered an acceptable service in attempting to bring the subject up to the knowledge of the present day, and by endeavouring to give as much precision as possible to the principles on which its treatment and prevention depend.

7, BOLTON-STREET, PICCADILLY.

February 19th, 1844.

REPORT

The following report was prepared by the committee on the subject of the proposed amendment to the constitution of the State of New York, and is submitted to the Legislature for its consideration.

The committee has the honor to acknowledge the receipt of the report of the committee on the subject of the proposed amendment to the constitution of the State of New York, and to express its appreciation of the efforts of the committee to bring about a more efficient and economical government.

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CHAPTER I.

GENERAL VIEW OF THE NATURE AND CAUSES OF SCROFULA.

OF all chronic diseases Scrofula, in its varied forms, may be truly pronounced as that from which the inhabitants of the countries at present in a state of civilization, experience most suffering, and from which they incur the greatest danger of physical degeneration. Still it may be said of scrofula that no variety of climate, constitution, or physical condition, can ensure positive exemption from its ravages. The chief habitat of the disease is, however, in the temperate zones, it being comparatively rare both in cold and tropical climates. Writers on the natural history of man have shown that, from the adaptation of the human constitution to cold or temperate latitudes, a peculiar organization, the Xanthous, or fair-haired variety of our race has arisen. The healthiest type of this division is found in the sanguine temperament, an organization in which all the vital functions are performed with celerity and vigour, and which is eminently fitted to withstand the severity and thermal variations of the climates in which it is found. In very cold countries this temperament is in a great measure universal; but in more temperate latitudes, other constitutions besides the sanguine are very common. Of these the most important to the present subject is the lymphatic temperament, a deviation, or it may perhaps be said, a degeneration from the sanguine, in which the vital cohesion

seems to be diminished, the nutritive processes are slower, and the circulating fluids, together with the secretions and excretions are less perfectly produced. Hence it is less capable than its more perfect prototype of resisting a low or changeable temperature. It is in a modification of this temperament, as I shall hereafter endeavour to show, that scrofula appears with by far the greatest frequency.

In whatever light we examine the subject, there are strong reasons for considering climate as one of the great primary causes of the disease. Remotely, we may attribute to the long-continued influence of a cold and variable climate through successive generations, the power of developing, with the assistance of accidental causes, the peculiar diathesis or temperament in which scrofula most commonly appears. And immediately, we may observe the effects of changes of weather and vicissitudes of temperature in producing the disease in constitutions already predisposed, in exciting it in sound constitutions, and in the rapid development of scrofulous affections in the natives of warm climates on removing to such a temperature as our own. Next in order, the vices, wants, and diseases of civilization appear to be the most prominent causes of scrofula.

Though the subject fairly admits of this generalization, it is not meant to deny that scrofula is found in warm or mild climates, such for instance as those of Madeira or New Zealand; or that it may and does make its appearance occasionally in the most opposite temperaments, when they are exposed to causes which lower the vital energies, and deteriorate the organic constitution of the body. Strumous maladies may be called, *par excellence*, the diseases of civilization. They are extremely rare among savage races, except when these are brought into contact with the vices of civilized life, or transplanted into an ungenial climate. With all civilized nations, on the contrary,

they are well known to prevail to an immense extent, and in none perhaps more than our own. Tuberculous disorders affect, too, all the domestic animals which man has reclaimed from the savage state, and they are common among the species brought from tropical climates to our own country. Climate appears, in the first instance, to have given rise to the peculiarity of constitution most favourable to scrofula; and the wants and vices incident to civilized life seem to be the agents which have produced the disease in the soil already fitted for its reception.

The chief element in the actual formation of the disease is the presence of tuberculous matter, which, in scrofula, is chiefly developed or deposited in the glands, in the cellular system, the bones, joints, nervous tissue, and in the serous and mucous membranes. This morbid product is composed, according to Dr. Carswell, in the human subject principally of albumen, with various proportions of gelatine and fibrine; its chemical constitutions, in the opinion of this eminent pathologist, varying somewhat according to the period in which it is analysed, and probably in different organs and animals.

In an analysis by M. Thenard, it was found to be composed chiefly of animal matter, with a small quantity of muriate of soda, phosphate and carbonate of lime, and a faint trace of oxide of iron. Its physical characters are, that it is of a greyish white colour, and of the consistence of soft cheese or curd. In shape it differs much, according to the manner and the organs in which it is deposited; and in size it varies from the point-like atoms found in myriads in tuberculated lungs, to the large masses which sometimes accumulate in the brain, or in the external lymphatic glands.

As regards the mode in which this morbid element, tuber-

cle, is formed, pathological science can offer nothing that is conclusive. Dr. Carswell looks upon it as a morbid product of which the mucous membranes are the natural emunctories. Other pathologists are equally positive that the cellular tissue is the natural locality for its depositon. Dr. Todd has deduced the following theory of the formation of tubercle from his vivisections of the amphibia. From experiments "on the reproduction of the amputated extremities of the salamander, he concludes that *nutrition* is composed of two processes,—the production of organizable lymph; and the organization, or infusion of vitality into this organizable matrix." He conceives that from a combination of causes this matrix, or coagulable fluid, may be deposited in a state below the natural and healthy standard; which, instead of forming living, normal tissue, degenerates into an anormal, unorganized, and unorganizable product—tubercle. On the other hand, the great French pathologist, Andral, is of opinion, that "in the present state of science, tubercle must be considered as a modification of *secretion*, which is often attended or preceded by an active sanguineous congestion. This is all we know for certain; beyond this, everything is mere conjecture." There are, however, good grounds for hoping that this uncertainty will not continue. The admirable researches, by means of the microscope, into the development of cells and the deposition of morbid products, render it probable that we are on the eve of discovering the true mode in which tubercle and other pathological elements are produced.

The points of identity and resemblance between scrofulous matter of the lymphatic glands and tubercle in the lungs are so strong, that pathologists speak of the two productions in synonymous terms. Dr. Carswell may be said to have proved that tubercles of the lungs, and the

scrofulous matter of enlarged glands, are one and the same thing. He states that he never found the lymphatic glands, when generally affected, exempt from the presence of tuberculous matter. Louis, who has given immense labour to the study of the subject, lays it down as a law of tubercle, that there never exists a deposition of this matter in the lymphatic glands, or in any other part of the body, in subjects above the age of fifteen, without its being also present in the lungs. It has, however, been shown by M. Lombard, of Geneva, that pathological statistics reverse this law in the case of scrofulous children, in whom separate disease of the glands is even more frequent than separate disease of the lungs. In the examination of 100 children by M. Lombard,—

The bronchial glands were tuberculated in 87

The lungs in 73

The mesenteric glands in 31

Other tissues of the body were affected in smaller proportions. Thus it appears that in a given number of children dying of tubercular disease, there is a considerable numerical excess of glandular over pulmonary disease. Of the number given by M. Lombard, there must have been 14 per cent. in which the bronchial glands were diseased, while the lungs remained healthy. It must be remembered, too, as an important fact which pathologists seem to have overlooked, that tables of this kind are deceptive, inasmuch as they only take fatal cases into consideration; whereas, it is well known that bronchial and cervical glandular diseases are, comparatively speaking, seldom fatal, while pulmonary tubercle is almost invariably so. Hence it follows as an inference, that as external scrofulous glandular disease is far more frequent than pulmonary disease of the same kind, there must be, in reality, a much larger number than such

tables show, of cases in which the glandular affection exists without any sign of tubercles in the lungs. If the law of Louis be applied to fatal cases above the age of fifteen, there can be little doubt of its correctness; but I believe I have seen many living cases of scrofulous, or tuberculous enlargement and ulceration of the glands, the cellular tissue, and the bones, in which the disease existed for many years, and then disappeared without the production of any general or local sign of pulmonary tubercle.

External scrofulous disease from enlarged glands and pulmonary tubercle can, it is plain, be shown to be of the same nature, by the analyzation of the essential morbid product of each, and by the exact physical resemblance between tubercles developed in different parts of the body, whether in the lungs or in the lymphatic glands. The identity in these cases can be further supported, if necessary, by the facts, that the internal and external disease frequently co-exist; that often one member of a family may suffer from the first alone, and another from the second; or again, that the two states of disease may be developed indiscriminately in similar organizations by the same exciting causes.

There is one striking peculiarity connected with scrofula which, perhaps, draws a line of demarcation between it and tubercular phthisis more decidedly than any other; namely, that the former disease may possibly be developed without the actual presence of tuberculous matter. For instance, any ulcer or wound, but particularly a sore of syphilitic origin, occurring in a constitution such as may be defined to be of the strumous diathesis, is capable of being converted into a genuine scrofulous wound, without any preceding or accompanying deposition of tubercle in the parts affected. I believe, also, that in these constitutions, common abscesses of the cellular tissue will degene-

rate into scrofula in the same manner. Wounds produced by the suppuration of tuberculous glands have a substratum of tubercle which occasions the discharge of a curdy, flaky matter, mixed with thin pus. This same curdy matter, consisting of half-dissolved or half-formed tubercle, is sometimes secreted spontaneously with the pus produced from sores that have become scrofulous by metamorphosis; but this is by no means constant, nor does it even occur in the majority of cases of this kind. In general, the discharge is little altered from that of ordinary suppuration, but the sores have the physical characters and indisposition to heal which indicate true scrofulous ulceration. In strumous disease of internal organs, tuberculous matter forms an integral part of the disorder. I know of no internal affection in which other lesions degenerate into scrofulous ulceration without the intervention of tubercle, though I would not be held to deny that such may occur. In the external disease in cases of this kind, it would appear that when the constitution arrives at that point where, on the application of an adequate exciting cause, tubercle would be deposited, the same kind of ulcer which usually results from tubercle may be produced without the intermediate agency of that morbid product. When a certain constitutional *status* exists, scrofula appears spontaneously: sometimes the mucous membrane of the eye or ear,—at others, a common incised wound, abscess, or syphilitic sore,—become metamorphosed into sores having all the chief characters of scrofulous disease.

Thus, in some respects, scrofula—though in the majority of cases it resembles consumption, in being caused by the same morbid element—would seem to hold an intermediate place between the softening of tubercle, as it occurs in the lungs, and common suppuration.

Scrofula, struma, and tubercular disease, have been used almost indiscriminately in designating tubercle; the two former terms, in particular, have been applied to the external form of the disease as meaning precisely the same thing. I would submit that struma can be more properly used as a generic term, which should include every variety of tubercular disease. The external form of strumous disease appears chiefly in the lymphatic glands, in the cellular tissue, the bones, and the joints; the internal, in the lungs, intestines, serous membranes, nervous centres, secreting glands, and in the meseraic ganglia. The external does not appear till after birth, while the internal is sometimes found in the fœtus, or in the first few months of independent existence. Scrofula is far more common before puberty than after, and pulmonary tubercle after puberty than before. Altogether the symptoms, the lesions, and the results in the two classes of disease, though depending in the main on the same morbid product, are so essentially different, and affect such different kinds of organs, that for practical purposes it becomes necessary to consider them as distinct diseases. The object of the present treatise is to attempt the elucidation of the nature, causes, and treatment of external tubercular disease, or, as it is termed, scrofula.

Though we cannot, in the present state of science, learn how it is that tubercle is formed from the other materials of the body, or separated, as it most probably is, from the circulating fluids, we can understand to a very great extent the condition of the system that gives rise to tubercle. It is to the increase and dissemination of this knowledge that we must at present look for the amelioration of tubercular disease; as well as to improvements in the management of the disorder, when it has been fully developed in the constitution. Fortunately for those

suffering from scrofulous disease, which is essentially humoral in its nature, the study of the fluids is rapidly regaining its old ascendancy.

It is interesting to observe how nearly the opinions of the present day, on the nature of scrofula, approximate to the views of the older writers. Mead referred the disease to a "lensor," or to a corrosive condition of the blood. By Wiseman, who practised extensively in scrofulous disease, it was considered to be dependant on a peculiar acidity of the "serum sanguinis." Others called it "a dyscrasy of the fluids." The idea of a mechanical lensor, or chemical acidity, has been quite disproved by modern investigators; but the elder writers may be pardoned for using their terms awkwardly, on the score of their ignorance of the constituents of the circulating fluid. Their obvious meaning is much the same as we now express by the phrase, "morbid conditions of the blood." At all events they agreed with us in considering the blood as chiefly in fault. Andral supposes tubercle, or scrofula, of the lymphatic ganglia to be chiefly caused by an alteration or stagnation of the circulating lymph. In our own country, the explanation by Dr. T. J. Todd, of the production of tubercle, is the best yet offered. He considers it, as already explained, to be formed in the processes of nutrition, by the degeneration of "organizable lymph," a term very nearly identical with the "serum sanguinis" of Wiseman. Prof. Müller approaches still nearer to the ancients, when he gives it as his opinion that in scrofula, the lymphatic vessels and glands suffer from the irritation of "fluids morbidly formed," in their passage through the absorbent glands; the fluids referred to being the liquor sanguinis, or lymph circulating in the lymphatic system.

The comparative pathology of strumous disease has received much attention. Tubercular disease is excessively

frequent among the monkey tribes when brought to Europe : nearly all the Chimpansees that have of late years perished from the effects of climate are recorded to have had tubercles. In the horse, Dupuy found that tubercles and scrofulous swellings were very frequent in the pituitary membrane, and in the sublingual glands. Of forty-two horses with pulmonary tubercles, dissected by this anatomist, twenty-seven had them also in the sublingual glands. Tubercles have been often found in birds (especially foreign birds introduced into this country), in the hog, the sheep, and the ox; and they are excessively common in the liver of rabbits. In rabbits they can be developed in this organ to almost any extent, by improper food, or exposure to damp, as shown experimentally by Jenner and Baron. They appear to be developed with little difference both in herbivorous and carnivorous animals; though this is not at all in accordance with the general belief which obtains among medical authorities, that tubercle is rare among persons using a large quantity of animal diet, such as butchers and dealers in fish. No case of exemption from tubercle is known among any class of animals reclaimed by man from the savage state. At one time Andral was of opinion that dogs formed an exception; and he explained this from the fact that dogs live in a climate natural to them, and more nearly in a state of nature than any other domesticated animal. Dupuy, however, has occasionally found tubercles even in the dog; but there is no doubt that they are comparatively infrequent in the canine race. It would be an interesting subject of research to discover what animals are most exempt, and what class is most liable, to strumous disease. Such an investigation might afford some clue, leading to a greater control over the internal forms of tubercle than we at present possess.

Sir James Clark inclines to the opinion, that tubercular

disease has increased among the upper classes of society during the last half century. There is every probability that this has been still more decidedly the case among the poorer population of this country. No external circumstances are sufficient to ensure escape from its ravages: it affects the high and low, rich and poor; the inhabitants of the most wholesome rural districts, and the dwellers in manufacturing towns; those who reside on the seashore, and those who live inland;—all suffer, though with varying degrees of frequency and severity. There is no doubt the disease is less common among the rich than the poor, in the country than in towns and cities, at the seaside than in inland places; still it is so common that scarcely a family in any station or circumstance, from the throne to the poor-house, can be found in which an observant physician cannot discover some trace of the scrofulous temperament.

There can be no question of the hereditary nature of the diathesis and the disease. Perhaps it is more truly so than in any other disease whatsoever. This was at one time denied; but the fact that a scrofulous, or tuberculous mother may give birth to a child having tubercles existing in its constitution at the time of birth, proves beyond dispute that the parent may communicate the disease to the offspring. There can be no greater proof of hereditary disease than this. It is uncertain whether the father or mother has the greatest tendency to transmit hereditary faults of constitution to their children; but I believe the balance of evidence and observation to be in favour of considering the female, more likely than the male, to communicate mental and physical organization, and of course with these the tendency to particular diseases.

There is one curious point connected with scrofula deserving notice, and closely related to its hereditary nature, which I consider to be of much importance in a therapeu-

tical point of view. I refer to the circumstance, that in a highly scrofulous family the scourge may pass over one generation without affecting it, but only to revisit the next. Thus, the grandparents may suffer from scrofula, and it will remain dormant in the children, but reappear among the grandchildren. This kind of Atavism, as it can be termed, may seem to border on the marvellous, but I believe its truth to be thoroughly established. I have myself known many instances of the kind, and possess the records of scrofulous families in which alternate exemption and affliction have run through more than five generations. At the present time I am acquainted with some children among whom no decided sign of scrofula or the scrofulous diathesis has appeared, whose ancestors have alternately been afflicted with scrofula for five generations. More frequently it occurs in scrofulous families, that there are some affected in every generation, while others remain pure. The disease, or the tendency to disease, often descends indirectly and irregularly, occurring in uncles and aunts in one generation, and nephews and nieces in the succeeding. I should observe that Sir James Clark believes that the occurrence of scrofula in alternate generations will admit of explanation, without supposing that the disease sleeps in one generation to reappear in the succeeding. I believe this eminent physician considers these cases are explainable by the actual eradication of the disease in the generation in which it is absent, and its re-development when it appears in the following generation, by the agency of new causes. I submit, however, that there are sufficient reasons for the rejection of this latter doctrine. Such a kind of pathological atavism, or irregular development of disease, has always been so frequent, and so much a matter of common observation, as to be very generally believed. And further, we see the same thing hap-

pen with regard to physical organization. It frequently occurs that a child resembles one of its grandparents or an uncle or aunt, in growth, stature, temperament, and mental qualities, while it bears little likeness to its immediate progenitors.

Again, this is often still more remarkable in the transmission of striking physiognomical traits in families. Any one feature becomes prominently fixed of a certain stamp in a family; and this feature or peculiarity appears, not constantly, but at intervals, in different generations, through a long series. This may be seen beautifully illustrated in the portrait galleries of many of our ancient families. One peculiar expression, or a distinctive mould of the eye, the mouth, or forehead, runs from the founders of the family through a long line of descendants. But it is not seen passing regularly from father to son: the intermittent likeness, so to speak, appears now in a female face, then in a male; sometimes passing off into collateral branches, and again returning capriciously to the main stock. In these kind of instances the likeness of feature, or organization, resembles the original, it may be twenty generations off, too closely to admit the possibility of its depending on any mere accidental development. This peculiarity has been recognised by Prichard, Blaine, Mason Good, Walker, and other physiologists. Moreover, it is not confined to the human race, but happens in the generation of the lower animals.

I have dilated thus far on this interesting topic, because, as I before remarked, it seems capable of being turned to account in our endeavours to eradicate the strumous tendency from individuals and families.

I conceive, that when the disease lapses in one generation of a scrofulous race, judicious management of the constitutions of the individuals, and healthy matrimonial alliances,

will so control the tendency which the dormant germs of scrofula have to re-appear, as in many cases to prevent their resuscitation in succeeding generations; whereas, if it be allowed that in generations or individuals of scrofulous descent, presenting no overt appearances of scrofula, the disease is actually eradicated, there will be no need of enjoining more than common precautions as regards the future. Unless the return of the enemy be held in dread, families will make little, if any, exertion to prevent such a contingency.

The power of a scrofulous individual to impart the disease to others, has long been considered limited to hereditary transmission. The French pathologists have made numerous experiments, both on the human subject, and on inferior animals, which show that the direct introduction of scrofulous matter into a healthy constitution by inoculation, produces no effect whatever. With respect to contagion, the opinion formerly prevailed, and in fact continues to the present day in some countries, that tubercular consumption occasionally attacks healthy persons in consequence of their sleeping and living with consumptive patients. Such an idea had been entirely discarded in this country; but there seems to be of late a disposition to inquire, whether the emanations from the body of a person dying of consumption may not injure those exposed to such influences, and give them a tendency to tubercular disease. If there be any truth in such an opinion as regards pulmonary consumption, the same kind of danger would probably attend severe cases of scrofulous disease; but I believe if any effect of this kind is produced it can only be to a limited extent.

With respect to the comparative liability of the two sexes to scrofula, little of a positive nature can be adduced. The majority of writers have leant to the opinion that it is most prevalent among females; but this has been met by such

conflicting testimony, as to render it doubtful whether the distribution of scrofula is not pretty nearly equal in either sex.

Pathologists are agreed that childhood is the era in which scrofula mostly makes its appearance. From extensive data, M. Lombard fixed from the fourth to the sixth year as the period most prolific in scrofulous disorders. I am convinced that at all events two-thirds of the cases of glandular scrofula date their commencement before the age of twelve. This circumstance, which I shall hereafter have to revert to, finds a ready explanation in the great activity of the glandular system which exists in childhood and youth.

The relation borne by scrofula to rickets, another important disease of childhood, has never yet been clearly defined. Some have considered them nearly allied in their nature, while others have considered them entirely dissimilar; from which it would seem evident that there must be many points of resemblance, and many particulars in which the two diseases are essentially different. They are alike in being dependant on debility of organization, the blood being in both deficient in its richest constituent, fibrin; and the physiognomical signs, particularly of the face and head, bearing a decided resemblance. Moreover, the two disorders often co-exist; but the age at which rickets makes its appearance is considerably earlier than the time at which struma prevails, rickets being much more common before the third year than afterwards. In scrofula there is a great tendency to suppuration, which is of rare occurrence in rachitis. In rickets there is the want of one of the constituents of the healthy body, namely, the earthy matter of the bones; while in scrofula a morbid element, tubercle, is superadded to the natural organized elements. Thus it is evident that, though there may be a superficial resemblance between scrofula and rickets, yet the more minutely we examine

their essential natures, the further do we remove the one from the other.

Scurvy is another disease which has been popularly associated with scrofula; but this arises not so much from the actual relationship between the two disorders, as from the fact, that the state of the fluids and solids in scurvy tends powerfully to produce the irruption of scrofula in the scrofulous constitution, while individuals of the scrofulous diathesis are those who become first attacked by scurvy, when numbers are exposed to the exciting causes of the latter disease.

Our knowledge of scrofula is as great as of most other diseases, yet it is difficult if not altogether impossible to give a concise and direct theory of its nature and causes. It is not like a mere local affection, in which the cause and the effect stand in near and immediate relation one to the other, and in which any constitutional symptoms that may occur are referrible to a local origin; but it is a constitutional malady in the most extended signification of the term. Its cause, whatever it be, may reveal itself palpably when the disease is fully developed, in its effects in some particular part; but we have certain signs that the same cause affects every tissue, every organ, and, we may add, every molecule of the body. Hence we speak of the "scrofulous constitution," and of the "strumous diathesis," terms which evidently apply not to any particular localities or functions, but to the entire organization. If we attempt to narrow the definition of the disorder, and separate the scrofulous temperament from other constitutional states, we shall probably come to the formation of tuberculous matter, as the most distinctive trait; or to a vitiated condition of the lymph circulating through the absorbent glands; or to some fault in the processes of nutrition and secretion: but all these are themselves but signs or results of more remote deviations from

the healthy standard. We may refer back to digestion, to assimilation, and growth,—to the vital principle, and to the original formative force, till we become uncertain whether to blame most the material or the immaterial elements of which the system is composed. Extended pathological science may possibly simplify this and other constitutional disorders; yet certain it is, that at present we cannot legitimately converge the information we possess towards any one point; but, in our attempts at elucidation, are rather forced to diverge towards every branch of the subject. The theory of scrofula, such as we can now shape it, lies in the knowledge we possess of the whole matter, but it is utterly impossible to separate it from the whole; though the knowledge is tolerably certain in its diffused state, it cannot be rendered in the form of a simple proposition or hypothesis. The thread, if such there be, which connects all the varied phenomena is wanting.

It would seem that the scrofulous tendency may be derived from some failure of the primitive organizing force,—some fault in the final cause of the individual existence, or that it may be acquired in any of the stages toward the development of the material being, by some deviation of the organizing processes from the perfect vital plan, or design, originally imparted to the germ, which may take place either in foetal life, in infancy, childhood, youth, or in adult existence. Again, the scrofulous constitution may be produced by some fault of digestion, assimilation, nutrition, secretion, or excretion, these being the chief points of the cycle of change by which the composition of the body is preserved in a wholesome state.

Many of the remote causes of scrofula spring from external circumstances, and from the errors and vices of our social condition; but it is not unreasonable to believe,

that by sound information and wise care, both on the part of individuals and the community, it would be quite possible to raise our physical organization to such a state, that climate, and the other unavoidable sources of scrofula incident to our present condition, should produce little effect. Inducements certainly are not wanting to make us attempt so desirable a consummation, for strumous disease is of all others the most universal in this country, and the most powerful cause of physical degeneracy.

CHAPTER II.

ON THE SIGNS OF THE STRUMOUS DIATHESIS.

Most writers on the subject have enumerated a variety of physiognomic signs, as indicative of a tendency to scrofulous disease. On the other hand, there are some who maintain that there are no distinctive traits, falling short of actual disease, by which the predisposition may be known. Those who hold this opinion, maintain that it occurs with equal frequency in the most opposite constitutions and temperaments.

It is true that the variations are so numerous, and the characteristic shades which reveal the latent disorder are so slight and delicate, that it is difficult to define them clearly in words. Still the indications, however modified in particular cases, are so constant in a general sense, that those who have treated the subject have rarely omitted to enumerate those which are most important. I believe they may almost be pronounced identical with those of the lymphatic temperament, or at all events of those temperaments in which the lymphatic development constitutes an essential feature. In noticing the various symptoms of this condition of the animal economy, I shall endeavour to give the greatest prominence to those which are most frequently met with in each individual case. For the sake of precision, I have arranged them according to the different tissues, by whose changes from the healthy standard, the signs of the strumous diathesis are produced.

1. *Changes in the Cellular Tissue.*—The development of cellular tissue is greater than usual, and appears to be of looser texture, giving a roundness and softness to the limbs and different parts of the body which robust constitutions do not possess. There is in particular a superabundance of cellular tissue in the lip, and especially in the upper, which is thereby rendered tumid and projecting. The same occurs, but in a less degree, in the nostril, and sometimes in the eyelid. The cheek is often prominent, and the breast, both in the male and female, is larger and softer than natural. There is a considerable tendency to the deposition of fat in the cellular tissue, especially when the predisposition continues after the era of puberty. In the comparatively rare cases in which the strumous diathesis makes its appearance in middle life, it is generally combined with fulness or obesity, from the development of the cellular tissue, and the deposition of fatty material. Dr. Macartney was of opinion, that the fat of scrofulous constitutions is wanting in the genuine oily composition of marrow and common adipose tissue.

2. *The Muscular System.*—The muscles are paler in colour, and have a softer feel to the touch, than muscle healthily developed. They are deficient in the quality termed by Haller irritability. The voluntary muscles do not contract under the influence of the will with sufficient energy, and they are comparatively soft and mobile even when in a state of contraction. Owing to the deficiency of muscular force, any long-continued exercise produces great and enduring fatigue. This condition of the muscular system is one of the most constant signs of the strumous predisposition; it is indeed rarely absent, except in cases where great attention has been given to force the muscular development by gymnastic or other constant exercises.

The muscular contractions dependant on the excitomotor system partake in the general debility or want of tone. The iris offers the best illustration of this condition, in which, owing to the feeble contraction of its fibres, the pupil is permanently dilated, so that even a strong light does not cause its contraction to the same degree as where the muscular tone is energetic. This, together with a peculiar whiteness of the sclerotica, or, as Rayer more correctly describes it, a blueish tint, perceptible in this tunic in scrofulous constitutions, gives the eyes that clearness and brilliancy which they usually possess, except when the eyes themselves are the seat of the disease.

The excito-motor function of the bladder is very different in this than in more robust constitutions. The bladder is particularly excitable, and the calls to evacuate its contents are much more frequent than in sound habits. As age advances, the voluntary and the excitor powers over the bladder are sooner lost, so that retention or incontinence of urine is very frequent in old persons who have had the strumous diathesis.

There can be little doubt that the heart and other muscles of organic or vegetative life are similar to the muscles of animal life in respect to flaccidity, and deficient irritability or contractility. The heart's impulse is felt less forcibly and is heard over a smaller space; its systole is more feeble and less rapid; and, as a consequence, the pulse is weaker and slower than the average. This difference may be observed more especially when the heart's contractions are compared with those of persons of sanguine temperament.

3. *The Nervous System.*—In the development of the nervous system, important deviations from the healthy standard are perceived. The brain is generally well developed as regards size, particularly in the anterior regions, though, as Dr. Macartney truly maintains, it is

of a whiter colour than the strictly healthy brain. Still, whatever may be the state of the cerebrum, its most important functions would seem to be performed in a proper manner; for individuals predisposed to scrofula are generally of good intellectual capacity, though unable to bear the long-continued mental exertions which others of sterner material undergo without inconvenience. Guersent remarked, that in scrofulous persons the imaginative faculties preponderate over the reflective; nevertheless, though this be true to some extent, it could easily be proved that some of the loftiest minds have been produced by, or co-existed with, the strumous temperament. The instances in which scrofulous subjects possess a Cretin-like mental capacity, are but the exceptions to the common rule.

