

ATKINSON, (I. E.)

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By I. E. ATKINSON, M. D.

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I. E. ATKINSON, M.D.

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ONE of the many debts (and among the most important), that Dermatology owes Hebra and his school, is in the systematization of the study of diseases of the skin. That the student is no longer daunted at the very threshold of his inquiries by a maze of irreconcilable nomenclature, based largely upon physical signs and clinical symptoms, but is enabled to profit by a tolerably well-ordered system, through which many, apparently widely dissimilar and unrelated processes are bound together by a strong pathological kinship, he owes largely to the influence of this distinguished physician. The abandonment of the purely clinical standpoint and the adoption of the higher one of pathology, has opened a much wider field of observation. It has become evident, however, that in pathology only in its broadest significance, can we hope to attain a truly scientific comprehension of the subjects of our investigations. Modern research has shown all the more clearly that in pathogenesis, in the causation of disease, resides the essence with which the science of medicine must become familiar, before it may hope to attain a definite and established position. Pathological Anatomy in itself only reveals the effects of influences more or less determinate, and it has been discovered, that these influences though widely differing in nature, may often produce results that are almost, or quite identical, that while at one time peculiar and characteristic changes follow the action of a definite prime factor, at other times the alterations may be attributable to any one of a number of these. It has been determined, that that which, upon superficial examination often appears to be the immediate cause of a morbid action may be, in truth, only secondary in pathogenetic importance. The unenlightened observer sees a tiny phlegmon follow the introduction of a thorn or a splinter into the flesh, and attributes the morbid effects directly to the irritation excited by this, while the trained student knows that it has only served as the vehicle upon which the essential influences are introduced to the sphere of their morbid activity; knows that these essential influ-





ences are minute organisms that may differ more or less in specific nature. Here he finds that causes dissimilar in themselves may produce results similar or identical. The soul of pathology is etiology, and in the cultivation of this department of science we have learned that a correct understanding of disease depends no more upon pathological processes and results than upon pathological causes. Nearly a whole century of disputation regarding the nature of tubercle, left the problem hardly nearer solution than it was at the beginning. Koch's discovery of the "bacillus tuberculosis" at once reconciled conflicting opinions and demonstrated the relative unimportance of the morbid lesion in the presence of the pathogenetic material. But just as etiology constitutes the most important field of the pathologist's labors, so does it oppose to his inquiries many of the most difficult and apparently insurmountable obstacles. The remarkable discoveries of recent years regarding the pathogenetic importance of minute organisms, have elucidated the obscurities of a number of morbid processes and give the promise that light will be thrown into many of the dark recesses of disease; but on the other hand, it is quite certain that other influences than micro-organisms are active in the production of disease. The task of determining these is so beset with difficulties that we can, to-day, detect but feeble glimmering of the light that, it is confidently believed, will ultimately illuminate them.

A preliminary condition to success in this research is the recognition that while morbid action is always evolved definitely and in accordance with fixed and unvarying biological law, the agencies that are sufficient to excite this action need not be identical. New connective tissue is equally developed in the repair of an injury, the growth of a tumor, under the stimulus of alcohol or the irritation of syphilis. The vital activity of animal tissues offended by the presence of enemies and suffering from their depredations often uses the same weapons and identical tactics against them, though they fight under different standards. A second, no less important condition to be considered is that a morbid agent produces widely different results as the locality of its activity varies; in an indifferent part, insignificant effects, but upon a vital organ or centre of trophic influence, consequences of the greatest importance both in themselves and as bearing upon secondary changes in parts in close trophic or functional relation with them and which are but too often misinterpreted as of primary significance and as self-constituting diseases.

