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## REMARKS ON SCROFULA.

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"Cuncta a me enunciata in re tam tenebrosa sapientium iudicio submitto; non enim ut firma omnimodo, et penitus demonstrata, quæ scripsi habeo, sed aliquam fortasse lucem asferre posse optior; mihi inquegratum erit si a me prolata, alienis laboribus confirmata, vel evidenter refutata erunt."

In entering upon an investigation of the subject before me, I find my lot cast upon the *terra incognita* of the map of pathological science. Whether studied as a curiosity or as a mystery, the disease in question opens an interesting field to the mind of the medical philosopher. Its insidious blight is everywhere seen, although it especially delights to revel in the arms of beauty, and to luxuriate with indiscriminate wantonness amid the fairest and loveliest of our race; yet in regard to its essence, the most patient and erudite labors have proved as unavailing as the researches after the philosopher's stone. The very nature of the malady seems to close the door against the possibility of direct and unequivocal proof; and in the present state of our knowledge, theories, arguments and illustrations can only approximate to the truth.

*The characteristics of scrofula* are these: The skin is always thin and smooth, the complexion various. The blood that spreads such a delicate mantle on the cheek of the fair damsel is regarded by the non-professional observer as a mark of health and beauty, while the physician views it as an evidence of constitutional feebleness and the harbinger of early decay. This delicacy of integument occasions the cloudiness beneath the eye, produced in such habits by slight indisposition, and dependent on remora in the minute veins; the upper lip and columna nasi are thick, because the blood is retained in this vascular tissue; the skin shows the same vascularity in the tarsal glands; the eye-lids droop, and impart to the countenance a pensive but interesting appearance; the pupils are dilated, and the conjunctiva clear and remarkably free from bloodvessels; the head is large, and protuberant at the occiput; the neck short, the lower jaw thick and fleshy; the abdomen prominent; the cuticle desquamates from a blast of cold air, and parches and cracks from the influence of the summer's sun; vicissitudes of cold and heat excite irritation of the cutis, and its absorbents readily inflame; the fingers are tapering; the chest contracted, and the shoulders projecting; the muscles soft and relaxed. The whole exterior betrays a want of energy in the physical constitution, while the mental endowments are

often acute and vivacious. Such are the more prominent outward peculiarities, which, collectively, constitute what is termed the scrofulous diathesis. If we look to the interior, we discover the same delicacy of structure and flimsiness of fabric pervading its component parts. The stomach and intestines are pellucid, and the digestion imperfect; the evolution of animal heat is rarely energetic; the parietes of the heart are less muscular than usual, and the circulation is feeble; the coats of the arteries are so thin that the scarlet blood is distinctly seen through them; in the last acts of life they do not empty themselves as in ordinary circumstances, and their deficient tone brings additional weakness upon the circulation. The veins and absorbents are involved in the same feebleness, at least the latter, and hence their glands are liable to diseased action.

It is a prominent feature in the medical writers of the present day to assign a particular and circumscribed habitation for every malady—to construct a sort of phrenological pathology, that shall fit not only the head, but every tissue and ramification of fibre with the utmost exactness. This mode of investigation is by no means without its benefits; for where it can be successfully prosecuted, it is likely to suggest the most efficacious system of practice, and thus enable the physician to lay the axe at the root of the evil he is called upon to remove. But this local study of diseases should not divert our attention from their general phenomena, nor lead us to overlook that mutual and close dependence between the various parts of the body—that continual circle of action and reaction, both in health and disease—that intimacy of connection and harmonious consent of functions, by which the living machine is composed into one perfect whole. In regard to the localization of scrofula, a discrepancy prevails among pathologists. Some suppose that it is peculiar to the lymphatic system, and confined to that alone—and that, other things being equal, it prevails in an individual organ or tissue in proportion as lymphatics constitute a part of their structure. Others contend that its province embraces the entire system, without regard to structure. These rival opinions have been tossed to and fro, like a pendulum, by the arguments adduced by their respective partizans; but thus far every attempt to search for the exact tissue in which this hydra-headed disease, in its multifarious forms, is seated, has proved as abortive as the study employed to find out the ultimate fibre of muscle, or the ultimate globule of the brain. Truth is here so inscrutable and remote—is environed by so many inherent difficulties—that it cannot be brought to bear with sufficient clearness to produce unanimity of sentiment until more light is cast upon it.