Dr. Macartney declares, that "there is a mental character belonging to the scrofulous habit which more strikingly indicates the peculiar state of the constitution than all the other signs. Scrofulous children in general exhibit no mental energy, but a gentleness of disposition, a refinement and judgment in matters of taste, and a purity of moral feeling, which is sometimes so remarkable, as to place them in these points far beyond the scale, and even beyond the conception, of the mass of mankind."

The nerves of special sense are generally very active and acute in strumous children, but this acuteness appears to depend on a delicate rather than on a strong organization; as in after life, the strumous diathesis is peculiarly liable to diseases of the senses. Deafness and imperfect sight are very common in such constitutions in middle life, and the failing sight and hearing of old age make their appearance earlier in this than in other temperaments.

From the inability to endure fatigue, and from various derangements of a slight grade frequently observed in the secreting and assimilating processes, it may be inferred that

there is some deficiency of power in the ganglionic nervous system.

The processes of organization, nutrition, and the reproduction of lost parts, which require energy of constitution, take place more tardily and are less enduring than they ought to be. All the solid parts of the body are more slowly, and probably more imperfectly, developed than usual. The bones in particular are a long time before they acquire the proper ivory density. The fontanelles are a long time before they completely close up, and the joints are softer than natural, in children of the strumous habit. Teething, in some rare cases, commences and is completed remarkably early, but the milk teeth in such cases are small and imperfect, and drop out before the proper time. Generally, the first dentition does not commence so early in the strumous, as in strictly healthy temperaments, and the production of the teeth occupies a greater length of time. The same may be said of the permanent teeth, which are, when developed, fragile, and have a tinge of blue upon the white enamel, which is generally a striking characteristic both of the strumous and consumptive diatheses. Both are, in the majority of cases, remarkable for the good appearance of the teeth in early life, but, unless great carefulness be observed, they are generally affected with caries long before middle age.

4. *State of the Blood.*—It is probably in the blood that the greatest aberration from the healthy state exists. Some maintain that there is a smaller quantity of red globules or cruorin, and that the arterial blood is less red, while the venous blood is of a darker colour than usual. Of the other constituents of perfectly healthy blood, Lecanu and Macartney have ascertained that there is a considerable deficiency of fibrin in those of lymphatic temperament; the difference of proportion between the sanguine and lym-

phatic temperament being sometimes as great in men as 116 to 149, and in women as 69 to 130. This deficient generation of fibrin or coagulable lymph in the blood, will probably account for the infrequency of acute inflammation in those of lymphatic or strumous temperament. It also leads, as I shall hereafter have to show, to important rules for the removal of the morbid diathesis, and to the administration of remedies, when it has passed on to the development of actual disease.

Müller has suggested an interesting hypothesis, that struma is produced by the presence of acrid or irritating qualities in the liquor sanguinis, the nutritive fluid which permeates all the tissues of the body, and circulates especially in the lymphatic vessels and in the system of lymphatic glands.

5. *The Skin, Hair, &c.*—The skin of strumous persons (when it has not been affected by disease) is generally delicate, and of a wax-like or pale and transparent colour. There are many exceptions in dark muddy descriptions of skin, but this is often when the diathesis is not congenital, but acquired by external circumstances. The above is without doubt true of the great majority. The eyelids in particular are remarkable for their almost transparent clearness, the eyebrows are generally pencilled finely, and the eyelashes are long and more curved than usual. From the dark colour of the venous blood, and the fineness of the skin, the blue veins are seen plainly underneath; and that which is in reality a morbid indication is often mistaken for personal loveliness. An elegant writer has remarked, how great a misfortune it is to mankind that the standard of beauty should, as is too frequently the case, be drawn from a tendency to disease rather than sound health. In scrofulous diseases this but too often happens.

There has usually been much stress laid on the hair as a

mode of predicating the strumous diathesis. The majority of writers have said, that scrofula is most common in persons with light hair; and it has been pointed out as singular, that the same remark should have been made by Alibert and other French pathologists of the disease in France, where light hair is much less common than in Great Britain. Dr. Manson, of Nottingham, whose opportunities of observing the disease were great, was of a different opinion. He considered that dark-haired persons were not more exempt from the disease than those of fair hair, light complexion, and blue eyes. Mr. Lloyd, one of the most recent writers on scrofula in this country, states, in his work, that "there are no legitimate grounds for attributing scrofula to light complexions, fair hair, and eyes;" he considers the disease is distributed without any distinction among the dark and light. From these discrepant statements it is evident that scrofula is not confined to any colour of skin; indeed it is well known that the black races, when they migrate to a cold climate, are exceedingly prone to strumous and tubercular disease. However, in our own country, I believe the balance of evidence is in favour of considering that strumous affections, and the diathesis which leads to them, are really most prevalent among light persons. I consider that when scrofula, or the strumous diathesis, exists in dark-haired individuals, it is much more difficult of cure than among those with fair hair; and I would suggest that this may be accounted for by the circumstance, that strumous persons with dark hair are generally of melancholic disposition, while those of light hair are usually cheerful and even buoyant in spirits; a difference which is especially important in the treatment of scrofula. This perhaps may account for Dr. Manson's opinion. The dark-haired strumous temperament appears to me to occur in a combination of the lymphatic and nervous temperaments.

6. *The Mucous Membranes.*—The mucous membranes are generally described as the most healthy parts of the body in those of the lymphatic temperament. I have often observed that the mucous secretion is rather superabundant than otherwise, especially in those parts which are continuous with the skin, or exposed to the influence of the atmosphere. Mucous discharges are common from the nasal and guttural mucous membrane, from the external ear, and from the eyes, and also from the vagina: the mucous surfaces in these situations frequently become thickened and indurated, and there is likewise a strong predisposition to disorder of this tissue in the internal ear. Tonsillary enlargements deserve mention, as being among the first derangements from health to which the strumous diathesis is liable. In children the presence of these enlarged mucous glands are, at the same time, a powerful cause and indication of deteriorated health.

7. *The Glandular System.*—The glands of secretion are usually developed to the full extent as regards size; but their functions appear to be carried on in a hasty and somewhat imperfect manner. Thus digestion, which may almost be considered as effected by the agency of the various fluids secreted by the glands of the digestive viscera, appears to be performed with more than healthy rapidity. There is usually an excellent appetite; but after even a full meal, only three or four hours can elapse before the want of food is again felt. Of the eliminatory secretions, those which more immediately depend on digestion are both quickened and increased in amount. The kidneys generally secrete copiously during and at the termination of digestion. The secretion from the skin is also generally free. Those parts of the cutaneous surface, the secretion from which performs a distinct office, as the sebaceous glands of the axilla, &c., generally deviate from the healthy com-

position, the secretions are often almost wholly void of the natural odour, and instead of preventing irritation, appear to create it. Though the functions of the secreting division of the glandular system are, on the whole, increased, the bowels are generally torpid or irregular. The glandular mucous surface of the large intestines, which supplies the chief bulk of the fæcal matter, either does not perform its functions properly, or the matter secreted does not act as a sufficient stimulus to induce the peristaltic action of the intestines.

That quasi-glandular structure—the thyroid body, whose function is unknown, is often larger than usual in those of lymphatic habit, and particularly in the female sex; though its peculiar affection, *goître*, is often complicated with *scrofula*, modern medical authorities are in favour of considering the two diseases entirely distinct from each other.

The internal absorbent system, or the glandular and lymphatic organs in connexion with the digestive apparatus, appears to be well developed in the strumous diathesis. Still, either from some inherent delicacy in the glands and absorbent vessels, or from their forming the chyle imperfectly, they are liable to irritation, and the deposition of tubercle in scrofulous children. That this kind of enlargement of the mesenteric glands is frequent in children of strumous predisposition is certain, and one or other of the above conditions most probably acts as the exciting cause of the evil.

The external lymphatic system possesses no known peculiarity, except that slight causes are, in the strongly predisposed, sufficient to produce induration of the glands, and accumulations of strumous matter. Whether this arises from deterioration of the lymphatic fluid, or liquor sanguinis, as Müller supposes, or depends on some quality peculiar to the glands themselves, is also a matter of con-

jecture. Some of the lymphatic glands, particularly those of the neck, are excessively prone to put on a diseased action. There are a great number of otherwise tolerably healthy children who are continually subject to enlargements of the cervical glands; those about them call it "a falling down of the glands;" or they are said to have the "almonds of the ears down,"—the latter term probably being derived from the similarity of the affection to enlargements of the tonsils, or amygdalæ, which are, when much enlarged, sometimes felt externally. From careful observation, I believe that children of the genuine strumous diathesis rarely suffer from catarrh, without having specific enlargements of the glands of the neck, though they are little noticed from the circumstances of not giving pain, and from disappearing in the majority of instances with the cold that caused them.

I have, in the commencement of this chapter, expressed the opinion, that the strumous diathesis and the lymphatic temperament are almost, if not entirely, identical; or at all events, that where the strumous tendency exists in its most marked form, the lymphatic temperament is almost sure to co-exist with it. I believe the discordant views which have prevailed, as to whether this or that complexion or colour is indicative of the strumous diathesis, to be most easily reconciled or explained on this supposition. In the combination of the lymphatic with the nervous temperament, I conceive we have the dark-haired strumous diathesis; and in the union of the lymphatic temperament with the bilious, we get the dark muddy complexion, so much insisted on by some writers as destroying all connexion between struma and fairness of person.

Whether these views be adopted or not, it is most certain that the predisposition to scrofula does depend in all cases

in which it is not acquired, on some inherent defect in the constitution,—affecting, in some degree, all the most important organs and their functions. There has been a considerable tendency to localise the radical fault in the stomach, and other organs of assimilation, but this appears to be taking too contracted a view of the subject. That the digestive viscera are affected is most certain, but this is rather a part of the collective diathesis than the prime cause. Children have been born of strumous fathers and of healthy mothers, with depositions of scrofulous matter existing at the time of birth; and in these cases it has been truly remarked, the stomach could have no share whatever in the production of the disease. Whatever the cause may be, it involves, and that primarily, the whole organization. The connexion between the vital or organizing force, and the materials of the body, does not appear so strong or effective as in healthy temperaments. This would seem evident, not only from the mode in which the natural functions are carried on, but also from the modification of ordinary laws which occur in diseased states.

Thus, as already glanced at, pure sthenic inflammation is of rare occurrence in scrofulous constitutions: chronic or sub-acute inflammation, rheumatism, and erysipelas, being the disorders which appear to take its place. There does not seem to be sufficient energy in the system to develop a high grade of inflammation, and we have already seen that the state of the blood, from its deficiency of fibrin, is unfavourable to such a condition. In fevers also, there is a manifest influence exerted by the strumous temperament on the disease. The re-action is never so violent, but it spreads over a greater length of time, and the convalescence is protracted; powerful remedies, especially vascular depletion and purgation, are not so well borne; these points are true both of fevers, and of all other disorders accompanied by serious debility.

Considerable variations of course occur in these particulars, as well as in all others attributable to the strumous diathesis,—the difference being dependant on the wide range which exists in nature between those constitutions in which through life only the slightest signs of the diathesis appear, and others, in which the morbid traits are so intense, that very slight causes are sufficient to excite a severe form of strumous disease.

Such are the chief features, internal and external, which appear to be indicative of the strumous diathesis, and from which either scrofula or consumption may arise.

Several physicians have treated of a strumous cachexy in connexion with the development of tubercle, the peculiar cachectic condition depending, in great measure, on chronic derangement of the digestive organs. Dr. T. J. Todd has described at length this cachexy under the name of “strumous dyspepsia,” and maintains that such a form of indigestion is more truly and invariably physiognomic of the scrofulous habit than any other sign whatever. With this I cannot agree, nor with the other opinion of Dr. Todd, that this affection has the important share which he believes it to have in the development of scrofula. Individuals pass into the scrofulous state in two ways, by the merging of the congenital diathesis into scrofulous disease; or they acquire the disease accidentally on exposure to powerful causes of debility, without the previous formation of the external signs of the diathesis. In the latter and less frequent class of cases a dyspepsia, which may perhaps be called strumous, often attends the transition from good health to scrofula; but, in many cases, it deserves to be considered rather as a part of the effect of the injurious causes in operation than as an independent disorder, in itself a great cause of the strumous disease. Treating the intermediate affection alone will do little to remove the constitutional ailment. As regards those with the congenital predisposition who become scro-

fulous, dyspepsia may be the means of precipitating the actual disease ; but in this it can only be ranked with accidental injuries, debilitating diseases, or with the effects of cold and other causes of scrofula. Those in whom the scrofulous diathesis alone is developed often continue in good health for many years, not so robust as strong constitutions, but still free from dyspepsia, and free from actual strumous disease.

That there is no very decided relation between dyspepsia and scrofula is, I submit, evident from the circumstance that there are numbers in whom no amount or intensity of indigestion will produce any sign of the disease. If it were not so, scrofula would be far more abundant than it even is at present. It may be added, that there are many actually suffering from scrofula, whose general health is little affected, and, certainly, in whom there exists no symptoms of a peculiar indigestion, little or none, in fact, which may not be accounted for by the depressing effect of the local disease on the constitution, and by the constitutional debility that leads to the disease, both of which of course affect the stomach, but only in common with other organs.

The general health is also good, and indigestion absent in the majority of those cases, which, having once suffered from scrofula, have escaped from the disease, but retain through life the signs of the scrofulous constitution.

Some authorities, as I have already said, doubt the necessary connexion between scrofula and any special constitution. The writer quoted above declares emphatically, that "it betokens little familiarity with scrofula to connect it with any particular temperament, for it belongs to all temperaments, to the sanguine as well as the phlegmatic, to the nervous as well as the melancholic, and to all their varieties and combinations." I do not wish to deny, for a moment, that scrofula may be produced in the most opposite

constitutions by exposure to causes which produce physical degeneration ; but I maintain it to be far more common in some temperaments than others, and that there are certain constitutions which through life remain, as it were, much nearer than others to the development of scrofula, and in which the disease will be produced after exposure to slight causes, such as would produce no impression, or a very different one, on opposite constitutions.

The general thing intended, in the present chapter, has been to define, as nearly as may be, the peculiarities of organization which accompany the common tendency to strumous disease. These peculiarities I believe to be sufficiently regular to warrant the propriety of the term "strumous diathesis." That there is such a thing of fact, and not of mere fancy, I think clearly evident. Every medical practitioner is able to say at once of such a child or such an adult, though no sign of actual disease may be present, "Here is a strumous habit, liable at any time to the irruption of scrofula." There must be some external signs, some bodily conformation, difficult it may be to seize and define in words, which makes medical men so constantly in the habit of prognosticating after this fashion. It is not a mere question of the shade of the hair, or the tint of the skin, for these, confessedly, vary considerably among the scrofulous ; but it is that *tout ensemble* known as the lymphatic temperament, or at least a modification of this, which, though manifested in the greatest perfection among the fair-complexioned and light-haired, yet often unites with every other variety of colour in sufficient proportion to give the tendency to scrofula ; though the dark hair of the nervous and melancholic, or the florid skin of the sanguine temperament may be preserved.

CHAPTER III.

THE EXCITING CAUSES OF SCROFULA.

ATMOSPHERIC cold is probably the most frequent of all the exciting causes of scrofulous disease. A large number of sufferers know of no other cause than "a chill," as it is popularly called; and to this they invariably refer when questioned regarding the origin of their malady. The disorder most frequently affects those parts of the body which develop the least supply of vital heat, and are at the same time most exposed to external cold. Thus the glands of the face and neck are well known to suffer extensively from scrofula. The extremities and the joints, particularly the knee and elbow, are very liable to be attacked. Chilblains on the feet and hands are almost constantly the effects of cold in strumous habits, and are often the precursors of more serious affections. Lugol lays much stress upon them as being among the most certain signs of the strumous diathesis. I have known instances in which scrofulous children have been affected with them as much as nine or ten months of the year, the chilblains only disappearing in the height of summer. The most probable explanation of the frequency of glandular disease of the neck is, that it is caused by the direct effects of cold on the cervical glands when there is already the predisposition to scrofula. Dr. Henning, a writer on the disease, suggested that this cause is assisted by the greater delicacy and thinness of the skin of the neck and face, as compared with other parts of the

body ; in consequence of which the glands in this situation are naturally less protected from cold than others. Numbers of children and young persons never get wet nor suffer from catarrh without the appearance of enlarged glands, "kernels," as they are called, in the sides of the neck. If the general health happens to be otherwise disordered, or any other exciting cause concur with the cold, these glands often remain indurated a long time, and ultimately one or more pass through the suppurative process.

Some writers have attributed scrofulous enlargements of the neck to the prevalence of diseases of the scalp among children, imagining that the irritating matter may be absorbed from the head, and conveyed by the lymphatic vessels to the neck, there to produce irritation and enlargement of the glands while circulating through their substance. This may possibly occur in some instances, more particularly when there is soreness and a thin acrid discharge behind the ears ; but the two affections are by no means so constant as to be placed in the relation of cause and effect. When they do occur together, both are generally scrofulous, and have the same constitutional origin.

I am of opinion that the cervical form of scrofula is more frequent among boys than girls, and may be attributed to the greater exposure to which boys are subject during childhood and youth ; girls being generally wrapped up about the neck when in the open air, while in this respect little or no difference is made between the in and out-door dress of boys. Sometimes the effects of cold are produced with great rapidity. I have seen a case related in which local disease was produced almost immediately on the local application of cold ; psoas abscess was formed in a few days after travelling several hours in a cold wind, the lower part of the back, which was exposed to the wind, being wet at the time.

I coincide with an opinion expressed by Russell, that cold and damp together, form a much more powerful cause of scrofula than either of them separately. The disease is more common in localities where cold and damp exist, than it is in cold and dry situations. A changeable temperature is also more dangerous than long-continued cold weather. In winter, a temperature just above the freezing point is the most troublesome to scrofulous constitutions. It is well known that in spring, and at the commencement of winter, those afflicted with scrofula suffer an exacerbation of the complaint. The long-continued easterly and northerly winds we often get in the spring render this season particularly obnoxious to scrofulous persons, most of whom are exquisitely sensitive to the winds blown from these quarters. The months of April and March, October and November, are the most productive of scrofulous disease in this country. The writer above-quoted, believes the chief climate of scrofula to extend from forty or fifty, to sixty degrees of north latitude.

There is no doubt that scrofulous disease makes its appearance more frequently at the seasons mentioned above than at others, and that this is justly attributable, in a great measure, to the frequent changes of weather and vicissitudes of temperature; but I have seen many cases in which these causes have been assisted in their operation by the deprivation of fresh vegetable food during the winter season. A scorbutic state of the system is produced which seems greatly to aggravate the scrofulous tendencies. If we were not thoroughly aware of the bad effects of a low and varying temperature, the impetus given to strumous affections in the spring would be almost sufficient to make it questionable whether scrofulous

swellings and tubercles do not acquire, at this season, some power akin to the germination of vegetables.

External injuries frequently develope scrofulous disease. In childhood and youth, when the diathesis is fully marked, a fall, or severe blow, or an accidental wound, will often bring on the most serious forms of the disorder. I know of a strumous family in which scrofula was produced, in two individuals, by accidents of this kind. The one fell out of a yew tree in a churchyard, and injured the hip and thigh, by pitching on the groin, across a raised tombstone. Scrofulous disease of the hip-joint appeared in consequence, which terminated fatally after continuing several years. The other fell into a cellar, and received a severe wound in the scalp, during the healing of which an enlarged gland appeared in the side of the neck, and ultimately suppurated: this was followed by the appearance of numerous scrofulous abscesses in different parts of the body. The disease continued in this case upwards of ten years; and after having produced permanent contraction of the elbow-joint, from disease of the bones, and numerous scars in different parts of the body, at length became cured. In this case great pains were taken, in accordance with the old practice in scrofula, to make the first glandular enlargement suppurate—a serious error, to which I have no doubt much of the subsequent disease was owing. Blisters, poultices, plasters, issues, fomentations, and other surgical means, formed a long array of applications, which were often brought to bear against a refractory gland.

When an individual of the strumous diathesis has a fractured limb, he is far more liable than others to the formation of abscesses in the neighbourhood of the injury, and these, after a time, generally take on the scrofulous character. I have known severe cases of scrofula follow burns and

other accidents injuring or destroying the skin. Any sudden shock to the constitution may produce the disease; thus, after parturition, women of the strumous temperament are very liable to have collections of matter in the breasts. In such constitutions, strumous pus sometimes appears to be formed with almost as much rapidity as the secretion of milk.

Improper or insufficient food, is another most decided cause of scrofula. The disease is very common in the large manufacturing towns, where bad air, combined with a bad supply of nutritious aliment, and sedentary occupations, are prolific sources of scrofula. This is particularly the case in Manchester, Liverpool, and other great towns of the North. The physical condition of the people is undoubtedly degenerating from a combination of these and similar causes. The lower order of townsfolk, and indeed the upper also, though from other causes, are continually falling into a state of disorder, termed by Dr. James Johnson the *wear and tear* malady, out of which scrofula is prone to take its rise in predisposed constitutions. Large numbers live in the great towns, in cellars and underground. They present a blanched and etiolated appearance. As a class, such people are very poor, and live badly; so that here we have large masses subjected to precisely the same physical conditions,—living on scanty and unwholesome food, and deprived of light,—as those by which pathologists have been able to produce tubercular disease at will, and to any extent, in the lower animals.

Scrofulous disease is comparatively rare in infants under a year old. In all the cases of scrofula I have observed at this early age, the disease has been derived from the parents, or else the child has been badly nursed. I have seen a case of a dry-nursed child, in which scrofula had reached such a pitch, that the metacarpal bones were destroyed, and one of the fingers required amputation in infancy. I

saw recently, a child who suffered in consequence of its mother having a bad supply of milk. Several glandular swellings appeared in the neck, but rapidly vanished as soon as a healthy wet-nurse was procured.

In many country districts, where, as regards fresh air and locality, there are all the natural agremens of health, scrofula is nevertheless excessively prevalent, and without doubt chiefly on account of an improper or deficient supply of food. There are but too many parishes in England in which the poor population seldom have in their houses any other animal food than salted pork or bacon, and are thus living on a description of food most likely in our climate to debase their physical condition, and produce scrofula, and other diseases which take their rise in the scrofulous constitution.

Scrofula is fearfully prevalent among the inmates of the present union workhouses. I look upon the New Poor-law as little better than a vast scheme for scrofulising the whole pauper population of Great Britain. Under the poor-law rule able-bodied paupers, as they are somewhat wrongly termed, are forced to work hard, and the amount of their food is so inadequate to supply the wants of the system, and maintain the expenditure of muscular power, that the constitution inevitably becomes bankrupt in health and strength. These are the beings, who are becoming the parents of a pauper race of children, who in their turn can scarcely hope to reach the original standard of English organization. The evils of the poor-law dietaries are thus reflected back upon the face of society, and they will in the end work out their own punishment by giving us an inferior race of peasants, soldiers, and artisans. This is an aspect which the matter must, if it continues, ultimately assume ; and it seems very questionable, whether it is not a pocket wisdom, and a national foolishness, to curtail the rates by poor dietaries at such a risk of physical degeneration on

a scale so immense. If poverty must perforce be treated as a crime, it would be wiser, in a commonwealth point of view, to resort to corporal punishment, than to scourge the unfortunate and unoffending stomach in such a way that it shall be felt in the bones and sinews of succeeding generations. To this subject I propose to refer more at length in an Appendix.

That I am not attributing too much to the poor-law system of diet will, I think, be evident from the following relation of what occurred under the poor-law system in a union workhouse in Kent. In the place referred to, the parish surgeon reported, that "on the 29th of April, 1841, there were then in the house seventy-eight boys and ninety-four girls; that all the seventy-eight boys had enlargement of the neck, and forty-two had likewise goître—that of the girls and infants ninety-one had enlarged glands at the back of the neck, and forty-three also goître." The diet in these cases had been bread and cheese for dinner four times a week, suet pudding and vegetables two days, on the poor-law scale, and meat only one day of the week for dinner, and then the usual stinted workhouse quantity. Besides this scanty and innutritious food, which may, for *growing children*, be truly called a scrofulous diet, the dormitories were ill-ventilated, and excessively crowded.

It appeared that few of the children had been admitted to the workhouse on account of illness, or suffered from scrofulous disease of the glands, before their subjection to the regimen described.

Prout and Magendie have shown, by reasoning and experiment, that a mixed diet of the different kinds of animal and vegetable food is the most conducive to health. Such an admixture of alimentary substances seems to amount to almost a positive law, and is probably of more importance to those inclined to scrofula than to any other

class. Nevertheless the children of the poor, and even of the rich, are often unduly stinted in the use of animal food; the one from the opinion that a vegetable and farinaceous diet is the most wholesome, the other from inability to procure a sufficiency of meat. There can be little question, looking at that state of the body which is most exposed to scrofula, that a purely vegetable diet, particularly in childhood, when the foundations of a weak or strong constitution can generally be laid, is most injudicious. On the other hand, when the child has arrived at a proper age to digest any kind of food, fresh vegetables are of considerable importance in keeping the blood in a pure and wholesome condition.

Scrofula is well known to have long prevailed among the boys of Christ's Hospital. The cause may be, in some degree, the situation of the school in the midst of the crowded metropolis; but I have little doubt the system of diet adopted in this institution deserves much of the blame. In quantity and quality it is of course far superior to pauper fare, but it strongly resembles one of its bad features, in varying little from day to day, and in being precisely the same from week to week; and I am informed that fresh vegetable food is almost entirely excluded from the dietary. This deprivation cannot, I consider, be otherwise than prejudicial to the health of young constitutions; almost as much so, as the want of animal food itself. A quaint writer has remarked, that persons confined in great cities get "a moral scurvy" from the want of the fresh air and green fields of the country; the physical disorder brought about by the absence of fresh vegetable produce from the daily food, seems almost as evident and injurious.

It may be laid down as an axiom, that the strumous diathesis requires a somewhat larger supply of good food than

other constitutions. That which would be highly stimulant in a tropical climate is not so in temperate or cold latitudes; and so in comparing sanguine with lymphatic constitutions, that which would be intemperate or inflammatory in the one, is only temperate or tonic in the other. Wanting the due amount of nourishment, the lymphatic habit almost inevitably falls into strumous disease.

On the other hand, gross living is almost as influential as a poor diet in producing the disease, when the diathesis is highly developed. Scrofula is very common among some of the children of the poor who are bloated from having a tolerable supply of food, and living without exercise in confined apartments. An abundance of rich and stimulating food, often renders strumous children so unwieldy as to prevent healthy exercise; it disorders the stomach and digestion, and vitiates the whole mass of fluids to such a degree, that blotches or small indurations form in different parts of the body, and produce scrofulous sores; or the slightest scratch or wound in such cases, instead of healing, will begin to discharge, and speedily acquire the scrofulous character. Nothing is more common than for such children to get strumous disease of the scalp, obstinate scrofulous ophthalmia, otorrhœa, or discharges from behind the ears, and sores about the mouth. In many cases it almost seems as if scrofulous sores were set up as a means of consuming the superfluous material which has been introduced into the body. It is, in such cases, that cathartics, active exercise, and the temporary deprivation of animal food, are of such essential service. A depletory treatment becomes actually tonic in its effects, by removing the superabundant matter, which, as long as it remains in the system, occasions an expenditure rather than an increase of vital power.

When describing the diathesis, I have referred to the

frequency with which scrofula, in the middle aged, is combined with a plethoric state of the system. It is pretty certain that obesity always produces some degree of debility. This is more particularly the case with strumous constitutions; and the debility thus induced, acts as an exciting cause of scrofula, almost as certainly as weakness from deficient nutrition. In all probability the presence of an excess of fatty matter, does actually impede the nutrition of the ordinary tissues. Scrofula occurring in plethoric habits, is generally more offensive than under any other circumstances; the matter discharged is of an unctuous description, and large greasy scabs frequently form over the sores. If there be any truth in the supposed derivation of the word scrofula, from *scrofa*, the loathsome appearance of the disease in the plethoric form of scrofula, is quite as likely to have been the origin of the term, as any of the more fanciful explanations which have been offered.

Habitual intemperance, and irregularities in eating and drinking, frequently develope scrofula, where the constitution is predisposed to the disease; and, as far as my experience goes, the gourmand incurs greater danger in this respect than even the drunkard. A genuine scrofulous abscess will sometimes appear almost immediately after a hard stomach-debauch, in individuals over whom other common causes of scrofula have passed without materially affecting them. Abuse of the stomach is the most injurious excess to those of scrofulous temperament; but sexual indulgences, great and long-continued muscular exertions, mental fatigue, and, in fact, excesses of every kind, are powerful exciting causes of scrofula.