A few references will suffice to illustrate similarity of result following the operation of unlike causes. For example, the diphtheritic virus which we assume to be specific and organic, excites changes that result in the production of false membrane; it is equally certain that the virus of scarlatina, equally unrecognized, causes the formation of a membrane undistinguishable from the former. Scarlatina, small-pox, malarial intoxication, noxious



drugs are all competent to excite, when implicating the renal structures, glomerulo-nephritis of more or less intense grade. It seems likely that croupous pneumonia may develop under the morbid excitation of more than one agency. In considering the skin we find that this organ no less than others, in its pathogenesis and pathology, presents analogies and homologies. Many of these are so familiarly known that their mention seems almost superfluous. In passing, reference may be made to the circumscribed baldness of alopecia of tropho-neurotic origin, and that occasionally observed in the course of syphilis; of the urticaria that may at one time follow dietetic errors and at another the evolution of malarial fever; of the facial herpes accompanying acute lobar pneumonia or remittent malarial fever; of the eczema that directly follows local cutaneous irritation and that which develops under unknown and systemic influences. Consider more particularly the phenomena of rubella or German measles, and those of rubeola or measles proper, two affections which we know to be quite distinct in essence, yet which are so similar in their symptomatology, that few clinicians, judging isolated cases purely upon their own merits, would at all times be willing to diagnosticate unqualifiedly between them. Here we have two morbid principles, which we have abundant reason to believe unrelated, producing results that are often almost identical.

Morbid processes entailing suppuration may justly claim a very high interest in this relation. The accumulating evidence of bacteriology, until very recently, seemed to show that pus is only formed in the presence of certain minute organisms. These organisms, it is true, are not always identical. More recent research makes it probable, although they may still be regarded as the prime factors, that not they but ptomaines, their products, are the agents, the presence of which in the tissues brings about suppuration. A recent publication by Grawitz and de Bary,<sup>1</sup> makes it appear that except in the presence of their peculiar ptomaines, pyogenic micro-organisms are incapable of exciting the suppurative process, that these peculiar chemical substances are, of themselves, capable of inducing the formation of pus when the organisms have been excluded by sterilization, and that the pus thus formed when subjected to cultivation-experiment remains absolutely infertile. More than this, they have shown that certain sterilized chemical substances, such as liquor ammonia, are capable of exciting suppuration when introduced into animal tissues, after the agency of organisms has been precluded by careful precautions, thus confirming the conjecture of Briège, who having discovered that staphylococcus pyogenes aureus forms much ammonia and streptococcus, trimethylamine, considered it possible that simple ammonia bases in a nascent state, may excite inflammatory processes. Nevertheless, if ptomaines be proven to be the immediate excitants of suppuration, it must be admitted that the prime factors

<sup>1</sup> Virchow's Archiv., vol. cviii, p. 67. 1887.



must usually be micro-organisms, and it cannot be denied that several different bacteria may constitute the efficient agencies. In cutaneous suppurative processes, most interesting considerations are presented. The spreading conviction that suppuration in the course of cutaneous, as of other diseases, is attributable to the engrafting of a secondary morbid process upon a primary essential one through the diminished resistance offered by the injured tissue to the inroads of the always present and ever alert micro-organisms, prepares and partially justifies us in receiving with a considerable degree of credence some recent bacteriological observations upon these points, attesting the influence of these organisms.

Max Bockhart<sup>2</sup> found that ordinary impetigo, furunculosis and sycosis are produced by the invasions of staphylococcus pyogenes aureus and staphylococcus pyogenes albus. By impetigo he understands the impetigo of Wilson as well as the simple pustular lesion observed in scabies, eczema and prurigo. The differences in result in these affections he attributes to the varying depth to which the bacteria penetrate as well as to the varying anatomical structure of the parts invaded. These conclusions, which are quite reconcilable with those of clinical experience, find some further confirmation in the researches of Longard,<sup>3</sup> who found in nine cases of folliculitis abscedens infantum (furunculosis), staphylococcus pyogenes albus, four times alone, and five times in association with staphylococcus pyogenes aureus. Quoting from the address of Unna at the last International Medical Congress, we see that "in acne vulgaris the formation of comedones on the one hand and the purulent inflammation of the follicles on the other represent two processes internally absolutely foreign, externally simply combined but existing independently of each other." The rôle of pyogenic bacteria is no less important in the secondary processes of affections, primarily specific. Guttman<sup>4</sup> found after cultivation in various appropriate media in the contents of the small-pox pustule, colonies of the staphylococcus pyogenes aureus and white colonies differing from staphylococcus pyogenes albus in biological peculiarities and in their non-infectious nature. To these organisms he attributes the pus-formation but not the contagion of variola.