The lymphatic glands, especially the mesenteric and cervical, are more frequently the seat of scrofula than any other parts of the body; next to these, the lungs, the spongy portions of the bones, and the structures connected with the joints; but no tissue is entirely exempt. Whether this is in consequence of the presence of a lymphatic apparatus of some kind, we know not. Lymphatic vessels have never been satisfactorily demonstrated in the brain, spinal marrow, eye, &c., but this does not afford proof that they do not exist there; it may be an evi-

dence, merely, that their minuteness prevents anatomical discovery ; and whether we admit the existence of lymphatic vessels in every organization or not, it does not follow that the disease cannot overleap their bounds. "It is not unusual," says Baillie, "to find a substance formed in the brain, of a uniform white texture, and possessing a considerable degree of hardness. The brain adheres to this substance, and round its edges often appears harder than usual. The substance is scrofulous, for I have had an opportunity of seeing it converted into scrofulous pus." Louis, Andral, Broussais, &c., have found the brain studded with tubercles which had a lymphatic origin.

This disease, or rather congeries of diseases, often evinces a disposition to restrict itself to some particular part in which the lymphatics are numerous, and would seem to be confined within its limits by some salutary cordon ; then, again, a morbid action or deposit, known to be scrofulous, shows itself in some quarter where anatomists have never detected lymphatic vessels.

Scrofula is connected with debility of the vascular system and of the *vis vitæ*—is of a low inflammatory nature, and is confined to no one organ, tissue or temperament. It may be either hereditary, or produced by causes independent of progenitive agency. The evidence of its communicability from parent to child is unequivocal, and it is needless to offer arguments or cite cases in testimony of the fact. One instance, however, of this inherited infirmity may not be out of place. The father of Dr. Johnson was a man of large, robust body, and of a strong, active mind ; yet as in the solid rocks, veins of unsound substance are often discovered, there was in him a mixture of that disease, the nature of which eludes the most minute inquiry, though the effects are well known to be a weariness of life, an unconcern about those things which agitate the greater part of mankind, and a general sensation of gloomy wretchedness. From him the son inherited, with other qualities, "a vile melancholy, which made him mad all his days, at least not sober." The disease of scrofula, under which he suffered in early life, so much as to have his countenance disfigured, and to lose the sight of one of his eyes, was a part of his inheritance, and the direct consequence of his peculiar bodily frame. In him were seen that precocity of intellect and facility of attainment which are so commonly associated with the disease.\*

As children resemble their parents in general conformation and the development of peculiar features, we may suppose a like resemblance to exist in minute structure, imparting to it an individuality, subject to similar idiosyncrasies and derangements. Not only is a propensity to scrofulous disease communicable from parent to child, but the malady itself, like the syphilitic virus, may be substantially implanted, and the *fœtus* in *utero* may be as much diseased as the mother who bears it. Tubercles have been detected in the lungs of the unborn child, and it is not impossible that scrofula, existing in some of its modifications as an idiopathic affection in the *fœtus*, may occasion its death and premature expulsion. The *modus operandi* of the law which presides over this hereditary taint is a problem we cannot solve. If the disease, when

\* Boswell's Life of Johnson.

hereditary, were always derived from the maternal source, we might better comprehend the mystery, inasmuch as during the period of foetal life the mother furnishes the supply for the growth of the embryo; but the child is equally liable to receive the taint from the father, who can exert no more agency over its organization, than over the chick in ovo.

The strumous diathesis may be ingenerate and original in the constitution without ancestral inheritance; for the same agencies, which were sufficient to produce it in the first instance, may give rise to it in others. Whatever is calculated to impair the healthy tone of the system, may lay the foundation of the disease. I have now under my care a young man afflicted with scrofula, and in whom no hereditary taint can be traced. He has, until recently, led a sea-faring life. His complexion is dark. He is one of five children belonging to the same family, none of whom ever exhibited any signs of the complaint; nor yet the parents. This patient's legs have been covered at times with large crops of scrofulous ulcers, during the last four or five years. My knowledge of his habits satisfies me that the disease is chargeable to them. Another case is that of a female, who from childhood was the object of fond parental regard; and while no means were unemployed for the cultivation of her mind, her physical education was comparatively neglected, and, as a consequence, her constitution, naturally slender, has been greatly undermined. For several years she was kept at a crowded boarding school, where little regard was had to pure air, exercise and diet. Her digestive powers first became enfeebled, which in time led to a train of symptoms of uncommon obstinacy, such as constipation, abdominal tumefaction and glandular enlargements. I have long been acquainted with the family of which this young woman is a member, and have no reason to suppose that the scrofulous affections, under which she suffers, are attributable to hereditary predisposition. The health-destroying agencies to which she was subjected in early years, operating slowly and insidiously, afford an explanation of all that appertains to her case, so far as causes are concerned.