Depressed conditions of the mind are very effective as causes of scrofula. Mind has a great influence on the body under all circumstances; but there are certain constitutions and temperaments, over which it exerts more

than ordinary power, and the scrofulous habit is decidedly one of these. In subjects of it, the imagination is generally active, and the mind readily affected either by favourable or unfavourable impressions. I have before remarked on the severity and obstinacy of the disease, when it occurs in those of mixed lymphatic and melancholic temperament. Every kind of mental despondency, whether innate, or produced by accidental circumstances, powerfully favours the outbreak of the disease. The gloomy and austere Johnson must have been a most unfortunate subject for scrofula to seize upon, and no wonder that he suffered so severely. We may to some extent measure the influence exerted by mental depression in causing scrofula, by the immense power which a contrary state has in relieving, or even curing the malady. No one conversant with scrofula, but must have seen the different aspect the disease presents when the mind is animated by hope, and surrounded by the springs of mental confidence; and when the patient is melancholy, hypochondriacal, and despairing of all amendment.

Permanent excitement of the mind seems to be unfavourable to the development of scrofula. Internal tubercular disease, it is true, is not an uncommon complication of mania, but it is much more frequent in the chronic than in the acute stages of mental disorder; and far more common in melancholia than in simple mania. I have seen many instances of scrofulous ulceration in cases of melancholic mania, but do not remember one in a case of acute madness. I should not hesitate to attribute this to the different effects of cerebral excitement and depression on the constitution.

The exanthems, especially scarlatina and measles, are a very prolific source of strumous disorders, particularly where the predisposition thereto exists. In cases where the

traces of the strumous habit have been faint, they often give them predominance, and fix them permanently in the constitution. They sometimes even give rise to the diathesis where there had previously been no signs of its existence. In the present day the above is more particularly true of measles and scarlatina, when either disease has been severe, or the convalescence tardy or neglected. It is a popular prejudice, that the occurrence of small-pox in a child afflicted with scrofula is likely either to cleanse the constitution of the disease, or destroy the subject of it. Hence many scrofulous children are permitted to wait the attack of small-pox unvaccinated. The prejudice may, perhaps, prove true; inasmuch as those children who are scrofulous, but are yet strong enough to pass through small-pox without destruction, often have sufficient energy of constitution to triumph, in the end, over the strumous malady. As regards the practice, there can be no doubt of its cruelty and impolicy; it is, in fact, but a modified form of infanticide, and as such should be strongly condemned.

The extensive use of purgatives in childhood has been very properly enumerated among the causes of scrofula. Dr. Beddoes, in particular, was of opinion that purgation was resorted to much too frequently by those who have the management of children, under the idea of purifying the blood, removing worms, or fulfilling some indication for which copious evacuations from the bowels are considered the all-important means. The practice thus reprehended obtains unfortunately to a great extent in the present day, and is often the cause of marked constitutional debility.

The common use of mercurial medicines, especially among children, tends to excite scrofula; the facts of the case seem to warrant the opinion, that excessive salivation will sometimes create the diathesis, and that those who

have themselves gone through severe mercurial courses without this injury, are in great danger of transmitting the morbid tendency to their offspring. This danger of scrofula is greatly increased when a syphilitic taint is super-added.

When syphilis attacks those of the strumous habit, the one disease fuses itself, as it were, into the germs of the other, seizes on the weak points of the constitution, and produces the most formidable of all scrofulous maladies. It is only with extreme difficulty that such a combination is acted on by remedies. The medicines generally in use in syphilitic complaints, namely, mercury and its preparations, aggravate the scrofulous complication, and tend to fix it ineradicably in the system. In many cases the hold on the constitution seems never to be shaken off. No disease is more obstinate, and few more painful and revolting, than the compound produced by the union of struma, syphilis, and excessive mercurialisation.

Dyspepsia is sometimes the cause of the development of scrofula in those already possessing the diathesis. But I have said before, that I do not believe in the existence of a special scrofulous dyspepsia, appearing as the forerunner of the disease. There are some constitutions in which no amount of dyspepsia will produce it; and there are many scrofulous persons exempt from actual indigestion, though the stomach, in common with all other organs of the body, performs its functions more feebly than in more robust temperaments. Dyspepsia is most common in middle life, while youth is the great scrofulous era. Still stomach ailments are of great importance when occurring in those already predisposed to this particular malady. They lower the vital energies, in the same manner as cold, actual want, or any other depressing cause. Indeed, as regards scrofula, there is little difference to the constitution

between the inability to digest nutriment so as to render it subservient to the wants of the system, and the having a scanty supply of food. Dyspepsia may not starve the system to the same extent as want; but this is sometimes more than counterbalanced by the depressing effect produced by a dyspeptic stomach on all the other functions of the body.

The sudden change from a warm to a cold or a temperate climate, such as our own, is often sufficient to excite scrofula. Negroes suffer extensively in this manner when brought direct from a tropical climate, though consumption is the more sudden and terrible pest of the dark races under such circumstances. Anglo-Indians, or the children of English parents living in the East or West Indies, are often affected with scrofula and the internal forms of tubercle, when brought to England; this has led to the recommendation by medical authorities, that such persons should essay their first trial of an English climate in the summer months, and spend the first two or three winters either in the most sheltered parts of the island, or in some of the still milder localities of the continent.

Insufficient clothing is frequently the means of developing scrofula. Unless a decided change be made in the dress of strumous children in the autumn, and care extended through the whole of the cold season, they are necessarily exposed to a severe trial. Yet how often do we see children who have a visible enlargement of the cervical glands, with their necks bare at the most inclement seasons. The strumous diathesis undoubtedly requires a warmer dress than the perfectly healthy. Such children should be kept warm at night, as during sleep the natural development of heat is lowered. Unfortunately for their health's sake, the notion has got abroad that the bed-clothes for children ought to be light; this is a great mistake, at all

events as far as the immense number of children possessing this diathesis is concerned. They are far more likely to suffer during the winter months from deficiency than from excess of night-clothing. I do not in this make an imaginary statement, having, on many occasions, known children materially injured in this respect by the fashion of airy bed clothes.

All the best writers on physical education have concurred in pronouncing, that stays and other mechanical contrivances which restrict the growth and development of the body, or the free use of the limbs, have all a strong tendency to produce scrofula. Such impediments, with confinement or sedentary occupations, both produce the diathesis where it is not present, and excite the disease where the constitution is congenitally prepared for its production. These injurious agencies are much more constantly in operation among girls than boys; and I would suggest this as one of the reasons why girls suffer more frequently than the other sex from strumous disease of the spine, and the hip, and knee joints.

Such are the principal exciting causes of scrofulous disease; many others of lesser frequency and importance exist, and, in fact, whatever lowers the *vis vitæ* in a continued manner, may produce scrofula. In many cases a variety of these causes act in combination, and are thus of course greatly increased in intensity. The intensity of the causes of scrofula, and the power of resistance to their effects, must always, in a great degree, be measured by the extent of the strumous diathesis, and the strength and anti-scrofulous condition of the constitution against which they are brought to bear.

There are some constitutions, feeble in themselves, who can yet resist a powerful attack of the causes of scrofula; and if they fall, appear as it were to choose some other

form of disease. On the other hand, there are some constitutions possessed even of considerable muscular and organic strength, who, if severely tried by the common causes of scrofula, either become a prey to pulmonary tubercle, or are afflicted with scrofula itself. Nothing would seem to show more clearly than this that the existence of a scrofulous diathesis is not, as many have believed, a mere chimera.

The dependance of scrofula on tubercle, or on what may be termed the tuberculous habit, and the circumstance that the lymphatic glands are the principal seats of scrofulous disease, have been already dwelt upon. After enumerating the various exciting causes of the disease, it may be interesting to inquire, where and in what manner these causes operate in exciting scrofula in the glands and in other organs. Any solution of this difficult problem must, at the least, account for the fact, that the lungs, the mesenteric glands, and the glands of the external absorbent system, are the chief seats of tubercle. Physiologists are of opinion that the digestive process is not completed, till the admixture of the chyle with the blood has taken place in the lungs. It is also believed, that the chyle undergoes some alteration from contact with the walls of the lacteal vessels, and in the mesenteric glands; the proportion of coagulable matter becoming greater, as the chyle moves on towards the thoracic duct. Müller and Carpenter have suggested, that some analogous change takes place in the contents of the external lymphatics, while circulating through these vessels and the lymphatic glands. That, in fact, an external digestion of the matter it absorbs, goes on in the lymphatic system, the material digested being probably composed, in part, of the superabundant fluid constituents of the blood—the extravascular lymph which saturates the different tissues for the purposes of nutrition: and, in part of the effete matter, or debris, continually separating from the various organs. If

this theory be correct, the radicles of the lymphatics, and the lymphatic vessels themselves, must bear precisely the same relation to the external absorbent glands, as the lacteals do to the glands of the mesentery: while, as the external absorbent system, in common with the lacteal, pour their contents into the thoracic duct, to be conveyed thence to the lungs, the two systems bear a common relation to the pulmonary organs: the contents of both becoming mixed in the lungs, with the mass of the circulating fluid. Is it not possible that the formation of tubercle, or the state which more immediately leads to its deposition in the mesentery, the absorbent glands, or the lungs, may, in each instance, have its proximate cause in the absorbent vessels, or in a peculiar condition of their contents? I would submit, that this is but a legitimate development of the very probable hypothesis of Müller, regarding the production of scrofulous disease of the glands. In the internal form of lymphatic derangement, whatever it may be, the mesenteric glands or the lungs suffer; in the external, the absorbent glands, or ultimately the lungs. Derangements of the digestive processes are certainly more constant as the precursors of consumption, than of scrofula; and this would favour the idea of the dependence of pulmonary tubercle on some fault of the internal absorbent system. We might explain the comparative infrequency of mesenteric disease, and the translation of tubercle to the lungs, when the lacteals are the source of disease; and the frequent disease of the glands alone, when the external lymphatics are in fault, by the greater exposure of the external glands to cold and other injurious agencies. The circumstance that tubercles are found in other organs besides those enumerated, does not militate, in any great degree, against the above views of the locality in which they may

be produced. When tubercles, or the elements of tubercles, are once formed, they may be transferred to the most distant parts of the body; though, according to the explanation suggested, the lungs and the lymphatic system would be first open to attack.

CHAPTER IV.

SCROFULOUS ENLARGEMENT, ULCERATION, ETC.

THE external lymphatic glandular system, as before shown, is by far the most common seat of scrofulous disease. Enlarged glands occur most frequently in the upper part of the body, particularly about the face and neck. In the strictly healthy condition of the system, the glands are soft and imbedded in cellular tissue, so as not to be discovered externally by the touch. Nearly all children, however, in whom there exist any signs of the strumous diathesis, have the cervical glands slightly, but permanently indurated; so that, on examination, they may be felt as round or oval bodies underneath the skin. They frequently remain thus for several years, during the periods of childhood and youth, without being the seat of pain, or manifesting any tendency towards suppuration. During any unusual depression of health, they do indeed enlarge beyond the usual size; but they generally return to the ordinary state of chronic enlargement as the health becomes re-established. In some young persons of scrofulous constitution the glands of the neck, of the axilla, and the groin, are permanently enlarged in clusters, without any marked deterioration of the health, or any disposition to advance to a more active form of disease, unless uncommon causes supervene.

Sometimes scrofula comes into active existence in consequence of one of these glands gradually enlarging beyond

the rest, the increase of size being accompanied by pain and heat, so as to indicate a certain amount of inflammatory action. At other times several of the small glands enlarge and coalesce, so as to produce a glandular swelling of considerable size. There are, also, many cases in which there has been no latent or sluggish enlargement of the glands; but a single enlarged gland, or a swelling composed of an assemblage of glands, appears with more or less rapidity, and acquires the characters which threaten the occurrence of suppuration. Where the diathesis is developed in a very high degree, and decided causes of scrofulous disease concur, it is by no means unusual for several of these glandular swellings to appear simultaneously in different parts of the body; or there may be enlargements of the glands with extensive disease of other parts, such as the joints or the spinal column, or the lungs, progressing together. It frequently happens that glandular scrofula is sequent on internal tubercular disease, particularly phthisis and tabes mesenterica.

It is uncertain whether scrofulous swellings of the glands are simple enlargements of the glands themselves, at first, in which the deposition of tuberculous matter subsequently takes place, or whether the deposition of tubercle is the primary cause of the enlargement. Probably neither is the invariable rule, sometimes the tubercular deposit appearing first, at others, the simple swelling of the glandular substance. This view is favoured by *post mortem* appearances. I have examined the glands of scrofulous cases in the early stages of enlargement, and in some instances have found the presence of tubercle unequivocal; while, in others, the swelling has appeared to be entirely composed of hypertrophied glandular substance. At first, the gland is moveable, and rolls under the finger, but as the disease proceeds, the adjacent cellular tissue becomes implicated;

which, with the tension produced in the skin, renders the swelling comparatively fixed.

Generally speaking, glandular enlargements are remarkable for their inactivity. In cases where the swelling is considerable, and is, so to speak, bent on suppuration, it is only with great difficulty that we can retard its progress, or diminish its size; and it is almost equally difficult to hasten it in its intended course. The period which elapses between the first appearance of induration, and the occurrence of suppuration, varies very considerably in different cases. Sometimes a few days is sufficient to complete the whole process; but more commonly a long time, often many months, and sometimes a year or two, will elapse between the one and the other. The shortness of the period previous to suppuration, in certain cases, does not depend so much on the intensity of the scrofulous constitution, as on the presence of an active grade of inflammation in the diseased gland; and this active inflammation is more common among those who have but a small leaven of the strumous diathesis, than in cases in which it is decided and unequivocal. It is when the scrofulous diathesis is strongly developed that the most sluggish enlargements occur. The cases which suppurate rapidly, generally heal sooner and more favourably than those of an indolent kind. Perhaps it is this fact which has given rise to the common, but, as I conceive, improper, desire to promote the speedy suppuration of glandular enlargements. Formerly this practice was very prevalent, and I have no doubt it often led to scrofulous ulceration in cases where it might have been easily avoided.

The progress of scrofulous disease, from simple enlargement of the glands, to actual suppuration, may be divided into two stages. In the first, the glands become indurated till they acquire an almost stony hardness; in the second,

they gradually soften till the centre of the swelling contains fluid pus, and the whole enlargement becomes, to a greater or less extent, infiltrated with purulent matter. During both periods the swelling generally continues to increase in size. At the time at which the utmost degree of hardness is felt, the enlargement often remains a considerable time, without manifesting any alteration to the touch; but when softening has once commenced, the suppurative stage goes on uninterruptedly till the centre becomes purulent; after which, the matter makes its way to the surface.

The amount of pain felt during the maturation of these scrofulous swellings, is as various as the length of time occupied in the process. In some cases, the glandular enlargements are insensible, little if any pain is felt from the commencement to the termination; and if allowed to proceed in the natural course, they often break and discharge their contents, without the patient's being conscious of any change at the time the matter is escaping. In other instances, much suffering is felt during the whole of the period, and severe pain accompanies the pointing of the purulent matter. In all ordinary cases the pus comes to the surface of the body, and so escapes; but there are occasionally instances in which the matter makes its way into internal cavities. I have often observed, that where former suppurations have taken place, new collections of matter will travel a considerable distance to find an outlet by an old sore or cicatrix; thus I have seen a scrofulous abscess of the mamma discharge itself by a sinus leading into the axilla, where there were the cicatrices of old ulcerations. The glandular abscess, especially if it be large, will frequently discharge itself by two or three openings at different points of the surface.

The secreting glands which become affected by scrofula, are the mammary glands in women, and the testes in men.

The presence of strumous swellings and ulceration are by no means infrequent in these secreting organs, especially in the breasts of unmarried females of the scrofulous diathesis, both before and at the time of the catemenial climacteric, and in the male organs at the periods of puberty and middle age.

When the matter of suppurating glands first escapes, it consists, if there has been much active inflammation, entirely of pus or puriform matter; while, on the other hand, if there has been little inflammation, the discharge is a thin fluid, mixed with curdy flakes of tuberculous matter. In the former case, the tubercle has been dissolved by the inflammatory process. After a few days' discharge, the skin has generally ulcerated to a sufficient extent to permit the exit of what is popularly called the "core," which seems to be composed of portions of glandular structure, or cellular tissue, that have not been broken up and dissolved by the suppurative action, but have become detached from the surrounding parts. When the whole of the contents of the swelling have been discharged, the entire skin slowly ulcerates away, leaving an excavated sore on the site of the enlargement; and the discharge, if it has been otherwise before, now acquires the ordinary scrofulous characters. It becomes thin, and mixed with the peculiar flakes or curdy particles which mark the disease. The attempt at granulation commences, but generally in an ineffectual manner. The granulations grow rank and florid, and protrude above the surrounding skin; or, which is still more commonly the case, they are weak and pale, and the new skin forms faster than the sore fills up, so that the skin at the edges overlaps the ulcer. At intervals the healing process goes on favourably, so as almost to complete a cicatrix, when the discharge, from some cause or other, becomes ichorous and offensive, the newly-formed skin

sloughs back, and the granulations give way, till the sore has resumed its old aspect. There are cases in which this advance and retrograde movement continues by turns of a great length of time, the wound making no real progress towards healing. When at length the sore closes up, it is the loss of substance, and the apparent want of consent between the skin and the granulations, which produce the puckered cicatrizations of scrofula. The organization of the diseased parts seems to have forgotten (if it may be so expressed) its original form, and the new material deposited is consequently sometimes deficient, and at others in excess.

It is a comparatively rare occurrence for a single gland to enlarge, suppurate, and heal, without being succeeded or accompanied by others, fresh enlarged glands generally appearing in the neighbourhood of the more active one. The primary sore would almost seem the seed of subsequent enlargements and suppurations. It is questionable whether the lymphatics can convey scrofulous matter from a sore to other glands in the vicinity; but the irritation may extend from the one to the other, by means of the lymphatic vessels, and thus excite fresh glandular swellings. Sometimes the diseased glands are very numerous, and hang in racemiform clusters under the skin. When the primary sore heals, one or more of the lesser glands may advance from the sluggish state to suppuration, and thus the scrofulous disease is continued and increased. While the glands are simply enlarged, they rarely act in any way as a cause of irritation in other parts; and this fact should powerfully enjoin the propriety of resorting to every possible means for their dispersion, before we attempt to produce suppuration.

Scrofulous abscesses are by no means confined to the glands, though these are by far the most frequent seats of the first appearance of the disease. It is not uncommon

for persons who have suffered from scrofula, to have scrofulous enlargements of the cellular tissue in places where there are no signs of lymphatic glands. In such cases those remarks hold good, which have been made respecting the pain and progress of glandular enlargements; with the exception, that in scrofulous induration and supuration of the cellular tissue, the course of the disease is more regular than in the formation of glandular abscesses. This kind of strumous disease is extremely prone to supervene on fevers, and other debilitating maladies, occurring in persons of the strumous diathesis. Such cellular abscesses are frequently of much greater size than those which occur in the glands; indeed the psoas abscess, the most extensive and alarming, perhaps, of all scrofulous affections, often takes its rise in the cellular tissue in the neighbourhood of the lumbar muscles.

Sometimes, when severe scrofulous disease exists, collections of matter take place with great rapidity. I have seen instances in which, in two or three days, large fluid swellings have formed under the skin in places previously free from disease. After the amputation of diseased limbs in scrofulous subjects, matter appears with still greater rapidity: it would almost seem as if it were effused rather than formed by the suppurative process, though we know from physiological facts that such can hardly be the case.

The joints are very liable to be affected by scrofula, particularly the hip, knee, and elbow joints. Scrofulous disease of the articulations is attended by excruciating pain, especially when affecting those which are concerned in supporting the body in the upright position, namely, the ankle, knee, and hip joints, or the vertebral column. Much discussion has been raised as to which tissue of the joints is first diseased in such affections, different pathologists contending for the synovial membranes, the cartilages, the

ligaments, and the bones, as being the first to take on the morbid action. My own observations would lead me to the conclusion, that scrofulous disease may commence in either one of these structures separately, or that they may be all affected simultaneously. I think it very questionable indeed, which of them is the most frequently attacked. There is one peculiarity connected with scrofulous joint-disease, namely, that in the earlier stages there is but little if any swelling; while in other structures, the enlargement is one of the first symptoms of disease. The above probably depends on the density of the structures composing the articulations. The scrofulous matter does not appear to become superadded to the parts affected in the diseased joint, but seems gradually to take the place of the natural structures without any actual increase in their bulk. The synovial membranes are gradually transformed into pulpy tuberculous matter, the cartilages are eaten away by scrofulous ulceration, and the heads of the bones gradually lose their gelatinous elements, and thus become friable, the cancelli of the bones being filled with caseous tubercle instead. Instances are often seen, in which the bone is so soft that it might be indented or broken down with the thumb nail. When the tuberculous matter has softened or excited suppurative inflammation in the surrounding tissues, the fluid seeks to escape externally, and gradually finds its way to the surface of the joint, either by one or several sinuous passages. Before external suppuration has taken place, the size of the joint is generally increased by the tuberculo-purulent matter formed—the attendant inflammation—and the fluid effused into the synovial cavities. These, and the future stages of the disease, are all excessively painful. Disorganization more or less complete is sure to take place. The cartilages and membranous tissues give way, and often entirely lose their proper shape and position. The bones

soften and break down, and the new osseous matter, instead of taking the natural outline of the bone, is deposited in the shape of spiculæ, which occasion intense suffering. Portions of the original bone, and these stalactical depositions, become loose, and are slowly extruded through the wounds.

The articulations are often dislocated spontaneously in the course of the disease. The head of the femur is displaced from the acetabulum, a false socket being sometimes formed outside the natural joint; or the forearm is dislocated from the humerus, and the radius and ulna are dislocated on each other. Ankylosis frequently occurs either from the muscular contractions which follow the disease of the joint, together with the disease of the cartilaginous and synovial structures, or to these causes may be added the agglutination, or fusion together, of the different bones which go to form the articulation.

The flaky purulent secretion from a joint in the desperate state which precedes such an event as this, is frequently immense, the articulation being usually burrowed in all directions. Hectic fever, night sweats, and general emaciation occur, and are often the forerunners of a fatal termination. Joint-disease of this severe kind may be designated hip-joint consumption, knee-joint consumption, according to the nature of the case, quite as properly as scrofulous ulceration of the lungs, can be called pulmonary consumption. Each is dependant on the same morbid element—tubercle, and each is followed by a peculiar kind of ulceration, and its concomitant evils. If the constitution be not worn out by the terrible struggle, or if the remedial measures prove effectual, the structures of the joint thus diseased gradually solidify, the purulent discharge diminishes, the sinuses lessen in size, depth, and number, till they gradually heal altogether, leaving the joint almost

wholly fixed, and deprived of its proper motions. This is the happiest termination which can be hoped for in scrofulous disease of this kind. It is gratifying to know that when proper treatment is pursued, and the resources of the constitution carefully husbanded, this may sometimes be brought about even after severe joint disease has existed for years, and large pieces of bone have been lost, and the cartilages destroyed; when the joint has been dislocated, and the remains of cartilages, tendons, membranes, and bones have all grown together, and consolidated themselves into a shapeless mass.

Scrofulous discharges often commence, or occur secondarily, in the mucous membranes, in localities where they are exposed to the external air, or are continuous with the skin; such as the conjunctiva, the vagina, &c. Scrofulous disease of this kind may be preceded by acute or chronic inflammation, or may depend on a gradual depravation of the natural mucous secretions. Thus acute ophthalmia often leaves an obstinate strumous affection of the eye; while, in other cases, the conjunctival membrane secretes scrofulous pus with little or no accompanying inflammation. So in the case of the ear—scrofulous otorrhœa may follow on otitis, an acute and extremely painful disease; or it may be developed without pain, and so gradually, that the subject of it shall be scarcely cognizant how, or when, the disorder began.

Strumous ophthalmia and otorrhœa (particularly the latter) are very common. The eye affection is by far the most frequent in childhood, being comparatively rare among adults; while the aural disease is quite as prevalent, or even more so, among grown persons. The ophthalmia is, perhaps, the most disagreeable; but the otorrhœa is the most frequently productive of injury to the sense.

The eye disease, when severe, often implicates other

tissues besides the mucous membrane, particularly the iris and the cornea. The iris is sometimes disorganized, and a peculiar inflammation of the cornea occurs, or small pustules appear, which leave minute specks or ulcers on its surface. The affection of the mucous membrane is characterised by the extreme irritability it occasions in the organ of vision. Though essentially a chronic disease, with often but a slight degree of redness, and frequently none at all, the pain produced by the admission of light is only equalled in the most acute disorder. The child crouches about in the darkest corners it can find, or buries its face in its clothes, terrified at the slightest access of light. While the mucous membrane secretes puriform matter, the lachrymal glands discharge an excessive secretion of tears. If the eye be exposed but for a moment, a copious discharge of tears and powerful contractions of the orbicularis muscle are the certain results, the muscular contraction depending on reflex-nervous action excited by the stimulus of light, rather than on an exercise of voluntary power. When such a condition has existed any length of time, granulations frequently form on the mucous membrane, and prove a troublesome complication.

Strumous otorrhœa is a very frequent affection. In fact nearly all chronic discharges from the ear are of a scrofulous nature. The discharge is generally a muco-purulent fluid, mixed with the grey or yellow flaky matter so characteristic of scrofula.

Internal otorrhœa, or discharge from the cavity of the tympanum, may be produced by acute otitis, the disease chiefly affecting the mucous membrane of the tympanum. This inflammation may end in suppuration, the matter making its way through the membrana tympani; or the discharge may be the result of chronic inflammation, pus being formed by the mucous membrane, and the drum

gradually perforated by ulceration. Simple discharge often exists a considerable time without materially affecting the hearing, but eventually the tympanal mucous membrane becomes tumid, and is frequently thickened so as to protrude through the aperture of the tympanum as a polypous growth; a state of things which is inevitably attended by deafness. As long as the transit of sound across the cavity to the fenestral membranes is unimpeded, the hearing remains good, though the outer membrane or proper drum be destroyed: but the hearing is seriously impaired whenever the inner membranes are affected, or the access of sonorous vibrations thereto prevented. Generally speaking, scrofulous otorrhœa is tardy in its progress; it often exists for years, particularly when of chronic origin, before the sense is decidedly injured. Occasionally, however, it implicates the dense submucous cellular tissue, and the bones become diseased. Not only the small bones of the tympanum come away in some of these cases, but considerable portions of the temporal bones are denuded, and, exfoliation taking place, they are discharged through the external meatus. It is in cases of this kind that there is the greatest danger of the extension of disease to the brain, and the production of fatal results by cerebral inflammation, or by the formation of scrofulous abscesses in the substance of the brain. Sometimes the tympanal disease extends backwards into the mastoid cells, causes caries of the bone in this direction, and matter escapes externally through the mastoid process. On the other hand, it may travel forwards, and suppuration may take place through the Eustachian tube, into the throat. Occasionally cases are seen in which the tympanum is open to the external air, and discharges a muco-purulent secretion for many years without any material organic change, the only variation being that, when the general health is good, it

almost disappears, while bad health is attended by an abundant and offensive discharge. Scrofulous pus is almost inodorous when formed in ordinary situations; but in consequence of the depth of the parts implicated, the degree of heat to which it is subjected, and the length of time it takes to escape, the matter of otorrhœa generally has a highly fetid odour, particularly when any of the bony parts are diseased.

The diagnosis between internal and external otorrhœa is tolerably simple and certain. The tympanum is invariably perforated in the internal affection, and perforation of this membrane can generally be seen with the aid of a speculum. Sometimes there is a difficulty from the protrusion of the granular growth of the mucous membrane through the drum, which may be mistaken for a polypous growth lying on the membrana tympani itself. These two conditions can generally be distinguished by the ability to force air through the drum (if open), when the nose and mouth are stopped, or by the performance of Eustachian catheterism.

External otorrhœa is an almost equally common affection with the foregoing, and, like it, may be produced either with or without inflammation. It is oftener met with in children than in adults. When caused by inflammation it appears almost suddenly; but, in ordinary cases, it comes on so slowly as to be scarcely perceived by the patient in its first stages. There is merely a slight itching, and inclination to pick the meatus, which after a time is found to contain a little fluid of a mucous character. In the healthy state the cutaneous lining of the meatus is more nearly allied to skin than to mucous membrane; but when subjected to any irritation, it soon begins to secrete matter resembling mucus, which, after a time, changes into almost the same kind of puriform fluid as that described when

speaking of internal otorrhœa. In some instances, the discharge is caused by an ulcer on the external surface of the membrane of the drum; when this is the case, the membrane is frequently eaten through, and the action of the air on the middle ear soon affects the mucous membrane, and complicates it with otorrhœa interna. The same occurs when the affection has commenced in the cutaneous lining of the walls of the meatus, or in the ceruminous glands, and has spread from thence to the drum. The ceruminous glands invariably become affected in the course of ear-discharges, and the secretion of cerumen is suspended. Sometimes the meatus is little altered in size, at others it is almost obliterated by polypous growths, or granulations, or by the thickening of the walls of the meatus itself. The degree of deafness produced in this affection, is generally in proportion to the amount of obstruction thus produced; otherwise it is oftentimes little affected, unless the drum participates in the disease.