It is a matter of medical history, made certain by the investigations of Alison, that scrofula prevails to a greater extent in large towns and cities than in the open country.\* What is the reason of this difference? Certainly not because a higher per cent. of hereditary predisposition exists among the same number of inhabitants in one district rather than another, but because of the artificial modes of life incident to the abodes of city residents. Causes dissimilar in kind, but the same in effect, are continually at work among the operatives of extensive manufactories; and hence the prevalence of the disease in these establishments. It were idle to dwell on these causes at length. Every practical man in the profession is familiar with them; and is often compelled to contend with their influence in his efforts to conquer the disease. Take, for instance, an enlargement of the lymphatic glands in the first stage. If the patient live in a close, contaminated atmosphere, and on meagre or unwholesome fare of any description, or if he be under the influence of any cause calculated to bring debility upon the system, every exertion

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\* *Transac. Edin. Chir. Society*, Vol. III.

to benefit him will prove nugatory. Judicious hygienic measures constitute the sheet anchor in the case; and it may be laid down as a correct proposition, that those causes which interrupt the cure will produce the disorder.

Scrofula has many features which bring it into near alliance with scurvy. In the latter there is a morbid condition of the fluids, produced by a defective chemical composition of the constituents of the blood. What the essential cause of this derangement consists in, is, in the limited state of our knowledge of the ultimate laws of animal chemistry, difficult to determine. We do not yet understand the chemical nature of that portion of our food, which constitutes the true aliment; but whatever this may be, it is certain that scurvy arises from imperfect nutrition, produced by any cause that prevents the assimilation of food, and the renovation of the sanguineous fluid by a constant supply of healthy chyle. This hypothesis is applicable to scrofula, and hence our opinion that derangement in the associate organs of digestion is one of the most frequent and efficient causes in its production. The digestive apparatus is the grand laboratory for preparing the materials for the support of the animal economy; and if the digestive powers are subjected to the influence of causes, which serve to debilitate them and disturb their proper functions, the process of chylification, being a part of their work, will be partially executed. The blood will consequently be deteriorated in its properties—will be less nutritious—less capable of sustaining and stimulating the general organization, and the vital forces will be depressed. In the disease in question, the specific alteration of the blood consists in too small a proportion of fibrinous matter, and a redundancy of albumen, whereby it is rendered incompetent to furnish the requisite supply of nutritive molecules to the various tissues, and maintain in them those impressions which it is its province to sustain. When the circulating current, thus impaired, enters a bone or other tissue, the nutritive vessels, whose office it is to select and appropriate such particles as are proper for the nourishment of the part, must necessarily imbibe a morbid principle, and the part can no longer be said to be in a state of perfect integrity. This lesion of the blood may hardly be appreciable at first, creating simply a liability in the system to assume scrofulous action; and if prophylactic measures, addressed chiefly with a view to improve the digestive organs, be early employed, the predisposition may be neutralized and the disseminated germ destroyed. On the other hand, if the lesion be not repaired, there will be a gradual accession of the prejudicial matter, greater or less in the several tissues according to their susceptibility to be affected by this particular condition of the blood—and either with or without the intervention of any adjunct cause, a series of functional and organic derangements will be set up in the system, and a manifestation of some of the forms of scrofula will be the result.

If by reason of impure air, bad food, or imperfect digestion, the blood is degenerated and unfit for adequate nutrition, the organs most essential to life will often suffer to a fatal extent. So true is this fact, that in the lower animals strumous affections in the lungs, mesentery, &c. can be

produced to almost any amount by withholding a sufficiency of food, or by allowing them that which is too rich. Quadrupeds and birds, transferred from their wild state and confined in menageries, where the atmosphere is contaminated and their food too concentrated in form, frequently droop and die with lymphatic engorgements. The same causes produce like effects in the human subject. In large towns the children of the poor suffer for lack of healthy sustenance, while those of the opulent are overfed with all the varieties which the genius of cookery can invent. They also live amid other circumstances calculated to render their constitutions feeble and apathic; and as the lymphatic system predominates at this age to a greater extent than at any other period, the unfavorable influence of these circumstances appears, first, in the lymphatic glands. Scrofula is a rare disease among butchers; and the reason is because this class live on a due admixture of vegetable and animal food, and pursue an active life in the open air. Of all artificers in this country, shoemakers are most liable to be attacked with scrofula from artificial causes. The apartments in which they labor are small and usually crowded; the temperature is raised to an unhealthy degree, and the confined atmosphere largely impregnated with human effluvia and the smoke of lamps and tobacco, as well as with the specific exhalation arising from the material manufactured. Their attitude, in leaning with the head depressed for twelve or fourteen hours a day, and the pressure of the shoes against the sternum, occasion a permanent deformity of the chest and crookedness of the spinal column. These causes induce torpidity in the functions of the stomach and intestinal canal, and the whole digestive apparatus is deranged; the sanguineous fluid is depraved, its circulation indolent, and the powers of assimilation blunted—the muscles flaccid, the countenance pale and sickly, and the whole constitution atonic.