Scrofula sometimes attacks the nose, but not so frequently as it does the eye or ear. That terrible affection of the nose, lupus, has been sometimes treated of as a scrofulous disease; but the true lupoid affection is essentially different from scrofula in its nature and progress. In nasal lupus, the blue and livid appearance of the indurations, the thin and scanty ichorous discharge, the peculiar scabbing, the hæmorrhage occurring in the advanced stages, the destructive kind of ulceration, or dry erosion, as it might be termed, actually removing, in many instances, all traces of the parts attacked, obliterating skin, mucous membrane, cartilage, bones, nerves, and blood vessels, form an array of symptoms amply sufficient to distinguish this disorder from even the most severe cases of scrofulous disease. There is, however, a true scrofulous ulceration of the nose, which usually commences by thickening of the edges of the alæ,

and proceeds to the ulcerative process, but in a far more kindly manner than in lupus. It often confines itself to the alæ nasi, and the soft parts of the nose and its septum; the cases being infrequent in which the cartilage or bone is attacked, unless where there is a syphilitic complication. When the latter is the case, the cartilages and the bones sink, and the total loss of the nose is often the result. The diagnosis between lupus and scrofula is of importance, as the treatment of the two essentially differs. The arsenical applications and the escharotics, so liberally used by the best surgeons in lupus, would prove highly injurious in simple scrofulous disorder.

A scrofulous affection of the throat, consisting of enlarged tonsils, is excessively prevalent among strumous children. Tumours of this kind often acquire an immense size, so as nearly to block up the fauces, and from the continued impediment they offer to respiration, impart a peculiar physiognomy to children thus affected. The eyes protrude, the mouth gapes, and the nostrils are dilated, so as to give the whole countenance an expression of fatuity. Such tumours do not often suppurate in scrofulous children; hard, insensible, and unvascular, they seem to have scarce vitality enough to bring about the formation of matter; the inconvenience they occasion to the throat, and the parts associated therewith, being caused in great measure by the mechanical bulk of the swellings.

The mucous membrane of the rectum and vagina is frequently disordered in scrofulous constitutions. The vaginal membrane either inflames, and subsequently discharges muco-purulent matter, or the natural secretions become acrid, and irritate the parts with which they come in contact so as to produce a chronic discharge. These affections are seldom of long continuance, but they occasionally terminate in partial adhesions of the walls of the vagina. The

above remarks chiefly apply to children; but in adults, it will be found that chronic leucorrhœa occurs oftener in lymphatic or strumous habits, than in any others.

Discharges from the mucous lining of the rectum are more frequent in adults, being rare in children. Sometimes the discharge takes place from the anus, externally to the sphincter, and is produced by irritation of the secretion from the sebaceous glands in the vicinity of the anus. In other cases, it comes from within the intestine, or it may be dependant on a hemorrhoidal affection inside the sphincter ani. Fistulous sores in the perinæum, and true *fistula in ano*, are of frequent occurrence in strumous habits. Such affections are rarely met with before the age of puberty. Blind fistulous openings, unconnected with the rectum, but confined to the cellular tissue of the perinæum, are more frequent than true fistula. They are sometimes caused by the matter, from suppuration of the glands of the groin, burrowing its way downwards to the perinæal cellular tissue. In some cases these sinuses occasion great pain and inconvenience, while in others they cause but little irritation; generally, they are of long continuance. Operative measures are of little avail in the treatment of them; for, unless the constitutional state be attended to, as soon as the wound is healed in one direction, the cellular tissue gives way in another, and in this manner a succession of sinuses are formed.

Of the metamorphosis of other sores into those having a decidedly scrofulous character, little more can be said but a repetition of what has been already advanced. This transformation seldom occurs, save in constitutions such as are strongly marked by the strumous diathesis. When this is the case, sores of any kind rapidly acquire the scrofulous peculiarities;—they get the same discharge, the same kind of granulations and edges, with the same sluggishness and

indisposition to heal, which characterise wounds produced by true scrofulous ulceration. Syphilitic sores are the most readily changed after this manner; but occasionally wounds of the most different kinds, common abscesses, incised or poisoned wounds, burns or scalds, will pass into genuine scrofulous disease.

CHAPTER V.

GENERAL TREATMENT OF SCROFULA.

TONIC medicines have been more extensively used in scrofulous disease than any other remedies. The manifest debility by which it is generally accompanied naturally seems to indicate their employment. In ordinary debility we can do more towards establishing the system in strength by tonics (especially stomachics) than by any other means. Still, taken alone, they are not nigh so successful in this as in other disorders attended by constitutional weakness. The debility of scrofula is of a peculiar kind, and in many cases is not at all affected by the usual correctives of simple debility. The system would seem to be more susceptible of excitement than tonicity. In many instances it appears as if tonics, particularly those possessing stimulant properties, could not be given without exciting the activity of the strumous disease, as well as increasing the tone of the system, and in this manner causing more injury in one way than they compensate for in the other. Thus, in consumption, which is very analogous to scrofula as regards this particular, it sometimes happens that the progress of the disease is decidedly hastened by the use of tonics and a stimulant regimen. It can scarcely be, that such means increase the deposition of tuberculous matter. Perhaps it is that tonic medicines tend to excite that spurious inflammation or sanguineous congestion which attends or causes the softening

of tubercle and scrofulous suppuration? Still, notwithstanding these drawbacks, tonics are very useful in strumous maladies generally, especially when they occur in very sluggish habits. Care must be taken at all times to guard against the aggravation of the disease during their use, by moderate exercise, living in the open air, a good but moderate diet, and the occasional use of aperients; and when there are any signs of their creating mischief they should be immediately discontinued, at all events for a time.

Stomachic Tonics.—The vegetable tonics act primarily and chiefly, on the stomach and the digestive viscera; they improve the appetite for food, and increase the power of digesting and assimilating the aliment committed to the stomach. The chief substances of this class are the vegetable bitters—gentian, calumba, the hop, and perhaps quinine, with the other preparations from the cinchonæ*.

* Professor Liebig, in his 'Organic Chemistry,' has broached the theory that quina, morphia, brucia, and the other alkaloids are *alterantia nervina*, and act by combining chemically with the matter of the nervous system. He supposes this to be the case chiefly because analysis has shown that the elementary constitution of these bodies bears a close resemblance to that of nervous tissue. Others have given to hydrocyanic acid the same *modus agendi*. I venture to dissent from this hypothesis, and for the following reasons. These medicines act in almost infinitesimal doses: the salts of morphia, in doses of one-third of a grain, part of which is composed of the combining acid, strychnia, in one-sixteenth of a grain, and strong hydrocyanic acid, in less than a single drop, the vapour even being sufficient to cause death. On the theory that these substances act in a purely chemical manner, we must imagine that such minute quantities are first dissolved in the whole bulk of the blood, varying in general from twenty to thirty pounds, and that they afterwards combine with the whole mass of the nervous system; or at all events with the nervous centres. According to this hypothesis we must suppose that of two combining bodies one may be almost inappreciable in bulk, and largely diluted, while the other is a mass of many pounds, and yet striking results be produced from their union. It may be argued that the presence of a small quantity of phosphorus in the nervous matter, or of iron in the blood, produces great effects; but there is no parallelism between the two kinds of cases, as the vegetable alkaloids are composed of almost precisely the same elements as nervous matter itself; and there-

The mineral acids must also be included among the stomachic tonics, and in certain cases the alkalies also. Though the primary action of medicines of this class is upon the stomach, they exert a tonic influence on the whole of the intestinal canal; they affect too the various organs which sympathise with the stomach, and their influence is felt, through the medium of the better digested material, in the most remote parts of the body.

Mineral Tonics.—Of the mineral tonics the preparations fore they can only be an exceedingly minute addition to a considerable mass composed of similar materials to themselves. Morphia acts on the brain, strychnia on the spinal chord; but no one has discovered any chemical difference between the matter of the brain and the spinal chord. If the action of morphia and strychnia be purely chemical, how comes it that each selects one particular part of the nervous system. Do we ever see a test precipitate one half a chemical solution and leave the other unacted upon? Is it not possible, that there may be some imponderable qualities in these medicines, sensible to the nervous system, but insensible to our senses, and capable of more rapid diffusion than any merely chemical action produced by an equally diminutive bulk? When an exercise of volition is made, an impulse is transmitted from the brain to the extremities of the nerves in a space of time too small to be measured. The effects of concentrated hydrocyanic acid, or of a strong dose of strychnia, are quite as instantaneous. Is it not more rational to suppose that these powerful poisons act by transmitting some imponderable property through the medium of the nerves to the brain, which travels with the same rapidity as a motor impulse from the brain to distant muscles, or a sensation from the tip of the finger to the brain? The instant action, before the two bodies could come in contact by ordinary means, renders it, as I conceive, impossible that these medicines can act by dissolving in the blood and then combining with the nervous matter of the brain and spinal chord. Other substances act on the nervous system in quantities still more minute, which increases the difficulties of the "chemical" theory. For instance, the scent of flowers, and the smell of certain animals, or even their insensile emanations, produce syncope in some constitutions. Doubtless the introduction of any chemical substance into the living system must in some degree produce chemical effects; but to suppose that a minute quantity of strychnia, a substance analogous in composition to nerve, produces general convulsions through the medium of the spinal chord from chemical combination therewith, appears about as reasonable as that the fall of a clod to the earth should cause our planet to forget the law of gravitation and start off in the orbit of a comet.

of iron, zinc, and arsenic are the most important. These remedies, in contradistinction to the vegetable tonics, act by accelerating the organic nutritive processes throughout the whole body, increasing the power possessed by the soft solids, of appropriating to themselves the necessary materials from the blood for the increase and renovation of their substance. Thus the mineral, or, as they might be termed from their action, the organic tonics, are more ultimate in their action than the stomachics. They promote the incorporation within the body of the materials furnished by digestion. One of the mineral tonics, and the most important, namely, iron, is supposed to owe its tonic properties, in some measure, to its power of entering into chemical combination with the blood in the red particles.

Aperients and their Modes of Action.—All aperient medicines (even the mildest) have a twofold action: the one affecting the intestinal canal, which may be termed their *local action*; the other, a *general action*, felt everywhere throughout the body in the processes of nutrition and excretion.

1. They unload the bowels of their natural or their morbid contents, and thus relieve the system of any offending matter which might create irritation, or be absorbed at the risk of injuring the general health. This is the most general indication with which aperients are administered; but such a local action is by no means the most important result of their use, especially when anything approaching to a course of aperients is resorted to.

2. They increase the secretions of the biliary system, and of the large intestines, of which the chief bulk of the fæcal matter is composed. The solid excretory matter deposited in the intestines, like that which passes off from the kidneys in a liquid form, and in a gasiform state from the lungs, is composed of the old material of the animal

economy, those refuse elements which have existed their allotted term as integral parts of the body, in combination with the vital principle, and which are afterwards thrown off from the system, and expelled through the different excretory channels. When an increase in this function of the intestines is kept up by the administration of purgatives in cases adapted for their use, the beneficial effects are felt throughout the whole series of processes by which nutrition is carried on. They produce the secretion and excretion of the effete matter; they accelerate the infinitesimal changes going on at every point of the body, by which new material is incorporated from the circulating mass, and old material returned into it; and they increase the demand for new supplies of organizable matter, which is in turn prepared by a corresponding increase of digestion and assimilation. In this way aperients act, when given judiciously, as tonics of the most general kind; and it has long been matter of experience, though the *modus operandi* has not, I believe, been set forth, that a course of aperients will often cure diseases of which debility or deficient nutrition is the chief characteristic. Purgatives have been found of great use in chlorosis, chorea, and other similar affections. In the treatment of scrofula, and strumous disorders generally, they have almost always occupied a prominent place. The above explanation accounts for the acknowledged utility of a combination of stomachic tonics and aperients; one promotes the formation of new matter, the other increases the removal of the old.

Exercise, and the pure air of the country, probably improve the general health and the digestive powers in a similar manner, increasing as they do the excretory function of the lungs and the changes of nutrition. The same explanation will apply to the influence exerted on the general health by diuretics.

The sweating, which forms so prominent a feature of the hydropathic quackery, acts in a somewhat similar manner as a tonic. The immense exaltation of the function of the skin, caused by remaining several hours wrapped up in sheets and blankets, and covered with beds, must act powerfully on the processes of nutrition. Unfortunately it does so by stimulating to an excessive degree the skin; which, in our climate, is an organ intended by nature to hold an important, but still a subordinate, position in the preservation of health. At one time it was attempted, by calomel, to increase the function of the English liver to the activity natural to that of the Hindoo, in which it performs part of the function belonging to the lungs with us; and now an effort is being made to raise the secretion of the skin in our cold and variable climate to a par with that of the Negro. The excessive use of calomel, flattering at first, was at length found to produce distant, but certain trains of evil, which were propagated from parents to offspring; and so it will probably happen with the victims of hydrophathy and their descendants. The Negro, on coming to this changeable temperature with a skin relaxed by the perspiration natural to his own climate, becomes, in the end, afflicted with scrofulous disorders. The disciples of Priessnitz are doing their best to place our valetudinarians in the same danger. *Das schwetzen* seems to receive especial countenance from the water doctors in this country, in spite of its peculiar unfitness for the English climate and constitution. It is a great misfortune that the system has become mixed up with the temperance movement. Hydropathy, the rod which is now swallowing up homœopathy, will undoubtedly, after a time, fall into the contempt it merits, and in its decline do a serious injury to the cause of temperance.

To resume the continuation of my subject. It can be

seen that the three kinds of tonic effects described, act in a circle. The stomachics increase the appetite, and the power of digesting and assimilating food : the mineral tonics give an impulse to the constant organization of the prepared material, which is going on incessantly within the body ; while medicines of the third description, whether purgatives or other evacuants, assist in the expulsion from the body of the elements which, in the changes of nutrition, are continually becoming dead, and unfit for further use.

Yet another class of tonics remains to be mentioned. I mean mental or immaterial tonics, which are inferior to none of the others in power, particularly in scrofulous disorders. Mental confidence,—hope, expectation, faith, or belief, whichever it may be called,—often contributes immensely towards the cure of scrofulous patients upon whom all other remedies have failed. The further development of this idea I must defer to a subsequent chapter. Mental agents are more general in their action than any other description of tonic remedies. In a patient placed favourably under their influence, they improve the digestion, the processes of nutrition, and also the elimination of old material. In many respects this psychical agency exerts an equal power, and as enduring an influence, over disease as the most valuable of the purely physical remedies.

Solution of Pepsin.—A knowledge of the extraordinary powers of the gastric juice within the body, would naturally lead to the consideration of how far it might be rendered serviceable as a remedial agent. The experiments of Spallanzani and the older physiologists, though they fell short of discovering the independent properties of the gastric fluid, were yet sufficiently suggestive to lead physicians to make trial of its effects as a medicine. The results were said to be, in some cases, almost of a marvellous kind ; but, from the great difficulty of procuring an

adequate supply, it never obtained any firm or extensive hold in medical practice. To give some idea of the sanguine expectations raised by experiments on its medical effects, I may quote the words of a comparatively recent writer, Dr. Hooper. "It (the gastric juice) cures dyspepsia and intermittent fever. Applied externally, in the form of fomentation or poultice, it cures putrid and scrofulous ulcers in a wonderful manner; and it is to be regretted that its utility is not more generally known." For a long time the nature and properties of the gastric juice underwent no extension, and there is every reason to believe its therapeutic use became utterly forgotten. Of late years the attention of physiologists and pathologists became forcibly directed to the subject, by the remarkable detail of some experiments on Alexis St. Martin, by Dr. Beaumont. This physician proved what till then had been somewhat apocryphal, namely, the existence of a special gastric juice produced by the stomach, but, in great measure, independent of this viscus in its action on the food. He found, from withdrawing considerable quantities of the gastric fluid through the orifice which existed in the stomach of St. Martin, that digestion could be performed out of the body, by means of the fluid at a certain temperature, as perfectly as in the stomach itself. The German physiologists, particularly Schwann and Eberle, following up the researches of Beaumont, have considerably enlarged our knowledge of the properties of the digestive principle, or pepsin, as it has been termed. Besides verifying the account of the performance of complete digestion out of the body, they have shown the singular fact, that in the stomachs of young animals pepsin remains after they have been killed, and can be preserved for any length of time, so as to be made use of for experiments, or for internal administration. It now appears, that the special digestive element

which Spallanzani and his cotemporaries took such laborious pains to detect, may be procured in almost any quantity from runnet, a preparation of the stomach of the calf, long in familiar use for other purposes; and that the dairyman, in making curds and whey, by mixing runnet (and its contained pepsin) with milk, performed, in separating milk into its solid and fluid elements, the first stage of digestion. He had, moreover, under his hands the materials by which the process might have been completed artificially, merely by the aid of heat, and the necessary amount of acid. Since the discovery of pepsin, Dr. Todd, in his lectures, suggested, I believe, its use as a medicine. About three years ago, I first gave the solution in a case of scrofula, with the best effects. Recently its preparation has issued from the laboratory of Giessen, and its bids fair after some time to come into general use.

Though I do not believe with several writers on struma, whom I have named, that strumous dyspepsia is constantly pathognomonic of external scrofula, I fully admit that it often exists as a *part* of the disease. In these cases, I consider pepsin of great value in treating the stomachic disorder; and it is also efficacious by increasing the general nutritive power in cases where the general debility of scrofula is present, but without any special derangement of the functions of the stomach. In fact, it is a tonic of a more direct kind than any other within the range of medicine. In preparing the pepsin for use, I have measured the strength of the solution by its power of performing digestion out of the body, at the degree of heat natural to the stomach.

I have been in the habit of giving the solution of pepsin about a quarter of an hour after every solid meal, giving a larger quantity after dinner than at any other time. There can be no doubt that it gives the stomach an additional diges-

tive power; and besides increasing the general strength, I have seen it remove the gastrodynia, flatulence, and heat at the epigastrium, which is so common during digestion in delicate persons. It has been objected, that affording the stomach a factitious supply of its own proper secretion is likely to diminish the quantity secreted by the stomach itself. I however believe the contrary to be the case, and have found that as the general health is improved, the natural gastric secretion is invariably increased. My chief experience with pepsin has been in scrofulous cases; but I have no doubt it will be found essentially useful in all diseases of debility. In certain cases of extreme weakness, as in recovery from dangerous diseases, when tonics cannot be administered, I believe it will be found invaluable. In some cases of consumption in which I have given it, I have thought that it has materially stayed the progress of the disease.

Alkalies. — The alkaline treatment of scrofula has, at various times, received great approbation. The practice was probably derived originally from the old theory of acidity being the cause of the disease. The treatment has continued, notwithstanding the existence of any chemical acidity in the blood or lymph of scrofulous persons has been disproved by the experiments of Kortum and others. It is difficult to define in what cases alkaline remedies are indicated, or how they act in scrofula; but still it is tolerably certain that there are cases in which they prove of considerable benefit. Mr. Brandish, who originated the solution of potash which bears his name, as a remedy for scrofula, was, on the best testimony, strikingly successful in his treatment of this disease. He gave the alkali in very much larger doses than is common to the present day, and attributed his success to this circumstance. In his practice mercurial frictions were combined with his favou-

rite remedy. It is singular, that recently Dr. Campbell has started this alkali as a remedy for tubercular consumption, and explains its *modus operandi*, by stating that both in and out of the body potassa has the power of dissolving tuberculous matter.

Potassa has been the alkali most in use as a remedy for scrofula, but lime-water, or solutions of baryta, have been much lauded for their efficacy in this disease, though at present they have fallen into disrepute; soda also, particularly a compound of the sesquicarbonate, with rhubarb and calumba, or quinine, is a very valuable medicine, particularly in strumous children with bad appetites and general debility.

Mercurials. — The use of mercurial preparations in scrofula has had numerous advocates. Those who contend for their employment in this disease have prescribed them liberally, as purgatives, as alteratives, and with a view to their specific effect. At one time calomel enjoyed considerable reputation in phthisis; but in the present day it is almost entirely discarded from the treatment of that form of tuberculous disease, in consequence of its being the pretty general opinion that it hastens the progress of consumption. Mercury is, however, still used extensively (particularly in its milder forms) by many practitioners, in the treatment of scrofula. My own opinion is decidedly against the use of mercury in any strumous malady. I believe that a course of mercury is often sufficient to excite the strumous diathesis, in constitutions which previously presented no signs of its existence. Some of the most severe cases I have ever seen have been where sores of another kind have put on the scrofulous habit under the use of mercury, or where scrofula has visited the children of parents who had taken this medicine extensively. The prejudicial effects of mercurials in scrofula have been insisted on by writers of eminence;

but I am not aware that any of them have ever given the reasons why they are so injurious in strumous constitutions. This, I conceive, may be easily done by comparing the known results of this medicine with the state of the system in scrofula. It is true we do not know the *modus operandi* of mercury, but we can observe its effects. Why do we give this medicine in acute inflammation? Because the presence of mercury in the system diminishes the quantity of fibrin in the blood, and acts in a remarkable manner in preventing the effusion of coagulable lymph, and the consequent adhesions in the organs inflamed. Mercury, even without bleeding, it is well known, will often remove the buffy coat and cupped appearance of the blood in inflammations; and these qualities depend on the abundance and coagulability of the fibrin. Now, if the state of the blood in scrofula be considered, in which there is already a manifest deficiency of the fibrin or coagulable matter, it is evident that mercurials are decidedly contra-indicated. If we administer them we do so at the peril of diminishing that which is already in deficiency, a deficiency, too, which at the least is intimately connected with the cause of the disease.

There is no other effect of mercury besides its specific action which may not in this disease be produced by other, and less dangerous, agents, or which at all compensates for the risk of injury which its administration entails. When given as an alterative, or even as a purgative, we cannot always be aware of the constitutional idiosyncrasies which render some persons liable to salivation from even a single mercurial dose, so that I think it better to fulfil these indications by other means. There is great difficulty in bringing young children under the specific influence of this medicine, and on this account it is often administered to them with no niggardly hand. Yet, though the injury

in the case of children is not so apparent, it is, I believe, produced with equal certainty, when the strumous diathesis exists. I would, therefore, if possible, lay the ban upon the use of mercurials, not only in the treatment of scrofula itself, but also in that of other diseases occurring in the scrofulous diathesis. It is a moot question if inflammation ever occurs in strumous habits with such intensity as to call for mercurialisation. Inflammation of the eye may perhaps in some cases be so rapid as to require it, but even here local depletion and counter irritants are generally sufficient to subdue the disease in such constitutions. I believe that in tubercular peritonitis, one of the most dangerous complications of struma and inflammation, the deposition of tuberculous matter is often hastened and increased by the free administration of mercury. If this remedy be prescribed liberally, as it often is in fevers occurring in those of the strumous diathesis, I have found from experience that there is great risk of producing scrofulous abscesses during the convalescence.

In addition to the strictly medical treatment of scrofula, it is necessary to make the fullest use of all the aids of diet, regimen, and prophylaxis, which will be detailed in subsequent chapters. To a certain extent we must be empirical in the management of this disorder. We shall find that, in some cases, the most effectual remedies will capriciously disagree with patients; while others, which are of less importance in the generality of cases, will produce unexpected good effects. There is, perhaps, no disease in which perseverance is so needful; and it would be scarcely too much to say, in which it is more effectual than scrofula. It is of course a great advantage to have to treat the disorder in its early stages. I firmly believe it might then be almost invariably cured. Where it has existed many years, though there is a chance of its spontaneous cure, it is generally

obstinate in proportion to its duration. I have seen many cases, not very severe, but of long continuance, in which the ulcers, redness, and scabbing of the cuticle, had become apparently a part of the nutrition; being sustained for years in precisely the same condition, and immovable, except under the most patient and long-continued administration of remedies.

The consideration of the remedial powers of iodine should of course form a part of the general treatment of scrofula; but the effects of this medicine, in the cure of strumous maladies, are so grand and important, and so far surpass those of any other remedy, that I have thought it advisable to devote an entire chapter to the subject.

CHAPTER VI.

ON THE ADMINISTRATION OF IODINE IN SCROFULA.

Discovery of Iodine.—Of all the substances which have ever been introduced into the practice of medicine, iodine possesses the most decided anti-scrofulous properties. It was discovered in 1811 by M. Courtois, a manufacturer of saltpetre in Paris, who described some of its characters, and afterwards submitted it to M. Clement for examination. This chemist made further researches into its properties; but, pending his investigation, Sir H. Davy and M. Gay-Lussac became attracted to the subject. These philosophers soon decided on its being a non-metallic elementary body, and, like oxygen, a supporter of combustion.*

Introduction as a Medicine.—It appears to have been first used medicinally by Dr. Coindet, of Geneva, who found it of great efficacy in the cure of goître. Dr. Straub and this physician also discovered it to be the active principle of burnt sponge, which had long been used in the treatment of scrofulous disorders. Immediately afterwards

* The priority of the discovery has been disputed by these two philosophers. Davy's own account, in a letter to his brother, is as follows:—"Iodine had been in embryo two years. I came to Paris; Clement requested me to examine it; and he believed that it was a compound affording muriatic acid. I worked upon it some time, and determined that it was a new body, and that it afforded a peculiar acid by combining with hydrogen; and this I mentioned to Gay-Lussac, Ampere, and other chemists. The first immediately 'took the word of the Lord out of the mouth of his servant,' and treated the subject as he had treated potassium and boron. The paper which I sent to the Royal Society on iodine I wrote with Clement's approbation, and a note published in the 'Journal de Physique' will vindicate my priority."

it was used extensively both in bronchocele and in various scrofulous diseases by Dr. Manson, who, at the same time as Coindet and Straub, was endeavouring to detect the medicinal element of the sponge, but had chiefly directed his attention to its alkaline constituents. Dr. Manson's practice, as recorded in his collection of cases, bears the most ample testimony to the value of iodine in scrofula. Since this time it has maintained its ground, though often administered so injudiciously, and in such enormous doses, as would have destroyed the reputation of any substance of equivocal value. Lugol, whose experience of the effects of iodine in scrofula has been immense, does not hesitate to declare that it possesses powers as decidedly opposed to scrofula as mercury is to syphilis. I am strongly of opinion that, where patients can be well fed, there are very few cases of scrofula of recent origin that may not be cured by its internal and external use, and but few cases even of long standing or intense severity that may not be greatly ameliorated. I am also of opinion, that the entire resources of iodine as an anti-strumous remedy have not been developed hitherto, from the great uncertainty which has prevailed respecting its proper doses and mode of administration.

The remedial qualities which have been conceded to iodine as an anti-scrofulous agent, on the grounds of direct experience, are strongly supported by collateral evidence of a remarkable and decisive kind. Long before its discovery and use in a separate form, it had been in repute, under the form of burnt sponge, in bronchocele and in scrofulous affections. Sea air had, from time immemorial, been recommended in scrofula; and it is now generally believed, that the marine breeze owes much of the hygienic virtue it possesses for scrofulous persons, to the iodine with which it is impregnated. Various baths and springs on the

Continent and in America had also been found efficacious in the cure of scrofula and glandular diseases, and, in many of the most celebrated of these, iodine has since been discovered by chemical analysis. It is now well known, that the Fuci are the chief source from which iodine is obtained; and it is remarkable, that the *fucus vesiculosus*, or bladder-wrack, was recommended by Russell for scrofula before the discovery of iodine; and that fomentations made from seaweed, and the bruised weed in the form of cataplasms, had long been reputed, among the common people of our sea coasts, as popular applications to scrofulous ulcers and enlargements.

Since the introduction of iodine, cod-liver oil has been much praised on the Continent as a remedy for scrofula. From the decided testimony borne by those who have used it, there can be no doubt of its having proved of great service in this disease. When first employed, the principle to which its effects were owing was quite unknown, but it has been found that the *oleum jecoris*, like the burnt sponge, contains a small quantity of iodine. It appears, too, that the anti-scrofulous virtues of the oil depend on the iodine. There are certain kinds of cod-liver oil which contain no traces of iodine, and these are found to be quite useless in a medicinal point of view; while the richer the oil is in iodine, the more unequivocal are its good effects in the treatment of scrofula.

Therapeutic and Physiological Effects.—As to the mode of action of iodine on the system, it is a stimulant of a peculiar kind. It exerts a great influence on the mucous membranes throughout the body, generally increasing the opposite functions of secretion and absorption going on in the mucous tissues, and when given in excess, or in certain states of the constitution, it produces chronic gastro-enteritis. In moderate doses, in cases fitted for its admi-

nistration, it increases the energies of the stomach, both as regards appetite and digestion, and appears to promote the secretion of bile. It is one of the most valuable medicines we possess as an emenagogue, and I believe its action on the uterus to be direct. Some have maintained that it has an aphrodisiac effect, while others have believed that it lessens the activity of the generative system. It appears at first to decidedly increase the secretion of seminal fluid, but subsequently this is diminished below the natural quantity. It is a well-known fact that, in some cases, it affects in men the thyroid body and the testes simultaneously, and in women the thyroid gland and the mammæ at the same time. These facts appear to show that there must be a direct action of iodine on the sexual system. Do they not also appear to support the idea of some connexion between the thyroid body and the organs of generation in either sex? It also decidedly increases the renal secretion, and in some cases acts as an aperient.

For its power over the low and sub-acute grades of inflammation which occur in strumous habits, and over a considerable number of other diseases which fall short of inflammation, such as those peculiar to the rheumatic and gouty diatheses, iodine and its compounds, particularly the iodide of potassium, are rapidly acquiring a great reputation. Not, indeed, as a specific, but for effects quite as well defined and decided as the power of mercury over the acute forms of inflammation. Its good effects in syphilis, and in the secondary and tertiary forms of the disease, are well authenticated. In some rare cases it produces actual ptyalism, but far more frequently it occasions coryza. In many cases, after the medicine has been given two or three days, in proper doses, the determination to the guttural and nasal mucous membrane is as evident as that to the salivary glands under the use of mercury. There is also a peculiar

smell attendant on this effect of iodine somewhat resembling the mercurial feter, and the taste of the medicine is perceptible in the mouth. In these and in other respects it seems related to mercury, which it appears calculated to supplant in many cases; but though there may be an appearance of similarity to mercury in its action, and in both being beneficial in certain diseases, the good effects of iodine in scrofula, where mercury is decidedly injurious, would show that the actual changes produced in the system by the two medicines must be very different. I believe the specific effect of iodine on the mucous membranes described above, might be almost invariably produced by giving it in proper quantities. The doses of iodine I shall recommend may appear small, but, when it is given largely, it either produces mischief, or passes off with such rapidity by the kidneys, or occasionally by the bowels, that probably less of the remedy gets into intimate combination with the tissues of the body, than when it is given so cautiously as not to excite the emunctories by which it has a tendency to pass off without producing any constitutional effects.

Iodine certainly has an important local action on the external absorbent system; witness the rapidity with which glandular enlargements are often removed by its internal use. This effect can scarcely be derived from any tonic or alterative action on the body generally, because the same beneficial result is produced by the local application of the tincture of iodine, or an iodine ointment, to the enlarged part. That this is true is evident from the fact that, where there are several enlarged glands at a little distance from each other, one of them may be removed by the circumscribed action of an iodine ointment, while the remainder continue unaffected. Its action does not seem to be directed to the lymphatic vessels so much as to the lym-

phatic glands: though enlargements are often reduced, effusions of fluid are seldom taken up under its use. Its effects on the glands are peculiar; that is to say, the remedy affects them in a different degree to the other tissues of the body. Besides its power of controlling glandular enlargements, it exerts a special influence on the nutrition of the glands, which tends to diminish their size in some cases, when not preternaturally enlarged. During a course of iodine in the scrofulous constitution, the body generally increases in bulk if the medicine be given in small doses. The circulation is quickened, and there is generally an increase of muscular strength. Glandular and other swellings commonly diminish or disappear, and strumous ulcers acquire a healthier aspect, and are more disposed to heal. It is worthy of notice that summer and winter are much more favourable seasons for beginning an anti-scrofulous course of iodine than spring or autumn. At the former seasons scrofula is comparatively dormant and inactive, and advantage may be taken of this to promote the cure of the disease. Any improvement gained during the favourable seasons of the year is much less likely to retrograde in the unfavourable periods, under the use of iodine, than any other description of treatment.

Dose and Mode of Administration.—The dose of iodine has been very various at different times, and among different practitioners. At the present day, the proper dose is by no means satisfactorily settled. Lugol, whose experience of its effects on the scrofulous constitution has been immense, recommends half a grain a day to begin with, and the gradual advance to a grain a day, but he does not exceed this latter amount. This quantity Lugol, in his practice, divides into two or three doses, using an aqueous solution with a small quantity of the iodide of potassium to assist in dissolving the iodine. Baudelocque prescribes an

eighth of a grain of iodine, and a quarter of a grain of the iodide of potassium, dissolved in an ounce of water ; this quantity to be given twice a day, and the dose of the solution to be gradually increased from one ounce to twelve ounces, or till it contains one grain and a half of iodine and three grains of the iodide of potassium in each dose. This course he recommends should be omitted after three or four weeks, and the patient placed upon diluents and aperients. Other practitioners have gone far beyond such moderate practice as this, and have endeavoured to discover the menstruum or mode of combination in which it may be administered in the largest possible quantity. Thus Dr. Kennedy administered iodine at the first to the extent of two grains a day, and increased it to the enormous quantity of eighteen grains a day. Another physician, Dr. Buchanan, has given it in the frightful, or it may be said poisonous, quantity of seventy-two grains daily, mixed with starch, and to a still larger excess in the form of hydriodic acid. Fortunately the preparations of iodine have a strong tendency to pass off by the kidneys, and in this way the system is generally freed from danger. When, however, anything interferes with the action of these safety-valves, or in certain idiosyncrasies, a quantity of iodine which some daring practitioners would set down almost as a minimum dose is sufficient to produce symptoms of poison. Twenty grains of iodine have actually been known to cause death. Its deleterious effects may either consist of excessive irritation of the stomach and bowels, or it may produce an iodinous erythism, somewhat similar to the erythisma mercurialis, and which, like the latter, may occasion death. This erythism, which affects the entire nervous system, is generally the result of the long-continued use of the remedy ; but the gastro-intestinal disorder may be produced either by a single large dose, or it may be caused by the accumu-

lation of iodine in the system when given for a long time, and the sudden development of its irritating qualities. Again, the uninterrupted administration of iodine sometimes gives rise to a cutaneous eruption, which can never afterwards be got rid of; a serious objection to the capricious use of the most valuable medicine. In some parts of Switzerland, where, from the prevalence of goître, it has perhaps been used more extensively than in any other country, its injudicious employment caused such an amount of mischief, that its use was forbidden by the authorities except under certain restrictions.

With respect to the doses of the compounds of iodine, the same discrepant opinions have prevailed. Iodide of potassium, the most popular and most beneficial of all, has been and is still administered with the greatest irregularity, and that, too, in the same diseases, and with the same intentions of cure. There are practitioners who give it in doses of half a grain or a grain, while others of equal reputation go to the extent of twenty or thirty grains; and some physicians are reported to have given the enormous quantity of half an ounce of the iodide in a single dose. We can easily understand that there should be a latitude in the doses of certain medicines which, like emetic tartar for instance, produces diaphoresis in one dose, nausea in another, in a third vomiting, and in a fourth purging. There is, however, no parallelism between medicines of this kind and the preparations of iodine. Much scandal has accrued to the profession from the system of heroic doses which some have advocated in the administration of these and other medicines. It seems at best but a modified vivisection at the expense of the patients submitted to it.

My own opinion decidedly is that iodine and its compounds have generally been given in far larger quantities than are either necessary or beneficial; and to the uncer-

tainty which has prevailed respecting the proper dose the mixed results of good and evil which have been obtained, are probably to be attributed. In the following remarks I refer to the action of the medicine as it is seen in scrofula. That minute doses of this remedy are sufficient to affect the system is evident from the fact that before the discovery of iodine itself, it had acquired a reputation for its effects in this disease under the form of burnt sponge, in which it is known to exist, but in inconsiderable quantity. Where nature has presented us with medicines prepared for administration by her own processes, as in the iodine springs, in which the active agent is in small quantity, and largely diluted, I would prefer, in some measure, to imitate her proceedings rather than make it an aim to find out how much of any given remedy the constitution can bear short of poison. In this I am supported by my experience in the use of iodine. A drachm of the iodide of potassium, dissolved in an ounce of distilled water, and this solution given in doses of twelve or sixteen minims three times a day, in a tumbler of water, will bring the system under the effects of iodine in a few days. The peculiar determination to the mucous membrane of the nose, eyes, and fauces will be established, the taste of iodine becomes perceptible in the mouth, and the odour of it in the increased mucous secretion. As another instance of the effects of still smaller doses of iodine in the prevention of disease, I may refer to a statement of Boussingault respecting the comparative frequency of goître among the inhabitants of different parts of the Cordilleras in South America. This chemist states that in certain districts, in which the population use salt impregnated with a very small quantity of iodine, the health of the inhabitants is good; while in others, where salt is used entirely destitute of iodine, goïtrous diseases abound. Dr. John Davy, in re-

ferring to the above, says :—" It is not improbable that the apparent increase of scrofulous and consumptive disease in recent times may be connected with the over refinement of salt ; that is, carried so far as to deprive it of its iodine principle, which seems intended by provident nature as a corrective of certain injurious causes productive of a terrible class of diseases."

It may be seen that Lugol carefully avoided anything like large doses of the medicine. The formula of Baudelocque is still more moderate ; but even this may, I believe, be diminished with advantage. I prescribe one-tenth of a grain of iodine, with a grain of the iodide of potassium, in a glass of water, three times a day, gradually increasing the dose of iodine to the fourth of a grain, and the iodide of potassium in proportion. This is nearly equivalent to a drachm and a half of the compound liquor of the iodide of potassium of the pharmacopœia ; but with an additional quantity of the iodide. As another instance of the looseness which has prevailed respecting the dose of iodine, it may be mentioned, that of the liquor. potass. iodidi co. of the pharmacopœia, the common dose to begin with is one drachm, while of the tinct. iodinii co. the dose at first is generally ten or fifteen minims. These preparations are given in the same description of cases ; but it is worthy of remark, that ten minims of the tincture contain a quarter of a grain of iodine, and half a grain of the iodide of potassium ; while the drachm of the aqueous solution contains but the $\frac{1}{32}$ part of a grain of iodine and $\frac{1}{16}$ part of a grain of the iodide of potassium, so that the ordinary dose of the one preparation contains just eight times more both of iodine and iodide, than that of the other.

Those who have given large doses of iodine have recommended it to be taken when the stomach is full, that the food may shield the gastric mucous membrane against

its ill effects. I, however, believe that given in small doses, largely diluted, it is much more effective, if taken when the stomach is empty, than after a meal. There is a sound discretion in remitting the medicine after it has been taken two or three weeks. The scrofulous constitution, more almost than any other, is prone to become habituated to any moderate stimulus, so as after a time not to feel it scarcely at all. This is the case with iodine, if its administration be continued for a long period: it requires large doses to keep up its anti-scrofulous effects, and this would incur the danger and inconvenience which follow the accumulation of iodine in the system. Another reason for remitting the medicine is, that even small doses, if continued a long while, may in some constitutions produce the ill effects which are produced by the accumulation of the remedy in the body. During the time in which the iodine is suspended, we may generally resort to some other remedy with the best effects. In this manner, by giving the medicine in periods of two or three weeks at a time, with intervals of rest, I believe we may obtain all the anti-strumous effects of iodine without any risk of its causing injury. Given in this manner, there would be no danger of absorption of the breasts or testicles, or the severe gastralgia and cephalalgia which sometimes follow a course of iodine, or of the other secondary affections to which reference has been made.

The Different Preparations of Iodine. — Iodine itself is far more useful as an anti-strumous agent than any of its compounds; but, as Lugol pointed out, there is a difficulty in dissolving iodine alone, which is obviated by the addition of the iodide of potassium. This is the reason why the two medicines are given together as proposed by him, so as to form what has been termed the ioduretted iodide of potassium; but which has not been

proved to be a definite chemical combination. The iodide of potassium taken alone is a most useful medicine; I know of no more valuable alternative than it proves in the strumous or in any delicate constitution. Both the iodine and the iodide ought, I believe, to be given dissolved in a large quantity of liquid, or else in all probability a precipitation of the pure iodine takes place, when the medicine comes in contact with the gastric secretions. When the extensive popularity and usefulness of the iodide of potassium is considered, it is singular that in almost all the natural productions in which iodine has been discovered it has been found in combination with soda.

The iodide of iron has been much lauded as being of superior efficacy to iodine itself. The anti-strumous effects of iodine, and the tonic powers of iron, have been confidently attributed to this compound; and the supposed combination of the two kinds of action has been thought to increase the efficacy of each. It has happened that pharmacutists have attributed to purely chemical compounds the mixed qualities of the elements entering into their composition, as if there were some similarity between them and the hybrid offspring of certain animals. Two chemical elements have been combined together, and there has been a strong tendency to estimate their qualities separately, and then to draw a mean between the two, or rather to believe the full virtues of both to be present in the product of the chemical union. This has been particularly the case with the iodide of iron, but, as I suspect, without any correct data whereon to found such a belief. It is well known to be a very unstable compound; it being difficult to preserve it in an undecomposed state, even out of the body; and I have little doubt that, on its introduction into the stomach, decomposition is immediately commenced. There may possibly be some advantage in

its use, namely, that it tends to diminish the dose of iodine, and perhaps it may be found that the administration of iron at the same time as iodine is beneficial. I am, however, strongly of opinion that the action of the iodide of iron is that of the two remedies separated in the stomach, and which for all therapeutic purposes might as well have been introduced separately. I believe that the use of the solution of iodine singly for a time, and then a course of iron to succeed it, would prove of more service than the heterogeneous mixture of the two medicines at the same time.

The same remarks will in a great measure apply to the iodide of mercury, though this seems to be more permanent, and to have a stronger individuality than the iodide of potassium. It acts far more decidedly as a mercurial than as an ioduretted medicine, and for this reason I object to its use in scrofulous complaints. The fact that scrofula and syphilis often combine together is at best but a poor argument, founded on a loose analogy, in favour of using a *chemical* combination of the two remedies which separately are beneficial in the separate complaints; but in the chemical combination of which there is almost a certainty that the qualities of one or both of the combining elements will be entirely changed. Yet this is the kind of reasoning upon which, as much as experience, the use of the compound of iodine and mercury is founded, and which first led to its use in strumosyphilis.

Adjuncts to the Internal Administration of Iodine.—Though the introduction of iodine into the system by way of the stomach is the simplest and apparently the most direct, there are other modes of using the remedy constitutionally, which are of great importance. Lugol found the use of iodine baths of great value in scrofula; indeed,

they form one of the most important features in his plan of treatment. There is no doubt that baths powerfully impregnated with iodine used in his manner acted not only on the scrofulous sores and swellings with which the remedy was brought in contact, but upon the system at large. Lugol recommended the frequent use of ioduretted baths throughout the whole treatment, and the iodine thus introduced by way of the skin must be very beneficial, and probably more permanent in its action on the constitution than a similar quantity taken by the stomach.

It may be fairly questioned whether the small quantity of iodine in sea water has any share in the good effects produced by sea-bathing, though it is by no means impossible that such should be the case. Cold sea-bathing is generally used for strumous persons; but I believe the salt water tepid or warm baths are of greater value than cold ones, especially when there are open sores. The primary depressing effect of the cold sea water, and the subsequent reaction and excitement which is experienced daily in cold sea-bathing, weaken delicate strumous persons and children. Cold bathing is admirable in its effects on those in whom scrofula is combined with tolerable strength of constitution. A scrofulous person can scarcely be placed under more favourable circumstances than when breathing a pure sea air, bathing, and following a judicious medical treatment. It is a very usual plan for strumous patients at the seaside to take the sea water internally. This is injudicious; the saline substances contained in sea water do not merely act as aperients, but are absorbed into the circulation. It is the well-known action of salines to liquify the blood, and in scrofula we have the blood already deficient in coagulable matter. Sea water internally was nevertheless recommended by John Hunter; but Huxham saw it produce solution of the blood, hæmor-

rhages, and other symptoms of scurvy, which ultimately terminated in death.

There is another mode of acting on the constitution by means of iodine which, as far as I am aware, has never been hitherto applied in the treatment of scrofula. This is by allowing scrofulous persons to breath an atmosphere containing a minute quantity of iodine in a gaseous state. Such a plan may be easily adopted in any convenient chamber by means of a lamp and a few drops of the tincture of iodine. A few drops will give a large room a sensible odour of iodine for several hours. The good effects of this plan appear to exceed the benefit produced by an equal quantity of the remedy introduced in any other manner. If Beddoes had been aware of the remedial powers of iodine when making his experiments on the use of factitious airs in various diseases, it is probable his success would have been more durable than it was. An artificial iodine atmosphere, sufficiently diluted to remove all risk of irritating the lungs injuriously, probably acts by stimulating the chemical process of respiration, and the introduction of oxygen into the system, as well as by furnishing iodine to the blood.

The various modes in which iodine may be applied externally to scrofulous swellings or sores, so as to produce a local effect on the diseased parts, I shall have to speak of at length in the chapter on local treatment.

It is of much consequence that a judicious use of other medicines should be adopted during a course of iodine, particularly in the intervals between the use of iodine itself. The best plan is to give a mixture of tonics and aperients; the tonic treatment preponderating in the majority of cases which are weak and delicate, and the aperient in those cases where there is a plethoric state of the system. Aperients should, however, always be used

in scrofula, with a view to their tonic rather than to their purely evacuant effects.

The diet, during the use of iodine, should be good, and ought to contain a slight excess of animal food. The aim should be to concentrate the nutriment as much as possible; substances which are bulky, but which contain only a small proportion of pure alimentary matter, ought to be avoided. Ale, or a moderate amount of wine, may be taken at meal times; but large quantities of diluent fluids are highly improper. It should be recollected that in the great majority of scrofulous constitutions there is already a superabundance of fluid material in the system. Daily exercise in the open air, if possible, and to a considerable extent, either on horseback or on foot, is of great importance during the iodine treatment, and very much assists its remedial operation.

CHAPTER VII.

LOCAL TREATMENT OF SCROFULA.

By far the most important part of the local treatment of scrofula consists of external applications for the dispersion of enlargements, and the prevention of suppuration. Fortunately these results can now be obtained with tolerable certainty in a considerable number of cases. It was customary, until a comparatively recent period, to bestow but little care on the resolution of scrofulous swellings; this was probably either on account of the excessive difficulty with which they were formerly dispersed, or from some vague and far-descended belief in the power of suppuration to cleanse the system of impurities. Frictions, stimulating embrocations, and plasters supposed to possess discutient properties, were sometimes tried; but these applications used by themselves were seldom of much service. Local bleedings by leeches, and counter-irritation, were sometimes resorted to; but such treatment was little adapted for the earlier stages of scrofulous tumours, at which time alone their increase could be controlled. The softening of the tumours, the proper digestion of the contained matter, and its subsequent evacuation, were the points chiefly attended to in old-fashioned practice. These indications are the very opposite of those which tend to prevent the progress of scrofula in its early stages, and their adoption often led, as I have already remarked, to the perpetuation of the malady, in cases which would now be almost certainly relieved.

It is of immense importance that scrofulous swellings should be attended to in their early stages. Medical treatment should be applied immediately, when there is any appearance of a gland or other structure becoming permanently enlarged in those of the scrofulous constitution. Strumous children, and young people, are constantly liable to have glandular enlargements from colds, or other temporary derangements of the health, which will generally disappear as the ordinary state of health is regained ; but, if the swellings remain after the exciting causes have passed away, prompt and strenuous efforts should be made for their removal. I am strongly of opinion that, were this invariably done by those having the care of young persons, the full development of scrofulous disease might be prevented in a large proportion of cases. Instead of which it most unfortunately happens that professional aid is frequently not sought until the enlarged glands, or tumours, have begun to soften ; suppuration being then almost inevitable, and the danger incurred of other consecutive swellings more obstinate than the first.

But little real good resulted from the old methods which were thought serviceable in discussing glandular enlargements. The best was the belladonna plaster, and this was probably of more service from its protecting the enlargements against cold than from any specific power as a resolvent. Frictions, also, were perhaps of use in some cases, from their power of promoting absorption.

The preparations of iodine are of far greater use than any other external applications. If the general health be attended to, and the exciting causes of scrofula avoided, the external application of iodine, if commenced early and carefully followed up, will generally be sufficient to remove a recent scrofulous swelling.

Lugol has three formulas for the preparation of ointments of different strength.

	No. 1.	No. 2.	No. 3.
Iodine	twelve grains	fourteen scruples	sixteen scruples
Iodide of potassium	four scruples	five ounces	five ounces
Lard.....	two ounces	two pounds	two pounds

The ointment of the pharmacopœia is composed of a drachm of iodine, and half a drachm of the iodide of potassium, to two ounces of lard. This is a somewhat larger proportion of iodine than is contained in the strongest of Lugol's ointments; but it will be seen that this contains more than three times the quantity of the iodide of potassium. I prefer the formula of the pharmacopœia, but it is so powerful as generally to require to be diluted with lard. When this ointment is used undiluted, a small quantity daily is sufficient. Other ointments have been recommended with the same intentions, particularly an ointment of the iodide of zinc; but I do not consider them so efficacious.

The compound iodine ointment should be rubbed in with the hand night and morning: too much should not be used; that is, not enough to cause soreness, as any irritation produced on the surface of a swelling appears to hasten rather than retard its progress. In applying the ointment, gentle and continued friction should be used, but care should be taken that this also does not produce irritation of the tumour. Friction short of this probably favours the absorption of the swelling, and at the same time assists in bringing it under the influence of the iodine. Sometimes the tumour is irritable and painful from the first, so that frictions cannot be resorted to without inconvenience, in which case the tincture of iodine should be used as a substitute for the ointment. This can be applied once or twice a day, but not oftener, or it will produce tenderness and desquamation of the cuticle. The iodine applied in

this manner appears to penetrate the skin more rapidly than when the ointment is rubbed in, and in some cases proves even more efficacious than the ointment itself.

During the time such a treatment is being pursued, the enlargements should be carefully defended from cold, especially if in the extremities or any exposed part of the body. In the scrofulous seasons, spring and late autumn, this is of still more importance than at other times. It often happens that at these seasons, in spite of the most careful management, the swellings will advance in size. The treatment for their removal should, however, be closely followed in spite of this. If they can be kept from softening at these periods, a favourable impression can generally be made on them afterwards.

If in spite of all treatment a scrofulous enlargement becomes tender, and fluctuates under the finger so as to make it evident that matter is formed, the resolvent treatment should still be continued, though in another form, until the swelling is opened, as cases are by no means rare in which sluggish scrofulous tumours diminish, and even disappear without suppuration, after the formation of pus, and the partial softening of their contents.

If there be redness and tenderness, and evident inflammation, leeches and cold applications should be used to moderate it, when poultices of linseed meal, or bread and water, may be applied, a little of the tincture of iodine being added to the water with which each poultice is prepared. I would recommend the application of iodine in this form to be persisted in up to the last point when it can be borne without creating much local irritation. Iodine possesses properties decidedly antagonistic to scrofulous suppuration; and, in cases where suppuration is inevitable, I believe it tends to circumscribe it and prevent the implication of the cellular tissue surrounding the glands, which, if left to

itself, generally becomes involved to a considerable extent. Next to the prevention of an abscess, it is important to have as small a one as possible, and for this reason iodine should be applied up to the time of suppuration; and even combined with the means taken to soften the swelling when the evacuation of its contents is unavoidable. I would, however, again repeat, that previous to the occurrence of suppuration care should be taken to render the iodine as little of an irritant as possible. Generally this can be done by regulating the quantity used, or by diluting the ointment; but in cases in which it is otherwise the irritation may be often soothed, while the anti-scrofulous powers of the iodine are undiminished, by combining it with conium, either in the form of a poultice or an ointment.

When all hope of dispersing the tumour is relinquished, the proper indication is to evacuate the matter by an incision as early as possible. If a scrofulous swelling is allowed to break of itself, the matter gradually works its way to the surface, destroying as it advances the subcutaneous tissues, till at length it breaks through the skin and the matter escapes. At the time a scrofulous abscess opens in the natural way, its fluid contents have generally reached the surface, not by a single point, but the purulent collection is diffused under the whole surface of the tumour, and the skin is so injured by pressure, and the process of ulceration, that the whole, or nearly all of it, is subsequently destroyed. By puncturing the tumour, and choosing a judicious time for its performance, this untoward circumstance may, to a great degree, be prevented. The skin seldom gives way if the opening be made, and the matter evacuated before the skin has itself become materially diseased. On these accounts a common scrofulous abscess should be opened soon after fluctuation is distinctly per-

ceptible; the matter is generally ready for evacuation, and can be reached by a moderate puncture, when the slightest blush of red appears upon its surface. The puncture should of course be made in the most depending part of the swelling, and care be taken to effect the daily evacuation of its contents by pressure, or sinuses will almost surely be formed.

Scrofulous enlargements occurring in the cellular tissue require to be treated in precisely the same manner as glandular swellings. Sometimes the palliative treatment will be attended with success, but more frequently suppuration is the result in such cases. Scrofulous disease of the cellular tissue is more uniform in its progress than disease of other parts; and it most frequently occurs at those times when the general health is disordered by other causes. It is worthy of remark, that when a scrofulous abscess of the cellular tissue is sore at the centre of its surface, it may be often circumscribed by the use of iodine applications to the circumference of the swelling; whereas, when they occur in situations where this is impossible, or where it has been omitted, they often acquire an immense size before suppuration takes place. The matter formed in these cellular abscesses is different from that formed in the glands, and in larger quantity, owing to the circumstance that there is a greater disposition to inflammation in cellular substance than in the external lymphatic glands.

When the joints are the seats of scrofulous disease, the same general principles must be followed as in the management of glandular enlargements. The application of iodine, either in the form of ointment or liniment, should be persevered in. This will be far more likely to benefit the strumous disease than the counter-irritation, cupping and issues, which are even now extensively

employed. When a joint of the upper extremity is affected, the disease does not prevent the exercise in the open air so necessary to strumous constitutions ; but, where either of the joints of the lower extremities is diseased, the patient is almost entirely precluded from walking, as a great degree of rest is absolutely essential to his restoration. When a patient is in this way deprived of bodily exercise, it is of great importance he should be taken into the open air as much as possible. I have alluded to the inutility of the old practices resorted to for incipient scrofulous joint disease. Our chief dependance must be placed on iodine. Local depletion, or counter-irritation, should only be resorted to in those cases in which true inflammatory action is present ; as remedies for the mere pain which is often present in scrofulous cases without the existence of inflammation, they are worse than useless.

There is one application which has been strongly recommended in strumous as well as other diseases of the knee-joint, namely, a mercurial dressing bound with strong leather plaster, so as to envelop the whole of the joint, as recommended by Mr. Scott. This prevents all other local applications ; and as a tolerable degree of rest can be otherwise obtained, I prefer trusting to iodine. Little, if any, of the mercury applied in this manner is absorbed ; in all probability the plaster acts by preventing the use of the joint, and casing it so as to support it during any movements that may be attempted.

The majority of all cases of spinal disease occurring in young persons is either scrofulous or hysterical. In those of the scrofulous kind the signs of the strumous diathesis are generally prominent, and the general health is more affected than in other cases. It is almost impossible to define the precise means which should be used in scrofulous spinal complaints, as no two cases will be found precisely

alike. The same general rules, both for internal and external treatment, ought to be followed in all cases of scrofulous disease, whether affecting a large joint or a small isolated gland, or a series of joints such as the vertebral column, the treatment being of course varied according to the particular features of each case. It is worthy of repetition, that in all scrofulous disease interfering with locomotion, the patient should breathe a healthy atmosphere, and be exposed as much as possible to the open air. The powerful counter-irritation, and the setons and tissues so often resorted to in scrofulous disease of the spine, are at best of very questionable efficacy. Probably no case that resists constitutional medical treatment, with a good diet, a pure air, and as perfect a state of rest as possible to the whole vertebral column, with frictions of iodine, will be benefited by severe local measures. Unfortunately, unless patients of this kind can be placed very favourably as regards air, and be taken out daily, they are in danger of getting dyspeptic, and of thus having the strumous disease aggravated. On this account sea voyaging, when invalids may lie the whole day at perfect rest, and yet be exposed to the beneficial influences of light, the sun, and the sea breeze, is of great value in scrofulous spinal cases.