If the process of digestion be incomplete, the quality of the chyle, and consequently that of the blood, will be impaired. In this deteriorated state it travels its destined circuit, and its influence is impressed upon every tissue; but containing too small a proportion of fibrine, in consequence of deficient assimilation, it fails to repair the detritus of the different organs, and general debility ensues. It may be said, I know, that this doctrine savors not a little of the obsolete humoral pathology. Granted: nevertheless, it may be true. When exclusive solidism was in its halcyon glory, Bichat remarked that although this humoral pathology had been carried too far in former times, there was no doubt but it was founded in truth, and that in a great many cases we must allow that *all* should be referred to morbid humors.\* It is not my purpose to enter the lists in defence of the peculiar system of the Brunonians, or their opponents. Neither, exclusively, is adequate to explain all the phenomena of the scrofulous disease, and neither can hold its ground without the aid of the other.

When we consider the similarity between the proximate principles of the blood and the solid textures of the body, and the intimate physiological connection which prevails between them, it is no easy matter to conceive how disease can exist to any amount in the solids, without

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\* Introd. to "Anatomie Générale."

the blood being also affected, more or less; nor how the nature and constitution of the blood can be materially changed, without such alteration producing a reflected alteration in the condition of the solids. As it regards vital laws, chemical composition, and internal structure, no line of demarcation can be drawn between them. The solids, considered with respect to their relations to the blood, may be divided into two classes: the one contributing to *make* blood, such as those concerned in the actions of absorption, digestion, arterial circulation and respiration; the other contributing to *unmake* it, those, namely, concerned in the processes of venous circulation, secretion and nutrition.\* No solid, therefore, can undergo modification in function or structure without producing some derangement in the properties or quantity of the materials destined to form the sanguineous mass, or to be separated from it. This view of the subject takes away the bone of contention which has so long set the humorists and solidists at loggerheads, and removes all occasion for dispute. The human system constitutes but one important whole, indivisible in a state of health as well as disease; and the division of the several parts into fluids and solids, is, practically, a distinction of minor importance.

It cannot be denied that the blood experiences essential changes in *some* diseases. In the phlegmasiæ it is fibrinous—grumous in scurvy—serous in chlorosis and in anæmia—and deficient in animal matter in diabetes; and M. Lecanu has shown that in icteric subjects it contains the yellow principle of the bile. “We cannot but regard the blood,” says Dr. Good, “as in many respects the most important fluid in the animal machine; from it all the solids are derived and nourished, and all the other fluids secreted; and it is hence the basis or common pabulum of every part; and as it is the source of general health, so it is also of general disease. If imperfectly elaborated, or with a disproportion of some of its constituent principles to the rest, the whole system partakes of the evil, and a dysthesis or morbid habit is the consequence.” That the blood in scrofula has less than its proper portion of crassamentum and coagulable lymph, is frequently noticed in dissections; and in attempting to inject a scrofulous subject, the injection will not pass into the extreme vessels, because they contain blood which the last efforts of life had not power to propel into the veins—thus affording evidence of a debilitated state of the vascular system. If blood be abstracted from a strumous patient, it will contain a smaller portion of crassamentum than that from a healthy person. The process of digestion is not so well performed, and this is all to be attributed to the want of good blood to fulfil the different offices of the assimilating system.†

The disease is frequently developed in several parts of the body at the same time; thus, the glands of the neck will be swollen, while tubercles inhabit the lungs or liver, and ulcers cover the legs. These local affections, although differing from each other according to the tissues in which they are seated, depend upon the same constitutional derangement. It is indeed difficult to confine this affection to any one spot, whether the

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\* Andral's Patholog. Anatomy, Vol. I.

† Sir A. Cooper's Lectures.

general health is tolerable, or has been impaired by the alterations of nutrition and secretion which have taken place on all sides. There is little chance for the various tissues to escape a development of the morbid influences with which the system is charged. It is present everywhere in the blood—and every process of nutrition and secretion will be modified—every hyperæmia, accidentally produced, will be peculiar in its symptoms, progress and termination, as well as in the effects from therapeutic agents employed for its removal. Every instance of supuration will throw out a fluid, *sui generis*; all the stages of inflammation will be attempted, and be but partially fulfilled in consequence of deficient energy in the constitution.