The successful treatment of scrofulous ulceration is often a matter of the utmost difficulty; but in this, as in enlargements previous to ulceration, iodine is the principal remedy. Until the matter of scrofulous tumours has been thoroughly evacuated, soft applications, such as poultices, are proper; but, when this has been done, we may immediately resort to an ointment containing a small portion of iodine, or apply a weak solution of iodine and the iodide of potassium to the sores. Half a grain of iodine to an ounce of simple cerate makes an ointment as strong as scrofulous sores will bear at first. Ten grains of the iodide of potassium

mixed with an ounce of lard also makes a useful dressing for old scrofulous sores. Lugol strongly recommends the use of solutions of iodine. These he prepares as follows, of graduated strength:—

	No. 1.	No. 2.	No. 3.
Iodine.....	two grains	three grains	four grains
Iodide of potassium	four grains	six grains	eight grains
Distilled water	one pound	one pound	one pound

Whether the ointment or solution be used, a time ought to be chosen for the first application, when the sores are not in an irritable condition. Even when they are thus applied in the quiescent state, a certain degree of irritation is generally produced by the iodine. This irritation Lugol considers as a special anti-strumous action of the remedy, and hails it as an indication of a good result. He states that this external action of iodine diminishes in degree according as the surfaces heal. When judiciously timed there is no doubt but that iodine does impart a beneficial stimulus to the healing of scrofulous ulceration. In cases where the irritation is excessive, or the sores become sluggish under the use of iodine, the dressings of this kind ought to be suspended for a time. As in the external administration of remedies in the scrofulous habit, so also in external applications to scrofulous sores, it is matter of experience that, when any substance has been continued long enough to become habitual, it in great measure loses its effects, but regains them after a short intermission. This principle is of immense importance in the treatment of scrofulous wounds. One ointment will agree for a time, and promote the healing process admirably, but after a while it loses its curative powers, and, unless changed for another, the sore gets disordered, and the healed portions give way. Hence it is necessary to observe a certain degree of rotation in the dressings. Those which are most to be depended on

have iodine for their basis ; but there are others which are of great service when used by way of change. Such are the chalk and calamine ointments, which are very beneficial in certain conditions of scrofulous sores. When the wounds are irritable and discharging a thin ichorous serum, they appear to absorb the irritating matter, and improve the aspect of the ulcerated surfaces. When the sores are pale, with granulations that appear bloodless, the iodine applications may be beneficially alternated with a dressing of the solution of sulphate of zinc or alum, or with the ointment of the nitric oxide of mercury. These substances, though strong stimulants, are insufficient in some cases to produce healthy granulations. Sometimes it is desirable to use a powerful astringent, when a strong decoction of oak bark may be resorted to ; or I have seen great good result from the use of tanners' ooze, (a concentrated solution of tannin), as a dressing to scrofulous ulcers.

It often happens that a scrofulous sore has two or three aspects ; one part may be below the surface of the skin with a tendency to form a sinus ; another part level with the edges ; while a third is raised considerably in coarse florid granulations. These granulations, "proud flesh" as they are familiarly termed, have generally been treated either by pressure, or destroyed by nitrate of silver or sulphate of copper. Lugol judiciously recommends a caustic solution of iodine for the repression of these florid growths, in the proportions of one drachm of iodine, a drachm of the iodide of potassium, and a drachm and a half of water. This is a powerful application, and should only be applied to those parts of the sores which require to be checked in their growth.

Scrofulous sores are frequently complicated with sinuses, particularly when suppuration has taken place in the cellular tissue, or when a joint is diseased. The common

practice has been to lay open sinuses where such a procedure is possible; but in scrofulous constitutions they are formed again with great rapidity. It is much better, therefore, to attempt to produce their adhesion by means of stimulating injections. Lugol attributes, and very justly, great value to a solution of iodine for this purpose. Where there are several sinuses and fistulous sores, he remarks on the efficacy of injections as a means of diagnosis. The fluid often passes from one opening to another, and shows communications which the probe would utterly fail to detect. I have frequently seen fistulous sores about the anus heal under the use of an iodine injection, which had withstood other treatment, and even the operation of laying them open.

Scrofulous disease of the bone scarcely admits of any additional treatment to that suggested for the different forms of scrofulous ulceration. Where there is a wound leading to the diseased bone, the iodine injection is of still more importance than where there is only a simple sinus. That which should be aimed at is the separation of the diseased portion from the healthy bone, and its expulsion by the external wound. I believe this can be facilitated more by constitutional treatment than by local applications alone. When the general health is improved, local disease of this kind often receives a more favourable impetus than from the most careful and judicious local management.

The other kinds of local treatment may be greatly assisted by the use of ioduretted baths. These are useful in almost every stage and description of scrofulous disorder. The skin and subcutaneous tissues are most frequently affected in scrofula, and these are powerfully acted on by warm baths in which iodine has been dissolved. Lugol's best formula for a bath for an adult is four drachms of the iodide of potassium, and two drachms of iodine, to the water

of an ordinary bath, at the temperature of 98 to 100 Fahrenheit. The time of immersion should generally be from thirty to forty minutes. The iodine ought to be dissolved in a considerable quantity of water before its admixture with the water of the bath, to ensure its perfect diffusion; and the baths should be prepared in wooden vessels, to prevent the chemical action which would take place between the iodine and the metal, if a metallic bath were employed. The bath for a child should contain one-third the quantity of the iodine used for an adult, and children should be kept in the bath a shorter time. When baths of this kind produce excessive irritation, or when the scrofulous sores take on an irritable aspect from other causes, they should be suspended for a time, or used of much less strength than the proportions mentioned above. At the scrofulous seasons, spring and the commencement of winter, ioduretted baths are more likely to cause irritation than at other times. Should their use be commenced at either of the periods, they should be used more seldom, and be less powerfully impregnated with iodine than if employed when scrofula is in the passive state. It is sometimes found that, when the disease is circumscribed in extent, local ioduretted baths are of great service; or merely fomenting scrofulous sores with a solution of iodine will often be productive of great benefit.

Sometimes a scrofulous joint, or diseased bone, or a tract of scrofulous ulceration, grows so troublesome, that it becomes a question whether the limb shall be amputated: *cæteris paribus*, it may be laid down as an axiom that scrofulous disease requires amputation less frequently than any other kind of severe local disease. It is astonishing what an amount of disease of the bones, or of the joints, a scrofulous limb will suffer, and yet admit of cure, or end at the worst in contracture. It is always a

serious matter to perform a capital operation on a person suffering from scrofula. In many instances it apparently gives a shock to the system, by which an aggravated form of scrofulous disease is subsequently produced. I have seen numerous cases in which pulmonary consumption or the internal form of scrofula, has followed on the removal of a scrofulous limb, and rapidly destroyed the patient. When removed in one limb by amputation, it frequently breaks out with additional severity in another, or the stump becomes affected with scrofulous disease. The only cases in which amputation ought to be performed in genuine scrofula are those in which excessive debility has been produced either by profuse discharge or intense pain, and where hectic fever threatens speedy death unless the local cause of irritation be removed. When a scrofulous limb is removed, we only remove a small part of the malady which affects the whole constitution. Hence amputation should rarely be resorted to, and then always as a palliative, never as a cure of the malady.

Scrofulous ophthalmia is quite as manageable by general as by local treatment. Under a course of iodine obstinate strumous disease of the eye often disappears. I have in some cases observed great improvement follow the application of the vapour of a weak solution of iodine to the eyes. Where stimulus is required a weak solution of the nitrate of silver may be dropped into the eye daily, or a small portion of the iodine ointment may be introduced at the outer canthus every morning on a probe. If any thing like acute inflammatory action accompanies the disease, counter-irritation should be employed. Blisters behind the ears are the best means of this kind that can be used. It is matter of observation that in strumous constitutions, soreness behind the ears, and sore eyes, often alternate regularly with each other.

Scrofulous otorrhœa is generally found more amenable to internal than to external remedies. Where the disease is confined to the external meatus mild astringents should be used. A weak solution of the sulphate of zinc and alum is the best that can be employed; but it should be applied with a camel-hair brush rather than by injection. Astringent solutions thus applied very rarely produce any unpleasant symptoms in external otorrhœa. With moderate care they are free from all risk even when the tympanum is open, if used in this manner; while, if injected, there is considerable hazard of inflammation of the internal ear. Injections, also, tend to increase the deafness which commonly accompanies ear discharge. Where there is any pain in the meatus, without acute inflammation, counter-irritation behind the ears is beneficial. This may be produced either by the iodine ointment, by blistering, or by the emetic tartar ointment. The former is in some respects to be preferred: it is less severe than cantharides, and less variable than emetic tartar. As I before remarked, general treatment is often of immense benefit in cases of this kind. Either internal or external otorrhœa of long standing, complicated as it often is with disease of the bone, will sometimes rapidly improve under a course of iodine after refusing to yield to the most skilful local treatment.

Strumous enlargements of the tonsil glands are generally little impressible by constitutional treatment or by local applications. When the tumours are small they sometimes yield to remedies which improve the general health, or are diminished by astringent gargles, or by the application of nitrate of silver. More frequently, however, they are so hard and insensible as to be little affected by either mode of treatment. Under such circumstances, as they undoubtedly give rise to considerable local irritation, and exert a deteriorating influence on the general health, excision, as recom-

mended by Mr. Yearsley, is by far the readiest and most certain means of cure. It is very evident, that until recently these morbid growths, and chronic affections of the throat, had not received their due share of attention. The entire guttural mucous membrane is in strumous patients often relaxed and irritable, and, from the extensive sympathies between the throat and other parts of the body, this state of the throat produces depressing effects on the constitution, which are often attributed to other causes than those to which they are really owing. Strong astringent gargles, or the application of a solution of nitrate of silver, will generally relieve relaxation of the throat; or the tincture of iodine applied daily with a camel-hair brush is an excellent remedy.

The chronic anal and vaginal discharges of scrofulous persons are very obstinate and troublesome. Perfect cleanliness and the daily application of cold water as a local tonic are of the first importance. In addition to which, astringents or iodine washes should be prescribed. Muciform discharges from the skin about the anus require particular attention, as the irritation they produce frequently leads to collections of pus under the integument and the formation of sinuses in the cellular tissue, which are very difficult of obliteration in this situation.

CHAPTER VIII.

ON THE MANAGEMENT OF SCROFULOUS CHILDREN.

THE characteristic signs of the strumous diathesis are of course to a great extent undeveloped in early infancy; for a discrimination, therefore, of the cases in which an anti-strumous regimen is advisable, we must address ourselves to other sources of diagnosis besides those derivable from the study of the external configuration and physiological state of the infant. It may be laid down as an axiom, that every known means of invigoration should be afforded to infants of decidedly strumous parentage, or whose male parent has passed the prime of life;—to the children of those who have at any time been tainted with syphilis, or injured by excessive mercurialisation;—and to the offspring of mothers who have met with any untoward accident, or suffered from any debilitating cause, such as hæmorrhage or pulmonary consumption, during pregnancy. Not only these, but all other kinds of parental weakness, many of them of a more recondite nature, relating to the period of conception, are likely to be entailed on children in the shape of strumous tendencies. These remarks particularly apply to the transmission of the diathesis from parents to children; but, however strongly the germs of a robust constitution may be implanted in a child, none of the rules of good nursing can be infringed to any great extent in our race and climate, without incurring great danger of the after-de-

velopment of scrofulous disease. If one word could typify or express the whole matter of the etiology of scrofula, that word would be debility, or a languor corporis, exhibited in a slow elaboration of the vital force, and a diminished resistance to external agents.

The actual indications which occur in infancy, and which should increase our precautionary efforts, are a relaxed state of the irides, giving large brilliant pupils; a waxy, or sometimes excessively delicate pallor of the countenance, the cartilages of the nose being almost diaphanous; a thin and somewhat loose texture of the skin, which easily forms into folds, soreness behind the ears, rashes in the skin, and minute indurations of the cervical and other glands. Infants in whom the germs of the scrofulous constitution are present are sometimes of small size; but it happens quite as frequently that they are large, the body being soft and pale. In children of the latter kind the joints, and particularly those of the spine, seem loose and possessed of little strength. As the age of children advances, the signs of the strumous diathesis commented on in the second chapter gradually become more and more apparent.

The measures for the prevention or removal of the strumous diathesis in the individual must be commenced from birth if we would expect them to prove effectual; indeed it has been forcibly remarked, that women should consider themselves under all the responsibilities of mothers while their children are yet unborn. During the entire period of pregnancy, in those whose offspring are at all likely to become affected with scrofula, the greatest regularity of living should be observed, and every possible means taken to preserve the health of the mother. There can be little doubt that the state of the maternal health in pregnancy exerts a decided influence on the whole life of the offspring.

The chief wants of an infant during the first six months are cleanliness, warmth, and a plentiful supply of the mother's milk. When the mother is sufficiently robust to take on herself the duties of nursing, there can be no question of the propriety of the child being supported entirely by the breast-milk.

Infants require to be suckled often,—every two or three hours at farthest,—though it is well to bring them as early as possible in some degree under regular management, by placing them to the breast at stated times. It must be remembered, however, that throughout infancy digestion is extremely rapid, and nutrition proceeds at such a pace as to call for a constant supply of nutritive material. Much danger is generally apprehended by mothers and nurses from over-feeding; but it should be borne in mind that for the first few months an infant's appetite is as much inartificial and instinctive as the wants of the lower animals, which it is well known guide them aright in the quantity as well as in the quality of their food. At first, therefore, if mother and child are in tolerably good health, the wants of the infant should be obeyed as being superior to all rule.

After a time children begin to be sensible of various sources of discomfort, such as flatulence and acidity; and, having no experience of any other relief than that which is afforded by sucking, they invariably fret for the breast at every uneasy sensation. This is particularly the case at the commencement and during the progress of the first dentition, and hence at this time a judicious restraint on the quantity of the food should gradually be introduced. The rapid growth and changes of material which are continually going on in the different organs, consume a large amount of vital force, and explain the almost con-

stant necessity for sleep in infancy. Those children thrive most who pass the greatest part of their time in thus renovating the vital powers.

During the latter part of foetal life, and throughout the period of infancy, the materials for nutrition are so abundantly supplied, that, besides the increase of bulk in the different organs, a layer of fat of considerable thickness is deposited under the skin all over the soft parts of the body. The child afterwards grows less rapidly, and the stratum of fat is gradually absorbed for the uses of nutrition. This conversion of fatty matter to the purposes of the animal economy may be termed an external digestion as compared with that carried on in the stomach. The cause of the retarded growth, when infancy is passed, is probably to be found in great measure in the exercise taken through the greater activity of the child, who is from this time busily employed in learning the uses of his locomotive system.

Vaccination is almost the only disorder children have to pass through before the process of dentition begins. Six weeks has been named in the act for the extension of vaccination as the proper age for vaccinating healthy children; but in the case of weak infants it should be deferred somewhat beyond this time. In delicate infants the vaccine virus should be introduced (unless there be any immediate necessity for guarding the child against smallpox) during the third month. Before this time feeble children are often proof against the infection; and, besides the chance of not succeeding in the vaccination, it is an object to spare them a little while the slight constitutional irritation to which the process would give rise. If it be deferred long after this period, the child exercises the arms so much during the maturation and decline of the vaccine vesicle as to occasion

considerable annoyance and suffering. The inflammation around the vesicle often becomes under such circumstances very troublesome, and the axillary glands are painful and enlarged from the irritation in the arm.

Infants require great attention on the score of temperature. Nothing is more certain than that they are unable to maintain a healthy temperature, unless their natural warmth be husbanded and increased by good nursing, warm air, and warm clothing. On this account it is that children born on the verge of summer, and in the summer season, thrive in a more kindly manner than those born at the commencement of, or during winter; and this is the reason why an increased number of the children of the poor born in the winter months perish as compared with those brought forth in summer.

Where the mother is healthy, and the danger of scrofula is chiefly derived from the father, there can be no objection to the mother's suckling her own infant; but where the mother herself is strongly marked by the strumous diathesis, it is the recommendation of the best authorities that a wet nurse should be procured. The nurse should be young, should have a good supply of milk, and be in constitution as opposite as possible from the habit in which scrofula usually appears. Among the rich this is an easy matter, but impossible to the poor: so that, with the latter, if the mother is unfit for nursing, the child must perforce be brought up "by hand." Under these circumstances the most suitable food is that of a farinaceous kind, made with water, to which a third of cows' or asses' milk, sweetened with sugar, should be added after the food has been prepared. The milk should not be boiled, as the curd of boiled milk is more difficult of digestion than that of milk unboiled, and the quantity should be gradually increased with the age of the child. The milk with which the food

of infants is prepared should, if possible, be procured from the country, as the cows from which the milk is taken in large towns, and their immediate neighbourhood, are generally tuberculous. There is no evidence that tuberculous disease can be transmitted by means of the milk of a tuberculated nurse or animal, but the milk in such cases is in all probability less nutritious than that of a healthy subject.

The farinaceous part of the food of spoon-fed infants requires to be often changed. It unfortunately tends to confine the bowels, and at the same time is not entirely digested; hence it accumulates in the intestinal canal, and is at length carried off by diarrhœa, so that the child suffers from constipation and relaxation alternately. It has been remarked that it is not so well to feed infants with a spoon as from a bottle, because the act of suction excites the salivary glands, and as the food is taken more slowly in this manner, the child is not so likely to overload its stomach. Drynursed children do occasionally acquire strong constitutions; but, *cæteris paribus*, they must be far more liable to early death, and to scrofula and other diseases of debility, than children brought up on plenty of the natural nourishment. Those to whom expense is a minor consideration, and who yet suffer their children to be drynursed, commit, to say the least of it, a grievous error. So wide a violation of the ordinary course of nature at the threshold of existence cannot fail to exert a lasting and injurious effect on a child of healthy constitution; but this is still more decidedly the case where a delicate organization is derived from the parents.

During the first months of an infant's life its natural food, the milk of the mother, is a purely animal fluid, so that at this epoch it must be considered to have a carnivorous digestion.

Children deprived of human milk are fed in great part

on farinaceous food, as the milk of other animals given alone commonly disagrees with them. Now physiology teaches us, that a more complex apparatus is required, and a greater amount of time is consumed, in the digestion of vegetable as compared with animal food. The utmost facility for nutrition is afforded to infants, and the young of all mammiferous animals, by the milk, a fluid easily converted into blood and the other materials required for the uses of the animal economy. Thus it can be shown that, for many reasons of this kind, children fed on farinaceous food are placed at a manifest disadvantage. By a wise and beautiful arrangement, milk contains all the materials of the body of the infant, or the elements adequate to their formation. It affords a large quantity of caseine, analogous in composition to the fibrin of the blood, and phosphate of lime for the formation of bone, with a supply of alkali, and the butter and sugar of milk.

In the case of infants it is reasonable to suppose, and in large classes of the mammalia it is capable of proof, that in the first period of life they have a stomach and intestinal canal fitted for the digestion of an animal fluid only. The ruminant mammalia, some time after birth, offer an example of change from animal to purely vegetable digestion. Here a visible anatomical metamorphosis accompanies the functional change. There is not at first the distinct division into the four stomachs which belong to adult herbivorous animals of this class. The first stomach remains imperfectly developed as long as the young are supported by the milk of the parent. In some other classes of animals the anatomical transformations of the stomach to accommodate this organ to changes of food are still more remarkable. In the infant, the changes which occur in the mouth at dentition are in all probability indicative of another, and not less important, change in the stomach, namely, such an

alteration in its organization and its secretions as fits it to pass from the digestion of animal matter to that of mixed animal and vegetable food.

The bodily exercise of infants sprung from delicate parents should never be neglected. Their limbs should be left sufficiently free to admit of their moving them unrestrictedly. When the age advances, care should be taken not to let such children walk too soon, as their bones are not of the ivory-like hardness which belongs to more robust constitutions.

Good air is of vital importance to infants and young children. After the first month children cannot be too much in the open air all through the mild seasons of the year. Those children thrive most who are suckled in the country, especially the scrofulous, who, of all others, are most likely to become blanched and etiolated by the air of a large city. Light, and the influence of the sun, are great accessories to good air. The children of the poor, many of them brought up in cellars and dark dwellings, are strongly predisposed to scrofula, and present a most squalid appearance from the earliest infancy. The experiments of M. Edwards are conclusive as to the ill effects of a deprivation of light. He found that if the larvæ of the amphibia were kept in the dark, sufficient strength was not developed to carry on the metamorphoses into the more perfect animals; so that they continued to grow on to a large size in the larval or imperfect state.

Much stress has been deservedly laid on the importance of bathing to delicate children. To those of the scrofulous habit, a healthy action of the skin, such as is produced by daily ablution of the whole body, is of the first importance. When the children are tolerably robust, cold spring water, with frictions afterwards, may be used; but, for reasons already given, tepid washings and bathings are better when the strength of children is manifestly below par.

Besides the beneficial effects of bathing on the skin, it improves the digestion, and diminishes the tendency to congestion in the abdominal viscera; while, by its action on the sentient extremities of the nerves, it soothes and imparts energy to the nervous system.

Delicate children should be suckled in part till the end of the first year, or even until the first dentition is further advanced, if the nurse continues in good health. Prolonged lactation should never be permitted in scrofulous cases; when carried too far, it undoubtedly injures both mother and child. This baleful practice is, however, excessively prevalent in the present day. Among the lower classes it is done as a means of preventing pregnancy, an object for which parents in indigent circumstances sacrifice both their own health and that of their offspring. It will, however, always be found advisable, both on account of the mother and to render the time of weaning less troublesome, to give the child a little farinaceous and animal food after the first three or four teeth have appeared. I believe there is a sound discretion in giving delicate children, who cannot be well suckled, light nutritious gravies, or a small piece of meat to suck occasionally, when they are only a few months old. It does not appear that the farinaceous food which such children get plentifully from the first, is more nearly allied to milk than is animal food itself. Anatomy would appear rather to favour the idea that animal food was intended by nature to precede vegetable aliment in the case of children, as the vegetable teeth, or grinders, are not developed till the last.

Children should not be allowed to sleep with aged persons, as instances undoubtedly occur in which children have fallen into a state of marasmus from this cause. Some precaution, therefore, should be used in selecting the monthly nurse, who should not be too old if she is to have

the care of the infant at night. The sleeping apartments of children should, if possible, be large, and as airy as is compatible with the proper degree of warmth. In the union workhouses we have the most painful exemplification of the ill effects of crowding children together in ill-ventilated apartments. This cause of scrofulous disease probably rivals the pauper dietary in power. According to the best authorities, a large majority of workhouse children are in a scrofulous condition at the present time, from the combined effects of these and hereditary causes.

Throughout the course of infancy and early childhood, active aperients and mercurial medicines should be avoided as much as possible. The testimony of a host of eminent physicians might be quoted as being decidedly against both these kinds of medicines. Still purgatives are but too often freely given with the idea of purifying the blood, and calomel is administered from the belief that children, by a peculiar idiosyncrasy, are proof against its specific effects. This latter is true to a great extent; but I believe mercurials to be cumulative in a more extended sense than is generally considered, and that they produce ill effects on the constitutions of delicate children long after their specific or immediate action has passed away. In a former part of the present work I have considered more at large the grounds upon which I believe mercury to be altogether contra-indicated in the strumous constitutions. When an aperient is required for a young infant, by far the best is one composed of rhubarb and magnesia. There is generally a troublesome amount of acidity in the intestinal canal of delicate children, which is removed by the action of the alkali. When laxative medicine is required, it soothes the system as well as relieves the bowels; indeed no better, or more immediate anodyne, can be resorted to than an aperient of this kind. The tumid bellies of strumous chil-

dren, and scrofulous disease of the mesentery, have been justly attributed, in many cases, to a neglect of the acid contents of the small intestines; and a combination of an alkali with a mild aperient is considered one of the best preventives of these disorders.

It long continued a popular notion that scrofula sprang from grossness, or a "lensor" or "crassitude" of the fluids; and a mild diet, chiefly of vegetable and farinaceous substances was the fashion, to bring the fluids back to a proper state of attenuation. Then came the theory of its depending on a state of constitutional weakness, requiring tonics, stimulants, and a rich animal diet to remove the debility. At the present time there seems to be some danger from carrying this latter doctrine too far in the case of children; for though it is undoubtedly true that struma depends in great measure on debility, it must be remembered that a delicate person is often oppressed and injured, rather than supported, by a full, plethoric state of the system. A larger quantity of ill-assimilated material is sometimes introduced than the vital energies can dispose of with advantage to the constitution. The fact, that fulness is not incompatible with debility, must be remembered while we adopt the necessary measures to establish the strength. A strumous child should be accustomed to a good diet, with a slight excess of *lean* animal food lightly cooked; but care must be observed that more food be not given than can, with the assistance of good air and exercise, be converted to the purposes of nutrition and the other functions of the animal economy.

Salted meats are improper for delicate children. Discretion is necessary regarding the quantity of common salt, as children, if left to themselves, are very irregular in its use. Some children dislike it, and scarcely take any at all; while others seem to crave for it, and will, if permitted, use large

quantities. Both these extremes, particularly the latter, are extremely injurious, and should be prevented. So-called aids to digestion are so frequently used in the shape of digestive bread, ale for the dyspeptic, and other common articles, that it is almost a wonder some one has not taken advantage of the hint of Dr. John Davy, and prepared a medicated salt, to contain a small portion of iodine; or at least found out some salt in which it exists in nature, and which might be used without the removal of the iodine by the purification of the salt. Such a condiment would be far more beneficial than most of the combinations of food and physic which are paraded before the public.

Animal food ought, I consider, to be introduced earlier into the diet of strumous than of other children, unless circumstances should render it advisable that they be brought up, according to the recommendation of Heberden, on milk and farinaceous food for the first two years. In this case wholesome cow's milk should form the largest proportion of the diet in the latter part of the period.

With respect to stimulants, I consider that in the strumous diathesis a small quantity of wine or malt liquor may be allowed with the principal meal when the child is old enough to live entirely on ordinary food. Strumous children are not so readily excited as others by these kinds of stimuli, especially when taken with a hearty meal; so that to them they stand, when taken in strictly moderate quantity, almost entirely in the relation of tonics.

Education, in scrofulous children, must be considered as of secondary importance to health. They are often of precocious intellect, and require repression rather than stimulation. Care should be taken in choosing a school in a healthy locality. A dry and mild situation by the seaside is the most favourable. Anything like excessive application should be restrained as lowering the vital energies, and

increasing the tendency to disease. In the case of boys, a small private school is to be preferred to a large or public academy, as delicate strumous children are very liable to be injured in the boisterous games which are general, where large numbers of boys are congregated together.

External injuries, being the frequent cause of the development of scrofula, should receive immediate and careful attention when they happen to delicate children. Considering the weak limbs and feeble organization so often found in scrofulous children, it is wonderful that they do not meet with accidents still more frequently than they do. They actually seem less liable to dangers of this kind in early childhood than when they have reached maturer years. Phrenologists tell us that Caution is one of the cerebral organs which is largely developed in very early life. Other philosophers have considered the instincts of children and the lower animals as more direct emanations from the Deity than even reason itself. There is no doubt that the poet gave utterance to a profound physiological, as well as moral, truth, in the beautiful line—

“Heaven lies about us in our infancy.”

The clothing of strumous children should be carefully attended to. Their dress should be warm, but not so heavy as to interfere with their taking exercise. The neck and the extremities in particular, should be defended from cold. Much care should be taken to adapt the dress to the season of the year, spring and early winter calling for most attention on this score. The clothing at night should be adapted to preserve the warmth of the body without causing perspiration, or producing fatigue, by its weight. Young children should wear a flannel wrapper by night, as they often suffer from cold through lying uncovered. Getting the clothes wet, or wet feet, are very dangerous to delicate chil-

dren ; and it unfortunately happens that scrofulous youth are generally of lively and vivacious disposition, and more careless about themselves than children of other temperaments.

I have already referred, in terms of censure, to the idea entertained by the common people that smallpox clears the system of scrofula ; and have strongly condemned the cruel practice of allowing scrofulous children to wait the attack of the disease unprotected by vaccination. It will be wise to avoid the contagion of measles, scarlatina, and hooping-cough, as much as possible, so that strumous children may not pass through these disorders till they have acquired strength.

In passing through the contagious disorders of childhood, especially the exanthemata, scrofulous children require the utmost care. The convalescence from these affections is frequently accompanied by the appearance of scrofulous tumours in different parts of the body, which may generally be removed by prompt measures.

Medical statistics make it appear that from four to six years of age is the period most rife with danger to children of strumous temperament. Increased attention should therefore be given by parents at this epoch. Precautionary measures should, however, be continued long after this time, where the diathesis is strongly marked ; and, indeed, the watchfulness exercised by parents ought only to merge into the care taken by the individual affected, on coming to years of self-discretion.

CHAPTER IX.

THE ERADICATION OF THE SCROFULOUS DIATHESIS.

HAVING in the preceding chapter laid down the general plan proper to be adopted in rearing strumous children, so as to render them as robust as possible, I come to the means most likely to subdue or eradicate the scrofulous diathesis in cases of more advanced age, in which it has been developed to such a degree as to render an outbreak of scrofulous disease probable. First, then, as to the question which may naturally arise : is it at all possible to eradicate the scrofulous constitution when it has once unequivocally existed ? I believe this may be answered in the affirmative in many, and indeed in the majority of cases, if an anti-scrofulous regimen be commenced early in life, and continued perseveringly. I have seen numerous instances of children suffering extensively, and for a considerable period, from scrofulous enlargements and ulceration ; from which they have recovered, and remained throughout life free from all further manifestation of scrofula, gradually losing all the prominent traits of the diathesis. In other cases, where there is no actual outbreak of the disease, but where the diathesis has been strongly marked, it often happens that a favourable change in external circumstances, or the development of the inherent energies of the constitution, has gradually obliterated all signs of a tendency to scrofula.

As age advances, there is a natural tendency in the constitution to throw off the traces of scrofulous disease, and to eradicate the signs of the strumous diathesis. It has been already remarked on, that children and young persons are excessively liable to scrofula, while it rarely, if ever, attacks the aged. If the strumous constitution does remain till the latter part of life, it reveals itself in other affections than those of a scrofulous nature (such as gout, for instance). It would appear that the farther we depart from youth, the less active and less susceptible of disease does the lymphatic glandular system become. Again, I have stated that the occurrence of atavism as regards this disease affords a practical argument in favour of the entire obliteration of the strumous constitution, not only in individuals, but in whole families. The tendency which exists in strumous families to produce generations, or individuals, in which the strumous signs are absent, is sometimes (where favourable circumstances concur) sufficient alone to extricate a family from the taint of struma, as the healthy offspring may produce a second and third generation equally exempt from the signs of scrofula, and thus ultimately remove the danger altogether. Still there remains, in my opinion, a decided disposition, though one offspring or generation of a strumous race may be, to all appearances, sound, to the reproduction of the disorder in their immediate descendants. I believe, however, that this predisposition is often modified or controlled by external circumstances. Thus, that where the marriages, occupations, and habits of those enjoying the exemptions are favourable to sound health, and where the same blessings are continued to their offspring, the atavistic tendency is often weakened or entirely obliterated. On the other hand, where circumstances are unfavourable to good health, this law of return to an original faulty constitution is strengthened with every succeeding

generation, and rendered at length almost a matter of certainty. Hence it follows, that those members of strumous families who possess an immunity from the disorder, should be more than ordinarily careful to fortify themselves and their children against an enemy which, though absent and unseen, threatens to reappear unless warily and judiciously opposed.

It is a popular belief that at certain ages the constitution makes a stand against scrofulous disease and the scrofulous diathesis, and is often successful in its attempt to throw them off. These periods are held to be the seventh, fourteenth, and twenty-first years. I consider this opinion not incompatible either with science or common observation. The explanation of the increased health and strength which is frequently obtained about the seventh year is somewhat difficult. There is the theory of the ancients now tending towards a revival, in which it was held that at certain periods there was a natural devolution of mental and corporeal strength. Or it may be that children who pass with safety through the various and troublesome ailments incident to early childhood are necessarily possessed of considerable stamina, and appear, when compared with the numbers of weak children who are destroyed by these trials, to acquire energy of constitution at this age. At fourteen we have the very important stimulus of puberty springing up within the constitution, which has a tonic effect on every faculty and function of the body. At the age of twenty-one the energies which have heretofore been employed in growth begin to be expended in consolidating the organization. It is true that both before and after this latter age there is a greater tendency to pulmonary tubercle than at other times; but this is perhaps dependent on the increased development of the lungs going on during the early years of maturity, and in consequence of which, if any tubercular or strumous

manifestations exist, they seem to be attracted to the pulmonary organs in weak or predisposed subjects. As regards scrofula however, or external strumous disease, the times mentioned are certainly favourable for its obliteration, though occasionally, where the constitutional resistance is weak, the struggle terminates in favour of the disease, which either by itself, or in combination with pulmonary consumption, proves fatal at one of the critical eras. It is at these periods especially that the most careful attempts should be made to control the scrofulous diathesis, and to cure scrofula when the actual disease exists. At the times named, and particularly at puberty, a natural attempt at cure is often made; and much more may be done by proper remedial measures at such a time, than when the constitution is (so to speak) quiescent, or without the excitement of any novel stimulus.

In the more immediate consideration of the means by which the diathesis may be removed, or at all events prevented from merging into actual scrofulous disease, the most important topics are air, food, exercise, temperature, and medical regimen.

As regards air, those of the scrofulous diathesis who have the power of exercising a choice should avoid, if possible, an entire residence in large cities. In winter a town residence may in some cases be beneficial; but in the summer it can scarcely fail to prove injurious. A dry locality, situated near the seashore on our southern or western coasts, is the most favourable that can be selected. It may be thought superfluous to prescribe a plan quite unattainable by the great majority; but there are large numbers of the children of the upper and middle classes who are exposed to the risk of scrofula, by being sent for the purposes of education to unhealthy situations, or to large towns and crowded cities, when by

being educated in a healthy locality in the country, their constitutions might be rendered robust. It was pungently remarked by Beddoes, that boarding-schools were the hot-houses of scrofula; at all events this may be truly said of most town and city boarding-schools. For the multitude whose lot is inevitably cast in towns, though they stand at a manifest disadvantage, something beneficial may yet be enjoined. They should be, as much as possible, in the open air—*house air* is the great bane to the health of townspeople. I have had frequent opportunities of seeing the health of strumous children rapidly restored when living in situations apparently the most unfavourable, by the use of simple medicines, a good diet, and by their being made to spend the greater part of their time out of doors. The dwelling-houses of the poor, and even of the middle classes, in our towns and cities, are, generally speaking, badly lit by the sun and ill-ventilated; but out of doors, in the most densely-populated districts, the children of the poorest may obtain the beneficial stimuli of the sun, light, and air, the latter freely circulating even if somewhat impure; and these are all and each of considerable influence in overcoming the tendency to scrofula.

Where scrofulous persons migrate from one part of the country to another, they should, if possible, be careful to remove to a warmer and drier situation than that to which they have been accustomed. Thus an individual of the strumous diathesis moving from the southern to the northern parts of England is in a much worse position than if the change is from the north to the south.

With respect to food, proper dietary rules might naturally be deduced from what has been said concerning the active causes of scrofula. Those of the strumous diathesis are less susceptible of stimulants than those more

healthily constituted; they require, in fact, a larger amount of stimulus to carry them through the daily offices of life. The most wholesome excitation of the system which can be occasioned by aliments is that which follows from a liberal allowance of animal food. As already said, the families of butchers and fish-dealers are supposed to enjoy an immunity from tuberculous disorders. Nothing can be more anti-strumous than the contour of a person living habitually on a plain but highly animalised diet. A good meal of animal food should be taken at least once a day; but, when animal food is used twice a day, it should be taken at breakfast as the extra time rather than at a later meal. Though a generous diet is necessary, no constitutions suffer more than those of the strumous diathesis from gorging the stomach. A moderate allowance of malt liquor, or wine, is beneficial in the strumous constitution, and has been recommended by nearly all the best writers on scrofula. It is idle to talk about stimuli being unnatural; air, light, and food, the operations of the mind, and objects of the senses, and the various excitements incident to civilization, are all stimuli in the strictest meaning of the term. As those of the scrofulous diathesis are not so susceptible to common excitement as those of other habits, a somewhat larger amount than usual is necessary to keep them on a par with robust constitutions, for whom the same quantity of stimulus might perhaps be termed unnecessary. I have, however, stated it to be my opinion, that fresh vegetable food should be combined with an animalised diet. Probably the popular idea of sweetening and purifying the blood by vegetable substances, represents in vulgar phraseology that which will remain as the truth, though under more precise terms, when the science of the whole matter has been clearly made out.

In the choice of a profession or employment, it behoves those of the strumous constitution to have regard to their state of health, and the morbid affections to which they are predisposed. All sedentary and in-door avocations should be shunned, if possible, by those of scrofulous habit. Occupations in the country should be preferred to those of towns, and the seaside as more favourable than most inland places. The average duration of life is much superior in rural districts to towns and cities, and there can be little doubt that to the strumous diathesis the hygienic advantages of a country life, and its influence on longevity, are of paramount importance. Independently of locality, certain employments are unfavourable to the continuance of health, or require a larger amount of physical exertion than ordinary; these should of course be avoided if possible by strumous persons.

Exercise is of great value in the removal of strumous tendencies. The cases are extremely rare in which scrofulous disease exists conjointly with a strongly developed muscular system. Certainly a flaccid state of the muscles is, in many cases, a part, rather than a cause, of the strumous diathesis; but the voluntary muscles may be developed arbitrarily to a very considerable extent in delicate constitutions by appropriate exercises, and there can be little question that this increase in muscular strength will considerably diminish the liability to scrofula. Too much importance can scarcely be attributed to regular and judicious exercise. It is a point, unfortunately, of difficult enforcement among the strumous, as they are constitutionally languid and indolent as regards the locomotive system, and strongly inclined to take more rest and sleep, and make less active exertion, than is proper for their state of health.

Bathing, especially in the sea, is of great advantage to strumous constitutions during the summer months. Cold

bathing is most beneficial where it can be borne ; but, when there is any idiosyncrasy or other circumstance which renders the cold bath unadvisable, tepid bathing should be employed. As a prophylactic, and as diminishing the signs of the strumous diathesis, bathing is of great value. Those accustomed to cold bathing rarely suffer from catarrh, neither are they affected by atmospheric variations to the same extent as other persons ; and we know the importance of susceptibility to cold as an exciting cause of scrofula.

Excesses of every kind are in the utmost degree injurious to those of the scrofulous habit. Any abuse of the system, or disregard of the ordinary rules for the preservation of health, incurs the danger of an irruption of scrofula. But even if scrofula, or consumption, should not follow as the effects of heedlessness or vicious habits, these are sure in after life to exhibit their effects painfully in the constitution. It is well known that those of decidedly strumous temperament are liable in a greater degree than the generality to an immense number of diseases. A most interesting chapter might be written on the connexion between the strumous constitution or scrofula, and other maladies. Such facts make it imperative on strumous persons who would desire to reach old age, that they should be much more than ordinarily careful of themselves in early life ; careful, indeed, beyond the mere prevention of scrofulous disease, as if they escape this there are other diseases of after life connected with the scrofulous constitution which ought to be held in dread. All the great organs, the brain, heart, lungs, and the urinary system, have a tendency to give way earlier in the scrofulous than in sound constitutions.

As regards an anti-strumous medical regimen for those in whom the diathesis only is developed, a careful attention to the stomach and organs of digestion is a great point.

Stomachic derangements should always receive prompt attention in strumous constitutions, and be treated generally by tonic remedies and a liberal diet. Dyspepsia in the strumous is often produced by too long fasting between the daily meals. As already said, a good allowance of nutritious food, and taken at least three or four times a day, is necessary to keep young persons of the strumous constitution in health, and assist them in throwing off their infirmity.

Among the popular means of scrofulous prophylaxis, great virtue is attributed to onions, which are considered as almost sufficient to counterbalance the effects of a scanty and innutritious diet. Whether they have any further effect than as simple stimulants may be questioned; but it is certain that they are very commonly used to ward off the disease with a belief in their possessing a specific anti-strumous power.

The regular action of the bowels is of great importance to persons of delicate or strumous habit. It generally happens that the bowels are sluggish and liable to constipation in such persons. It is too frequently the case that the bowels are neglected, and constipation suffered to exist some time, and then active aperients are taken, after which the bowels return to the torpid state, and the same course is repeated again and again till the bowels are permanently enfeebled. When aperient medicines are given, those which act as drastics should be avoided. The combination of a tonic with an aperient is the most safe and efficient, where medicines are often required to move the bowels. Where gentian or quinine is given with infusion of senna, it is astonishing how small a quantity of the purgative will act decidedly. Still better than giving medicines at all, is the plan of *educating* the bowels so that they shall naturally require a daily evacuation. Nothing is more

certain than that, although the bowels are removed in great measure from the influence of the will, they can be powerfully acted on by habit. If any one, whether child or adult, solicit their evacuation every day at a certain hour, the influence of the habit will be soon felt, and after some time the bowels will demand attention regularly at the time they have been accustomed to act. By the introduction of a habit of this kind, many cases of intestinal torpor, or irregularity, which defy the use of aperients, may be brought into a proper state. It is well known that in sluggish action of the bowels the more purgatives are given the more they are required, and at length they become the source of worse disorder than that for which they were originally prescribed.

Mercurial medicines ought to be as carefully avoided in the strumous diathesis as in scrofula itself, and for the same reasons. I have little doubt but that the diathesis is often ineradicably fixed by a free use of this class of medicines. Bloodletting and every other kind of evacuant should be resorted to with great caution when other diseases for which they may seem to be required occur in persons of strumous habit.

The treatment of disease of any kind occurring in those of the scrofulous diathesis should bear a special reference to the state of the constitution. It has been remarked already, in the course of the present work, that the strumous habit materially alters the symptoms and changes which accompany the progress of general disease. Inflammatory affections lose their acuteness, and spread over a greater length of time. Fevers have the stage of reaction imperfectly developed, and are also of longer duration than similar diseases in the sanguine constitution. Almost every form of disease tends to assume the chronic type. In the management of the diseases of strumous habits

much discrimination is required. Great care must be taken in distinguishing between pain and acute inflammation. Patients of mixed nervous and lymphatic temperament frequently suffer intense pain, but are rarely the subjects of active inflammation. What is understood by the antiphlogistic regimen, venesection, local bleeding, purgatives, low diet, and other means of depletion, are invariably ill borne by those in whom the scrofulous diathesis is strongly marked. Depletion, above all things, tends to render the diathesis permanent. When suffering from the most active forms of disease, tonics and moderate stimulants may be early resorted to in this constitution, and in cases which in other temperaments require a tonic regimen it may here be commenced with more decision, and pushed to a greater extent. In the convalescence from debilitating maladies, those constitutions threatened with struma, or which have previously been afflicted with the disease, require the most careful attention and support, as it is at such times that they are in the most imminent danger of the appearance of scrofulous tumours. It is to be feared that, from being treated under such circumstances on the same plan as other cases, many strumous habits are afflicted with scrofula for some time after the occurrence of any serious disease. Even under the most cautious management scrofulous abscesses of the cellular tissue often occur, and greatly retard the progress towards recovery. In the convalescence of a patient of strumous habit, who has passed through a grave disease, much rest of the muscular and nervous systems is required. Such persons, especially where the nervous system has been much affected, require to sleep almost as much as infants until the strength is recruited. Friction of the body is beneficial; and, when there is strength enough to admit of exercise, those kinds should be chosen at first which are attended with least muscular action. Tonics,

combined with laxatives, should be used so as to keep the stomach and the intestinal canal in as healthy a state as possible. A course of iron is beneficial when the strength is much reduced, and the remedy can be borne. The sesqui-oxide with infusion of the hop is an admirable form for administering it. Iodine should be used as soon as possible, if there are any positive signs of strumous disease; but, however this may be, the after treatment of severe diseases in scrofulous habits had better not be closed without a gentle course of this medicine. When given under these circumstances, the efficacy of the iodine is apparently increased by combining it with the decoction of sarsaparilla.

When those of the strumous diathesis are in their ordinary state of health, it is advisable that at every spring and fall of the year they should be the subjects of medical superintendence. The internal use of iodine at these seasons will often ward off the appearance of scrofula for many years, till the constitution becomes strong enough to throw off the germs of the disease altogether. Where the tendency to the malady is hereditary, and the predisposition strong, I would recommend that minute quantities of iodine should be taken constantly, either in the form of a slightly ioduretted salt, as advised by Davy, or in solution as a medicine.

Immediately on the appearance of enlargement of the glands, or other tissues, the internal and external use of iodine should be resorted to. I have known cases in which the glands have been allowed to acquire an immense size, so that, if they had suppurated, they must have greatly wasted the strength of the system, but by the constant use of iodine they have been kept for years without the formation of matter. It is probable that if all those who possess the strumous diathesis were aware

of it, and were in the possession of the means which may be used for averting their threatened malady, few cases are so intensely predisposed as not to admit of the diathesis being controlled, and ultimately diminished or eradicated.

CHAPTER X.

ON THE TREATMENT AND REMOVAL OF SCROFULOUS SCARS
AND DEFORMITIES.

SCROFULOUS cicatrices are of considerable importance, inasmuch as they usually produce personal disfigurement, and they frequently remain irritable and tender for many years, offering favourable sites for the reappearance of scrofula after it has been apparently cured. On these accounts they deserve to be considered as a part of the disease itself. They form most frequently about the head and neck, and from various circumstances it is here that they are commonly deepest and most marked. They have a peculiar indented and ridgy character, the prominences being rough and corrugated, and the indentations covered with a very smooth cuticle. The soft shining appearance of parts of scrofulous cicatrices is very characteristic. This peculiarity appears to depend on the scrofulous constitution, as it often happens that in strumous persons, a simple incised or other wound will cicatrise rapidly, but when healed will possess the characters of a scrofulous scar.

The colour of strumous cicatrisations, long after their formation, remains different from the surrounding skin. They are almost always of a deeper tint; in cold weather they become of a dark purple; and in very warm weather, or after muscular exertion, they are of a bright red. Some-

times there are attached to the scars little teats or pedicels of fleshy matter, or bands of skin extend from one part to another. Occasionally the skin is disfigured for some distance from the scar, owing to the great puckering which takes place in the scar itself. Where there has been a sinus this is often so marked as to appear as if drawn inward in the shape of the navel.

The peculiarities of scrofulous sores depend on the character of the sores themselves, and on the manner in which their cicatrisation takes place. In a scrofulous sore the ulcerated part is seldom level with the skin, the granulations being irregularly above and below the surface, and when a sore is of long standing, the edges are often thickened and indurated. The raised or depressed condition does not prevent the healing process; and it is the extension of the cuticle over the deficient or excessive granulations which in great measure produces the irregular appearance of the scars; that which originally formed the thickened edges of the sores also remains long after healing has taken place. The deformity is considerably increased in the face and neck, owing to the presence of the thin subcutaneous muscle (*platysma myoides*). The muscular fibres become implicated, and, instead of moving freely, the cicatrices act like so many fixed points of attachment, and every motion of the face or head increases the deformity. The same happens with regard to the *orbicularis palpebrarum* when the neighbourhood of the eye is affected. In this manner the delicate movements which should play about the face are interfered with, and the power of physiognomical expression is almost entirely lost.

The sensibility of scrofulous cicatrices is considerably greater than that of the surrounding skin. This is the case at all times, but under certain circumstances their usual irritability is further increased. Severe exercise, so as

to bring on profuse perspiration, will often render them exquisitely tender for some hours, or even days. A catarrh, or exposure to wet, or a fit of indigestion, aggravates them considerably. For a long time after their formation, their irritability is increased during the seasons at which scrofulous disease is most troublesome. Sometimes they are very troublesome in the winter, but a changeable temperature generally affects them more than a severe one. At all seasons those with scrofulous scars suffer inconvenience at changes of the weather. Many persons thus affected can never sleep soundly in wet weather. Such individuals are almost as susceptible of atmospheric changes as the barometer.

Few but those who have felt it can form a true idea of the teasing dermalgia, and the physical and mental discomfort to which the scrofulous are thus subject. In the same manner the effects of small-pox, where the skin is deeply pitted, are felt during the whole lifetime. Any irritation of the skin exerts a great influence on the brain and nervous system. A celebrated writer suggests the probability that the great moralist, Johnson, who suffered severely from scrofula, and whose face and body were seamed with scrofulous cicatrisation, owed much of his moroseness and irritability of temper to his scarred skin, which, like the poisoned mantle given by Nessus to Dejanira, was continually tormenting him.

The organisation of the skin of scrofulous scars is very different from that of ordinary cuticle. It is much thinner and more transparent; after it has become as white as the natural skin, a blush, or any excitement, reddens it much more than the healthy surface. The hair-bulbs are destroyed, so that hair never grows from the site of a scrofulous sore. From the greater delicacy of the cicatrices there is always considerable danger of their being ab-

sorbed, and the sore being reproduced, should the constitution ever afterwards fall into a cachectic or scrofulous condition. At the scrofulous seasons, after any exposure to hardship, insufficient nutrition, or debilitating disease, the scars often weep out a thin serous discharge, and if not carefully attended to are prone to pass back again into regular sores. In many cases, after the scars have remained perfect for years, an accidental deterioration of the general health will cause them to secrete matter. In others a scud forms over each scar every spring and autumn, the cicatrices remaining firm at all other times. There is a curious circumstance connected with discharges from old scrofulous scars; it often happens that the skin does not actually give way, but seems in some respects assimilated to mucous membrane, and, like it, has the power of secreting puriform matter without any abrasion or ulceration on its surface.

The formation of a healthy and well-formed cicatrix when scrofulous sores are in process of healing is of much importance, and may generally be ensured by care and attention. In the first place, much of the irregular aspect of scrofulous sores may be prevented by attending to the suppurative stage, and by evacuating the enlarged glands and swellings in the manner laid down at page 107. In opening abscesses about the face and neck, it is of some importance to pay attention to the natural curves and lines, so as to let the incisions be made either in the shape of straight or curved lines, according as the situation may be. Much can often be gained in personal appearance by the observance of this particular; for instance, a cicatrix over the eyebrow, parallel with the superciliary ridge, is much less unsightly than one of equal size formed at right angles with the eyebrow. As regards the management of the ulcers themselves, they should

neither be allowed to skin over while excavated, or when raised in coarse granulations. Surgeons are generally but too anxious to get scrofulous sores to heal at any time or any cost, and think little of the form of healing.

It will, however, be found that a smooth well-formed cicatrix is far more likely to prove permanent than an awkward and ill-formed one. Little time either is lost when a sore is healing, by controlling it so as to make it heal regularly. When the granulations are below the surface an attempt should be made to raise them to the level of the skin, by gently-stimulant dressings, or the superabundant growth should be checked in the manner recommended in the chapter on local treatment. By careful management of this kind much of the unsightly scarring may be avoided.

When scrofulous scars have been allowed to form at random, and are consequently puckered and uneven, proper treatment will often lessen their deformity. An ointment composed of iodine, iodide of potassium, and simple cerate, or the iodine ointment of the pharmacopœia, diluted and applied in the same manner as in enlarged glands, will in great measure remove the induration, and at the same time get rid of the heightened colour of the cicatrices. That this should be done is of importance, because, as already stated, a hardened and enlarged scar is somewhat similar to a scrofulous swelling, and may at any time pass on to suppuration. Care should be taken to guard cicatrices, or parts which have been affected with scrofula, from cold, as exposure renders them painful, and tends to make them ulcerate afresh. Flannel should always be worn in winter on a limb that has been scrofulous.

In those cases where the deformity of the scars is increased by bands of skin, these bands should be carefully

divided by a knife at each extremity. The slight wounds thus made very soon heal, care being of course taken that the scar and the neighbouring parts have consolidated before the operation is performed. The pedicels so often seen on the surface of scrofulous scars can be readily removed by a fine ligature. In some cases where the puckering is excessive, and cannot be remedied by other means, the removal of the diseased skin by an elliptical incision may be resorted to; the closing of the artificial wound thus made leaves but a slight mark when compared with the original scar, and the operation is so slight that if the cure has been completed some considerable time previously, there is little danger of reproducing the scrofulous sore.

Enlargement of the lip is well known to be a common sign of the strumous diathesis. It frequently happens that beside the general thickening which I have referred to, as caused by an excessive development of the cellular tissue natural to the part, there is a hard swelling in the centre of the upper lip, which at intervals (either from cold, eating stimulating substances, or other causes,) becomes hot and painful, besides producing considerable deformity of the face. In cases of this kind the tumidity can be generally removed by applying the tincture of iodine on the inner surface of the lip, or by the continued use of a lip-salve made with the iodide of potassium and any simple unguent. This latter application is also serviceable in the chapped lips, which sometimes occur in persons of the strumous habit.

Scrofulous subjects are frequently troubled with a disagreeable discharge from the nose of a muco-purulent character, accompanied by dilatation of the *alæ nasi*. The discharge appears to be simply a morbid secretion from the nasal mucous membrane without any ulcera-

tion. During the night this matter generally accumulates so as almost to block up the nostrils in the morning. Like the matter from the ear in otorrhœa, the discharge from the nose is extremely fetid, probably on account of the heat of the parts, and from remaining some time on the membrane which produces it. This very disagreeable affection can generally be cured by the daily use of astringent injections, which must be applied so as to reach the back of the throat, as the diseased state of the mucous membrane often extends to this situation.

The treatment of scrofulous ophthalmia has been already adverted to. Scrofulous sores in the neighbourhood of the eye require great care and skill in their management during the healing process, so as to prevent the contraction of the skin, and consequent eversion of the eyelids. Few accidents distort the face more than this, as the mucous surface of the everted eyelid becomes irritable from exposure to the air, and of a deep red colour. When such a state of things exists little can be done by way of cure; great attention should, therefore, be given to its prevention. The same may be said of the loss of the nose from scrofulous disease.

Ankylosis has been referred to as a very common termination of scrofulous disease of the joints. The ankylosis may be either complete or incomplete: the one involving the soft parts, the other the osseous structures. When contraction of a limb takes place, it is of importance that the contraction shall be as favourable as possible to the subsequent use of the limb. During the progress of serious disease, either of a joint or of any other part of a limb, it is natural to rest the diseased extremity, which can be best done by keeping it in a semi-flexed state; this, together with the contraction of the flexor muscles which occurs spontaneously under such circumstances, renders flexion of the

limb an almost constant accompaniment of ankylosis. In the case of the arm the semi-flexed condition is also undoubtedly most favourable to the usefulness of the fixed joint. Many persons with contraction of the elbow-joint of this kind, even when there has been disease of the bones, and the ankylosis is complete, are able to use the arm so well from its favourable position, and an increase in the mobility of the wrist and the shoulder-joint, that the deformity is scarcely perceptible.

When there is no disease of the solid tissues of the joints, impending ankylosis may in many cases be prevented by frictions, and by keeping the joint in a moveable state by moderate exercise. When the contraction is merely muscular, it frequently admits of cure by the same means, in conjunction with proper mechanical appliances. In some cases it may be right when the local disease has been long cured, and all traces of scrofula removed from the system, to divide the tendons of the contracted muscles. Surgical measures are, however, little applicable to ankylosis occurring in scrofulous limbs, on account of the tendency of any fresh wound of importance to reproduce the original disease.

CHAPTER XI.

ON THE MARRIAGES OF SCROFULOUS PERSONS.

THE question of the propriety, or impropriety, of forming matrimonial connexions is often a matter of deep anxiety and deliberation among the members of scrofulous families. Their own misgivings as to the unhappiness that may accrue to themselves and others from such connexions, added to the mortifications that sometimes follow overtures on the subject when made by parties known to be of strumous descent, are prolific sources of painful hesitation and disappointment. For those who possess the characteristic signs of the predisposition in a marked degree, whether male or female, it is incumbent, at the least, that they take the most heedful care in the selection, or acceptance, of a matrimonial alliance. Such persons should be early taught the value of a healthy marriage, and the absolute necessity of subduing or regulating the affections to the obtainment of this object, if they would wish to be the transmitters to posterity of healthy offspring. The bare idea of danger on this head would suffice to deter some parties from the marriage state, but with the great majority of those of the strumous diathesis a celibate life will never be acquiesced in. Indeed, such persons are most frequently fitted in an eminent degree, both by habits and disposition, for the enjoyment of domestic happiness.

There is a considerable class who have, at an early age, suffered extensively from scrofulous ulceration, but who

have afterwards outgrown the disease (to use a common phrase), and remained for years in an average state of good health. In such cases the degree of immunity from the further ravages of the disease can only be estimated by considering their present condition, the length of time they have enjoyed exemption, and the mode in which the disorder was first induced. There are many children in whom scrofula is developed from their being placed in unfortunate circumstances as regards the two grand requirements for health—good air, and good food,—who, on their removal from them, rapidly shake off the traces of disease. Such cases may be termed the accidental development of scrofula, as they often have throughout life but a very small leaven of the strumous diathesis. These cases, when they reach adult age, are scarcely in so bad a position as those in whom the constitutional tendency is strongly exhibited, though without any actual disease. In another class scrofula appears in childhood or youth, with a marked concurrence of the strumous diathesis; but, as maturity advances, the constitution develops energies sufficient to eradicate the disease. When a cure is complete under these circumstances, it is in itself a proof of considerable strength of constitution; still it behoves such persons to be more than ordinarily careful as regards the point we are considering, although the signs of the diathesis may almost disappear. Such cases, as long as *disease* is absent, are probably on a par with those in whom the diathesis is ordinarily developed, without any overt manifestation of scrofula. To those who come under these different descriptions of the strumous constitution, all the rules which can be laid down for the formation of healthy matrimonial alliances apply in their fullest sense and signification.