The anatomical structure of the lymphatics affords facilities for the existence of the disease in them. Their minute membranous tubes anastomose with great freedom, so as to produce a reticular, mesh-like arrangement of their fibres, and their crescentic, valvular folds, formed from the inner coat of their parietes, and their frequent curvatures and convolutions, particularly in the ganglions, are well fitted to impede the circulation of their contents. The bloodvessels are numerous in the glands, and the coats of the lymphatic tubes are thinner here than elsewhere; and the action of these tubes, naturally weaker in that situation, is still farther diminished by the close cellular adhesion which unites the vessels composing the glandular bodies.

In attempting to explain the nature of scrofulous depositions, I am aware that I enter upon uncertain and debatable ground. Our knowledge of morbid action of any kind is extremely limited, and must remain so until we have a more perfect knowledge of healthy growth itself. Tubercles occur most readily in those of a lymphatic temperament, because the lymphatic system is particularly affected by that species of debility, and that morbid condition of the blood, which exist in the strumous constitution. Broussais places their seat in the white capillaries and lymphatic ganglions, and ascribes their formation and growth to irritation in those textures; and this irritation, according to his theory, is excited by sanguineous irritation or inflammation in the adjacent parts. Inflammation, for instance, in the bronchial mucous membrane, will give rise to the formation of these bodies in the parenchyma of the lungs. Other writers contend that the original nucleus is neither in the lymphatic system nor in the mucous follicles, but in the cellular substance.\* These discordant views go to corroborate the fact that tuberculous matter is confined to no one tissue exclusively. It is of albuminous composition, wherever found, and may be considered as a modification of the nutritive secretions, but incapable of healthy organization. It is not improbable that this substance, pus, and coagulable lymph, are varieties of the same albuminous fluid that is found in the blood—differing from each other in chemical or mechanical composition. Tuberculous matter, then, may be called lymphatic pus, resulting from a low degree of irritation or sub-inflammation in the vessels in which the lymphatic fluids circulate, and whose characteristic property is to assume the concrete state. But let it be borne in mind that its formation cannot take place unless the

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\* "Illustrations of Morbid Anatomy," by J. Hope.



fluid from which it is separated—the blood—has been previously modified. This fact being admitted, it is obvious that a healthy secreting surface may abstract from the blood, not only the materials of its own peculiar secretion, but also that of scrofulous matter. There is generally weak vascular action in the parts affected—indeed, in the whole system; an action of a lower degree than that required to produce laudable pus; and the strumous matter may be secreted by vessels inflamed in different degrees, or not inflamed at all. It is this disposition of vessels, in different states of activity, to tuberculous action or secretion, that constitutes the scrofulous diathesis in them; and where this prevails, various tissues, but especially the lymphatic, apparently unaffected by inflammation, will frequently be found to contain scrofulous matter. In the spot where strumous action has commenced the formation of tubercles, each living molecule separates from the blood a molecule of albuminous fluid, which, super-added to the molecules already formed, contributes to augment the tuberculous deposits. Thus their dimensions increase by juxtaposition of fresh particles furnished by the surrounding tunics. They remain inert for an indefinite period, and irritation will hardly be perceptible unless they are numerous and are called into activity by some aggressive cause. The constitution, which has given birth to them, being predisposed to their formation, will ordinarily discover but little sympathetic effect on account of them. Their form and consistence vary with the nature of the part in which they are located, and according to the period when they are examined. They are hard and granular in their rudimentary condition—in a state of mollescence in the second period—and in a course of evacuation in the third. These changes are announced during life by corresponding and well-known symptoms, particularly as they are developed in the different stages of scrofulous consumption.

(To be continued.)

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#### TREATMENT OF CLUB-FEET.

*To the Editor of the Boston Medical and Surgical Journal.*

DEAR SIR,—Upon looking over a late number of your useful Journal, I noticed a communication, from one of our fraternity, upon the subject of club-feet. I was truly glad to see this communication, and hope it will receive from an enlightened community all that attention which its importance demands. It is really true, that the want of success in the treatment of club-feet has been for a long time among the opprobria of our profession; and he who will reduce the catalogue of those difficulties, which have heretofore been considered incurable, will deserve well of society.

In Europe, for several years past, especially in Great Britain, France and Germany, institutions have been formed expressly for the treatment of distorted feet, and their kindred maladies; and it appears from the language of their journals, that their success has been equal to their efforts. Nor is it merely in Europe, that an increased attention has