To those in whom not merely the signs and latent seeds of scrofula, but some actual and decided forms of the disease

are developed, and continue in spite of all that medical art can achieve, celibacy must be strictly enjoined by the conscientious medical adviser, however rigorous and unwelcome the decree may seem. Abstinence from matrimony is a debt of duty owed to the wellbeing of society, often rendered cheerfully by such persons, and constituting one of the truest and noblest species of heroism. This resistance to the powerful current of the affections and passions springing most deeply from human nature is, with respect to the individual so acting, a high example of wisdom, and, viewed in its relation to the whole human family, it rises to the level of philanthropy. Besides the questionable morality of the matter to those of a different mould of thought, the probabilities of an offence of this kind entailing its own punishment are so great, that it is to be hoped few capable of rightly appreciating the subject could be found desirous of increasing and multiplying their own infirmities in a new generation. It is a melancholy fact, but not the less true, that the rule of celibacy can rarely, if ever, be abrogated in these cases, save at the risk of producing offspring destined to an early death, or a life of feebleness and suffering.

From the experience afforded by the study of natural history in general, and of the human race in particular, the fact comes broadly and unequivocally before us, that, with certain exceptions, the offspring of marriages between individuals related by blood are inferior in physical organization to their parents; and that, if these kinds of unions be continued for several generations, the constitutional failings and tendencies to disease possessed by the original parents, reappear in each successive generation with multiplied intensity till the race becomes extinct, from the combined effects of early mortality, mental imbecility, and sterility.

Some of the royal families of Europe, and certain classes

of the aristocracy, and even of the commonalty, have often been referred to, as exemplifying most powerfully the ill effects of in-and-in marriages in producing mania, dementia, and other hereditary diseases.

These are the ultimate results of breeding in-and-in, as it is termed, even when the original parents are of sound organization; and it is clearly evident that such must be the case to a still more lamentable degree when the first stock possesses any marked constitutional infirmity.

Objections have been made to this view, and small communities, and isolated herds of animals, have been pointed out in which blood relations have been intermixed for many generations, coincident with the preservation of mental and physical health and symmetry. It appears that both in man and animals, where the original stock is very pure, and propagation takes place only among the healthy, the vigour of the races may be maintained for a long time. I believe it also to be true, that in a marriage between two relatives of different constitution, temperament, and moral disposition, much less injury ensues than when the parties are alike in these particulars.

The above, with the concluding exception, is true to the fullest extent of intermarriages between members of the same family; but it is also true in a less though still appreciable degree of marriages contracted between those who resemble each other in feature, physical conformation of the body, and habits of life. Individuals of the same temperament are often so much alike as to pass for blood relations; and here, though there may exist no consanguinity, the dangers of marriage are of the same kind, though diminished in degree, as in in-and-in connexions, the intensity of the evil being in proportion to the amount of constitutional resemblance existing between the contracting parties.

On the other hand, the propagation of the species, whether

human or the lower animals, may become the means of physical advancement by a judicious crossing or contrast of constitutions through the means of unions formed between individuals of different families, localities, and temperaments.

Many instances could be adduced in which the infusion of plebeian blood has given a new and vigorous impetus to an ancient stock, that had wellnigh become extinct from the causes of deterioration laid down above.

Breeders of cattle have long been aware of these general laws, and, by attending to the precautions suggested by them, have made immense improvements in the different races of domestic animals.

By acting on similar principles, imperfectly as they are at present developed, there can be no doubt that those who are of sound healthy stock might in great measure prevent the physical degeneration of their descendants; and it is no Utopian dream to say that even delicate families might in two or three generations acquire a sound stamina, instead of reaching that doom of extinction which is almost inevitable unless such precautions be taken, either instinctively or from principle. It is delightful to contemplate that this progressive invigoration might be achieved, not by the deterioration of others—or by strengthening the strong at the expense of the weak—but in such a manner as to raise the general standard of health.

No class can exist to whom these truths are of greater importance than those of strumous descent, or in whom the diathesis is acquired in their own persons. From them the moral, civil, and, I will add, natural laws, which forbid intermarriages between parties belonging to the same family, imperatively demand the strictest obedience. The following will, I believe, be found useful precautionary rules for the guidance of those of the strumous diathesis, whose

constitutional taint may yet be insufficient to consign them to celibacy :—

I. To avoid marrying a blood relation, however far removed. All that has been, or remains to be said, bears so directly on this point, that I shall not, under the present head, enlarge specially upon the subject.

II. To avoid marrying with those who, though not related by blood, may bear such resemblance in temperament, mode of life, descent, and bodily organization, as to place them in reality much in the same position as though they were sprung from the same ancestry. Fortunately for us there exists a natural law tending to guide us aright, in that wise ordering of the affections which leads individuals to prefer within certain limits, as objects of esteem and desire, those who possess dissimilar constitutions and dispositions to themselves. In marriages of affection we more often see

“ The gentle joinéd with the rude,”

than unions formed between persons of similar mental and physical organization. There are, it is true, some who possess a kind of egotism, or vanity, which leads to the preference of those persons as husbands or wives in whom their own particular qualities are reflected in a somewhat more gentle or vigorous mould, according as the sex may be; but such affections are seldom of an enduring kind, and contain within themselves a germ of severe punishment, which is sure to develop itself in subsequent generations. But recently I witnessed a most painfully striking case in point; there were four children, in all of whom the scrofulous diathesis was developed to the full; all were suffering from scrofulous ophthalmia, and each had clusters of enlarged glands in the neck. Their intellectual development was of a low order,

the crania so narrow and contracted as to be but little removed from idiotcy. The parents of these children were tolerably healthy, but they were most strikingly alike in general feature; the colour of the eyes, hair, and skin were the same, and they were also alike in mind, disposition, and temperament. Both were of the same rank in life, in the enjoyment of competence, and both had always lived in an agricultural district. There was no blood relationship between them, but no one could have seen them without thinking that such must have been the case. It is painful to reflect on the condition of the offspring of these children, should they in their turn ever become parents. I have seen many other equally striking examples, in which the issue of marriages between parties bearing a strong resemblance to each other were quite as much deteriorated in stamina, and predisposed to disease, as the offspring of unions between parties nearly related. It is scarcely necessary to add that it is physical, constitutional resemblance, the evils of which are here insisted on; not the mere likeness in physiognomical expression, so frequently observed among persons much accustomed to the society of each other.

III. Not to marry any party possessing the strumous diathesis, or belonging to a family in which there are decided signs of the ravages of struma. A strumous individual intermarrying with another similarly circumstanced, offers the most striking example which can possibly be afforded of the violation of the laws of healthy propagation. The faults in the constitution of each parent are almost sure to appear with redoubled intensity in the children of such a union; and in cases such as these, mental and physical degeneration will generally be found to follow in company. On this head, therefore, the greatest circumspection must be used. Not only is a strumous constitution bound not to unite itself with another constitution

of the same type, but a strumous individual should beware of marrying even a healthy person who may belong to a strumous family; for it is one of the mysterious laws of the animal economy, that a parent may be strumous who shall have children of the purest class, and yet there shall be a tendency to the revival of the diseased forms in the third generation. And how much more must this tendency be increased when one in whom the springs of disease are sealed up for one generation, marries another in whom the morbid diathesis is active. Though a strumous individual should beware of this kind of masked diathesis, yet there are other temperaments to whom a union with such is in the highest degree desirable, as tending to supply some of the most noble elements of physical and intellectual beauty.

To sum up the whole matter: those who possess the signs of the strumous temperament, or have reason to suspect their strumous descent, should beyond all things avoid a matrimonial alliance with a blood relation, or with another party of strumous habit; and they should, with almost equal care, avoid a union with another of the same temperament as themselves, even if there be no signs of the strumous diathesis engrafted on the temperament which resembles their own. The union of opposite, or at all events of different temperaments, is of all means the most likely to remove the signs of struma in the offspring. The chances of this most desirable event are increased if there has been a diversity in the habits and mode of life of the contracting parties. Nature and experience both point out to the observant, that marriages of this kind, when there exist no wide and violent differences to shock other feelings than those of the affections, are happier in themselves, and in the progeny resulting therefrom, than egotistical unions between parties whose marked resemblance to each other make them in many respects almost like brothers and sisters.

The present chapter may need some excuse on the score of prolixity, but believing the principles it contains founded in truth, and to be beyond all other means efficacious in preventing or correcting the strumous diathesis in future generations, I have not hesitated to enlarge on and repeat those which seemed most important.

CHAPTER XII.

ON MEDICAL FAITH,—THE ROYAL TOUCH.

THE subject of the present chapter is a difficult one to treat. A writer on entering upon it has to encounter, on the one hand, the spirit of superstitious credulity, or it may be of philosophic belief, ready to denounce any sneer at "old experience," or any refusal to believe merely because the matter may be removed from the sphere of mathematical demonstration; on the other side, there is pure physical science, and the spirit of the nineteenth century, with all its vaunted enlightenment, waiting to crush any one sufficiently rash to give credence to the mysterious, or profess faith in things which in late times have appeared to lie within the realms of ignorance and superstition.

From the earliest ages both the learned and the vulgar have resorted to means, for the cure of disease, in which the remedial influence must have been conveyed to the body through the medium of the mind, instead of being derived from any direct physical action as in the case of ordinary medicines. Ample testimony is borne to this by the ancient and mediæval faith in amulets and phylacteries, the elixir vitæ and the abracadabra, planetary influences and astrological signs, charms and spells, "enchanted herbs," the relics of saints and martyrs, and a variety of other preter-

natural agencies, traces of many of which remain to the present day either within the arcana of science itself, or among the practices of empirics, and the credulity of the ignorant.

There has always been in the human mind a tendency to receive, to a certain degree, the marvellous; and this natural disposition, together with the tangible and oftentimes startling effects produced on the body through the influence of the mind, will probably never cease to preserve the existence of a certain amount of medical faith; by this faith is meant a belief in the curative efficacy of agents not adequate by their physical properties alone to produce the effects attributable to them. This mode of faith has sometimes addressed itself to one kind of objects and sometimes to others, its development being modified by many causes, such as changes in religious belief, and in the spirit of the time. Even the most enlightened and pure rationalists in the most material age, must believe in some things which are removed from the possibility of entire proof. In medicine, that faith which was formerly yielded to the priest-physicians, the astrologers, and the alchemists, is now bestowed on empirical nostrums, charlatans, and pretended systems of healing, it being very questionable whether the modern exercise of the faculty is not more degrading than that which prevailed in darker times; and it is to be lamented that it is not merely confined to the poor and ignorant. Modern orthodox medicine has received little aid and much injury from this principle, as the past and present tendency and aim of the practice of physic has been, and in great measure still is, to become more and more a logical science, having its basis in pure physical knowledge alone. It is true that of late there has been some inclination to treat certain branches of

medical science in a more metaphysical spirit ; but it may be fairly questioned whether within the profession the physical has not been unduly encouraged to the neglect of the psychical, and whether it is wise to resign the kind of faith now referred to, entirely to empirics, considering that it will probably last as long as the human mind itself, and that it derives support from the exercise of a somewhat similar faculty in religious belief? I am conscious that it will be objected that a physican cannot make use of faith in the treatment of disease without practising deceit ; but it may be answered, that it is only deception when the physician does not himself believe in its power to benefit the sick.

For instance, the celebrated Radcliffe, with a wonderful acumen, was able to prognosticate the death or recovery of his patients by a certain time ; in many instances, a particular day was even fixed ; and much of his fame as a physician was dependent on the extraordinary truth of his vaticinations. By a tact so rare as to border almost on the marvellous, he was able to foresee a recovery or a fatal termination ; and there can be little doubt that through the influence of the mind, or the exercise of faith, in his patients, his predictions materially assisted in their own fulfilment. It may be objected that fatal results must sometimes have been produced in this manner, but Radcliffe dealt more in hope than in fear where hope was at all admissible. That the general results were favourable to his patients is evident from the great success of his practice, testimony to which was born by Mead and other of his cotemporaries ; and that he himself believed honestly in his prognostications is proved by the fact, that in his last illness he foretold his own death within a given period, and that he did die accordingly.

There is, probably, no other disease in the cure of which

medical romance has obtained to a greater extent than in scrofula. It has generally ranked as a malady incurable by ordinary means, and hence those suffering from it have had a tendency to seek relief from preternatural influences. The mysterious rites which have been thought beneficial in scrofula are numerous; some of them being in repute among the common people even at the present day. In some of the secluded districts of England, I have seen instances in which the root of the herb vervain, "holy vervain" as it is sometimes called, gathered at a charmed hour, has been worn round the necks of scrofulous persons as an infallible cure. In others, for the same purpose, I have known the legs of a toad cut off on a certain morning, at a particular time of the sun's rising, and worn on the chest in a silk bag, the success of the charm being thought to depend on whether the toad survived the mutilation or not.

Stroking the sores or enlarged glands with the hand of a seventh son, or, which is of still greater efficacy, the hand of the seventh son of a seventh son, is often resorted to with great faith by the friends of scrofulous children. Occasionally, also, though it will scarcely be credited in the present day, the loathsome ceremony of touching the sores with the hand of a criminal immediately after execution, is performed with a full belief in its miraculous power, as a cure for scrofula. In most rural districts there is some person or other who has a mysterious powder or ointment, considered to be of unfailing virtue in scrofula or king's evil, and resorted to quite as regularly as to strictly medical remedies.

But by far the greatest exercise of faith in this, or any other disease, was the royal touching for scrofula or the Evil, first practised in England in the reign of Edward the

Confessor,* which lasted till the time of Queen Anne. This ceremony was considered of undoubted and equal benefit in all cases, whether infants or adults, in patients of either sex, and of whatever degree of severity. In later times, those persons afflicted with the evil were selected from other applicants by the king's surgeon. The "gift of healing" in this disease was long looked upon as descending from one sovereign to another, as part of the royal prerogative. It was exercised by Charles the First up to the time of his death, and formally resumed at Whitehall by Charles the Second, the week after the Restoration.

The ceremony was performed in different ways in the reigns of different sovereigns; sometimes simple touching was depended on; or a coin of gold or silver, generally

* Shakspeare alludes to the royal touch in the following passage:—

Malc. Well; more anon.—Comes the king forth, I pray you?

Doct. Ay, sir: there are a crew of wretched souls

That stay his cure; their malady convinces

The great assay of art; but at his touch,

Such sanctity hath Heaven given his hand,

They presently amend.

Malc. I thank you, Doctor.

Macd. What's the disease he means?

Malc. 'Tis called the "Evil:"

A most miraculous work in this good king;

Which often since my here-remain in England,

I have seen him do. How he solicits Heaven,

Himself best knows; but strangely-visited people,

All swoln and ulcerous, pitiful to the eye,

The mere despair of surgery, he cures;

Hanging a golden stamp about their necks

Put on with holy prayers: and 'tis spoken

To the succeeding royalty he leaves

The healing benediction."

Macbeth, Act iv., Scene 3.

This reference is chronologically correct; as Edward the Confessor, the king mentioned in the text, and the first to practise the healing, was cotemporary with Duncan, King of Scotland, whose son Malcolm fled for protection to the court of Edward on the murder of his father.

an angel, was placed on the neck of the patient by the royal hand at the time of touching; at other periods of its exercise these proceedings were combined with a short religious service, performed by an ecclesiastic, or a benediction was pronounced by the king. No particular kind of management, medical or otherwise, was followed subsequently to the touching; ordinary appliances were considered of no use, and the patient's *mind* was left to the full impression that his bodily ailments were to disappear slowly, under the influence of the mysterious power which had been invoked.

As regards the curative virtues of the royal touch, the most various and opposite opinions have been held. During the early times of its exercise, and in the middle ages, the most implicit and reverential faith was yielded to its efficacy. At later periods its influence began to be questioned, and at length the gradual spread of knowledge, founded on physical data, together with the freedom of thought, which followed the Reformation, and the discovery of printing; consigned the royal touch to the same tomb with alchemy, witchcraft, astrology, and other subjects of ancient belief, in which a small leaven of truth was mixed up with much of error and superstition. In obedience to the dictates of the inductive philosophy, men naturally forsook an agent of whose power physical knowledge offered no solution, and commending themselves to what was considered pure physical science, pursued the search after remedies which should surpass in efficacy those whose virtues, if indeed they possessed any, were supposed to depend chiefly on the imagination. The practice had undoubtedly from these causes been long the butt of ridicule and sarcasm; but it has also been stated, that another of the proximate reasons for its suppression was the suspicion that Queen Anne, in whose reign it fell into

desuetude, was herself not altogether free from a scrofulous taint.

The theories of the action of the royal touch were various, some considered it a divine gift, which endowed the reigning sovereign with power over this particular disease; others looked on it as an hereditary attribute inseparable from the true royal line, and even went so far as to consider it an important test of legitimacy. Some considered the virtue owing to the simple touch, some to the prayers, and some to the gold coin given to the patients at the ceremony. It was sneeringly remarked, that the immense number of applications were in great measure attributable to the gold coin, and that many presented themselves who were not scrofulous in order to receive it. In answer to this it was affirmed, that the sick were equally numerous, and received equal benefit, when Charles the First became so poor as to substitute silver for gold, and ultimately to omit the presentation of the coin altogether. Many looked on the wonderful results which were recorded, as entirely owing to the imaginations of the sick persons; and there were never wanting those who considered it a ridiculous ceremony, void of all curative influence whatever. In answer to those who referred its effects solely to the imagination, it was mentioned that the charm was equally beneficial in the case of infants as adults. This requires some explanation, which I shall presently give, or we shall have a difficulty in admitting that which seems to be the true rationale of its influence. Since the renunciation of the custom by Queen Anne, the almost universal opinion has been that the practice was a mere superstition; and when the subject has been mentioned, it has been less for the purpose of explanation than of ridicule.

It is my intention, on the present occasion, to avow a firm belief in its power and efficacy. I cannot agree that a

practice followed implicitly for the space of seven centuries in this country alone, besides its long performance in France, and which lived through our golden age of letters, could have been purely fictitious, and not have been demonstrated to be such beyond the power of appeal. Those who saw most of its operation were the firmest of its supporters, and it frequently obtained the testimony of medical practitioners. Thus, Wiseman, serjeant-surgeon to Charles the First, a good authority in scrofula, as he himself practised in this disease, declared that the king cured more scrofulous patients than all the chirurgeons of London put together. Besides the support it receives from testimony, I believe that our knowledge of the laws of the animal economy is now sufficiently advanced to afford a tolerably clear physiological explanation of the manner in which the regal charm produced its effects on physical disease.

There is, in the present day, a great tendency to recognise the influence which the mind exerts on the whole system. We are experiencing a natural rebound from the very material manner in which the human organization, with its wonder compound of mind and matter, has long been studied. As a branch of physiology the power exerted by the mind on the bodily organs is important, but it is still more so in a pathological point of view, as it is in diseased states that the most remarkable effects are thus produced. As regards its bearing on scrofula, and the example afforded by the royal touch, I consider this mental influence admits of division into two distinct kinds.

I. A mental impression either of a tonic or depressing kind on the whole of the body.

II. A tonic or an injurious effect of the same kind produced on some particular part of the body.

With reference to the first point, namely, the general effect of mental influence, an immense array of facts might,

if necessary, be adduced to prove its power. Both in acute and chronic disease, every one is aware of the importance of the medical attendant "gaining the patient's confidence" as it is termed, which means nothing more than impressing the patient's mind with a firm belief in the efficacy of the remedies employed, and in the skill exercised in their application. A certain degree of medical ignorance in the patient appears favourable to the exercise of this faith, or confidence. Those who know anything of the action of remedies, usually have the attention so much occupied by their physical qualities and effects, as to shut out, in great measure, the operation of this principle. Thus, I believe a person suffering from disease, wholly illiterate as regards medicine, and looking to the means used by his physician as something above his comprehension, and little less than miraculous, has a much better chance of cure than one who understands the phenomena of disease and the action of remedies, and looks at them as mere physical processes. In the case of medical men when themselves ill, we see that they usually shut out as much as possible the bad effects of their knowledge on themselves, seldom prescribing for their own maladies, and generally remaining, to a considerable extent, ignorant of the remedies administered. A strong argument might be drawn from this on the propriety of the public confining their attention to matters of hygiene, instead of, as is too much the custom, attempting to study their diseases, a knowledge of which, when they are in danger, can do them no service, and may be the cause of serious injury.

Many remarkable instances might be related of the influence of the mind in disease occurring among soldiers or sailors. The joy produced by a victory has been known to do more service than medical treatment in epidemic dysentery and other diseases of fleets and armies.

The excitement caused by the hope of speedy relief has stayed the progress of disease in besieged cities; and sailors suffering from scurvy have had their malady relieved in a wonderful degree by hope, or aggravated to a corresponding extent, by the influence of fear and anxiety.

Interesting proofs of the influence of the mind are also afforded by the changes occurring in chronic and incurable maladies when under legitimate medical treatment. It is observed, that persons suffering from various diseases of this kind, such as epileptics, hypochondriacal patients, and others, receive benefit from almost every new medicine for a short time, and that they feel themselves relieved at first by every fresh medical man to whom they apply. There is little doubt that such results are in great measure owing to the hopeful and confident frame of mind inspired in such patients by novelty and change of regimen. After a while the good effects pass away, and a new mental stimulus is required. This lapse must be distinguished from that falling off in the effects of remedies after they have been administered for some time, which has been already adverted to in a former chapter of the present work, and which depends on the habituation of the body to their use. The mental influence of a new medicine, and the subsequent loss of its efficacy, are very different from this. That the power we are considering is purely mental, though it undoubtedly produces changes in the material organization of the body, is evident from the fact that the same results occur from the most opposite medicines, and frequently when deception is used, and the patient is taking none at all. Change and novelty, that which occupies the mind with hope, and the expectation of relief, are the real sanative agents in such cases to a much greater degree than the medicines which are exhibited. It is this, indeed, which is the great stronghold of quack medicines and empi-

rical systems of medicine. The resort to empirical treatment or quack medicine of any kind of itself proves the existence of faith in their efficacy; and, in consequence of this, supposing the empiricisms resorted to are either innocuous or inert, they will sure to appear to be of much service. Doubtless, many cases are wrought in this manner in chronic diseases, when the faith excited by their use lasts sufficiently long to renovate the whole system.

In certain diseases, the effects of the mind on the body are much greater than in others. If a list of these disorders were made out, it would be seen that they are those which furnish the greatest numbers of the victims of charlatans. This happens partly from the desire of change natural in such cases, and partly because, within the range of legitimate medicine, there is comparatively little that enables patients to exercise the faith which is so liberally called for by empirics. This is unfortunate, inasmuch as when dangerously ill, they are tolerably sure to renounce their medical scepticism, and send for the regular practitioner when it is too late.

In considering the second point, or that which refers to the production of a tonic or injurious effect on any particular locality of the body through the agency of the mind, much interesting matter of a novel kind could, I conceive, be brought forward, and made to bear on the subject of the royal touch.

In his medical notes and reflections, Dr. Holland pointed out that the attention has the power of directing an impression to any particular part of the body. It is frequently sufficient to think of itching and pain in any part, and the sensations are instantly present in the places to which the attention is directed. Thus, there are many nervous persons in whom medical inquiries concerning any region or organ will give them pain, and functional disturbance

in the parts examined. Nothing is more common than for unprofessional persons or young students, on looking into professional books to feel all the symptoms of the diseases about which they read. It is recorded that, during the lectures of Corvisart on the diseases of the heart, when the subject was exciting from its originality, many of the students were affected with palpitation and other symptoms of cardiac disorder. In hysteria, the location of pain by mental influence is very remarkable. If the attention of the hysterical person be directed to any particular part, by accident or by the inquiries of the medical practitioner, pain is almost sure to be felt in that situation. The pain or functional disturbance felt under these circumstances cannot be altogether mental or dependent on sensations occurring primarily in, and confined to, the brain, because physical changes often result from the long continuance of mere nervous pain of this kind. Thus, if a settled belief in the existence of heart-disease is induced in the mind of an hysterical or nervous female, palpitation and irregular action of the heart are almost certain to follow, and these in the end frequently produce organic disease. Again, in neuralgia, patients are often free from pain for many hours while their minds are occupied, but the instant their attention becomes directed to the malady the neuralgic pains are felt most acutely. Yet these can no more be considered imaginary than the pains of hysteria. For example, a neuralgic paroxysm thus brought on (supposing the disease to be facial neuralgia) is frequently accompanied by redness of the conjunctiva and a copious secretion of tears, or a flow of saliva, most clearly showing that local physical effects are produced by the mental cause.

On the other hand, a salutary influence is frequently exerted on diseased parts by the agency of the mind. Neuralgia and hysteria may be again instanced as afford-

ing instances of this also. Local pains of these kinds are often removed by a sudden mental impression, by a powerful effort of the will, or by any circumstance which produces great and sustained hopefulness of mind.

The homœopathic doctrine and other empirical practices, derive a large amount of supposititious support from this principle of the animal economy. Persons suffering from chronic ailments (the favourite subjects of such treatment), have infinitesimal doses of medicines administered, which, in themselves, have no power whatever; but when the patient is told to watch the results, and to observe that such and such effects are produced on certain organs, the patient, by the mere direction of the attention to these parts, and the agency of the mind, really experiences many of the sensations he is led to expect. Whenever the homœopathic treatment proves serviceable it can only be from the tonic influence exerted by the mind on the whole body, or on the diseased parts; unless it be from the effects of the rigid diet usually enjoined, or the operations of nature. The followers of Hahnemann claim a physical mode of action for their infinitesimal doses; but I have no doubt whatever, that homœopathy is nothing more than a system of mental medicine passing under false pretences.

To proceed to the application of these two principles—the general and local effects produced on the body through the medium of the mind—to the explanation of the *modus operandi* of the royal touch in scrofulous disorders.

My opinion is, that the ceremony of touching, acted in both the modes I have attempted to elucidate,—that in numbers of the cases operated on, both a general and a local impression of a tonic kind were communicated, which, from the impressive nature of their cause, must have been of a lasting character. It appears to me that we can readily understand how an individual afflicted with the disease, and

with opportunities of witnessing the effects of the royal touch, or of hearing exaggerated accounts of the beneficial results produced in other cases, and, believing from habit and education implicitly in the accumulated wonders with which history and tradition had encompassed the subject, must have had an immense impression made on his mind when, on being brought into the royal presence, after an imposing religious ceremony, he received from the hand of royalty the touch and benediction, which promised him a restoration to health and strength. It is no stretch of imagination to believe that such persons, carrying with them the conviction that their recovery was certain, should have had a daily and continual tonic infused into their systems of greater efficacy than any medicines which were then known.

I will here revert to the belief which prevailed, that the ceremony of touching was equally effectual in the case of infants and young children, which would seem to militate against the explanation I am offering. Without some resort to the supernatural for explanation, it is impossible to believe that infants could have been cured by the mere touch, or by its direct effects on their own constitutions. But, in the first place, it is worthy of remark, that though infants do sometimes suffer from scrofula, the number of very young children thus afflicted is comparatively small, so small, indeed, that it has been denied that scrofula ever exists during the first year. Again, the influence of the mind on the body begins much earlier than would be generally admitted; it is impossible to say the precise age at which the performance of any ceremony, such as the touching, might affect the organization of a child through the influence of the mind; but I have no doubt this occurs sufficiently early to account for many of the cures which were formerly thought to preclude the

possibility of the mind or the imagination having any share in them. If infants ever did receive benefit from the charm, I should certainly attribute it to the effects of hope on the mind of the mother. We know that the mind exerts a great influence on all secretions, but on none are its effects so remarkable as in the case of the secretion of milk. After violent passion or emotion on the part of the mother, children have been known to die from taking the breast, or to fall into convulsions immediately afterwards; and it calls for no great exercise of fancy to believe that a sincere faith in the mind of the mother might produce beneficial effects on the milk. If fear or rage make the milk poisonous, we can certainly admit that sustained hope may make it salutary and healthful. I have already referred, in another part of this work, to the beneficial effects of a supply of good milk on scrofulous infants.

Besides the general effects produced by the ceremony of touching through the medium of the mind, I believe a local effect was produced by the same agency on the diseased parts themselves. In no diseases, excepting affections of the nervous system, is the state of the mind more exactly reflected in the diseased parts than in scrofula. Mental exhaustion, irritation, or despondency, are invariably accompanied by an increase of pain in scrofulous sores, and even the secretions from them are decidedly altered by such causes. On the other hand, no observant person but must have seen the improvement which is produced by contrary states of the mind, both on the general disorder and on the local disease. In conclusion, I would repeat my opinion that the royal touch, acting in the manner pointed out, must have had great influence both as a general and local tonic in scrofula. Probably no other mental remedy of equal efficacy was ever devised or practised, and certainly, as I believe, nothing of the kind can

be resorted to in the present day which approaches it in power; but the practitioner who recognises the influence of the mind on the subjects of scrofula, and acts upon it to the fullest extent in conjunction with well devised physical agents, is the most likely to be successful in the treatment of this disease.

THE END.

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