The suppurative process, then, illustrates the point, in its pathogenesis, that not only may apparently dissimilar morbid actions have a common origin, but that identical results may follow the action of dissimilar causes. But, what is more important, it also shows that the simple concurrence of a specific morbific principle and a living tissue do not always result in pathological action, but that there must be superadded the primary predisposition to disease, in the modification of the tissue, by which its powers of resisting injury and maintaining its integrity have been diminished.

It is also justifiable to conclude that more occult influences than those

<sup>2</sup> Monatshefte f. praktische Dermatologie, 10. 1887.

<sup>3</sup> Archiv. f. Kniderhuikunde, Bd. viii, H. 5. 1887.

<sup>4</sup> Deutsche Med. Wochenschrift. 42, 43. 742-758. 1886.



concerned in pus-formation may vary in their primary mode of action as the conditions of their existence vary; dissimilar in themselves they may coincide in their ultimate results. Familiar illustrations of cutaneous expressions of internal disorders have already been referred to. There can be no doubt that many affections are considered as skin diseases, and are designated as such, only because we are unacquainted with the subtle and remote pathological processes, of which they are expressions. It is likely that various forms of dermatitis exfoliativa, of pemphigus, of dermatitis herpetiformis, among others, are such. Let us consider, for example, the disease known as impetigo herpetiformis or rather that group of disorders designated by Duhring as dermatitis herpetiformis, and, according to him, including in its severest forms the impetigo herpetiformis of Hebra. The latter, as originally described by Hebra, is an affection occurring in gravid and puerperal women, terminating fatally in the great majority of cases. Kaposi, who vehemently objects to its classification with the dermatitis herpetiformis of Duhring, has recently contributed an important article<sup>5</sup> in which, not well establishing his claims in other respects, he finds himself compelled to admit that the affection may attack men as well as women. Of the thirteen cases summarized by this writer at least one recovered. That the cutaneous lesion may vary from a purely pustular or impetiginous eruption is demonstrated by Kaposi's own case, since in it, diffuse erythema and wheals of urticaria were abundantly developed. The varied character of the general symptoms and of the pathological alterations teaches us that the eruption designated as above can hardly have a constant and characteristic etiological relation to any defined morbid process. Post-mortem examinations have always revealed internal disorder, of which the cutaneous lesions have only been a part or concomitant. Some have shown pyæmic processes. Tubercular peritonitis, meningeal adhesions, important disorder of the cerebro-spinal system have all been recognized. Vitally important as the lesions heretofore described have proven, they have not been constant and cannot, as yet at least, be considered to form a well defined pathological group, of which the impetiginous eruption has supplied the clinical evidence. If we may accept Hebra's opinion that impetigo herpetiformis depends upon a reflex nervous and vascular irritation, we may venture to conclude that this irritation may originate in pyæmia or in tuberculosis or in any agencies that act in a similarly injurious manner upon the trophic centres. If the impetigo prove thus to be a secondary pathological product it is no more entitled to consideration as special disease than are the pneumonias or arthritic inflammations that follow pyæmia or tuberculosis. If we consider this affection from the broader standpoint of Duhring there is the better justification for not more than provisionally receiving dermatitis herpetiformis into the classification of substantive diseases; provision-

<sup>5</sup> Viertelj. f. Dermatol. u. Syph., vbl. xiv, 273. 1887.



ally, since while Duhring has, with great acumen, made it evident that under this designation it becomes possible to group together affections heretofore considered distant or noticed in literature as atypical and indeterminate, into a series in which the clinical relationships, at least, are pronounced, their etiology and pathology seems to be in many cases quite different. In the sense of its clinical conditions, and it is thus that we understand Duhring to consider it, dermatitis herpetiformis is entitled to a place in our text-books just as we admit purpura and other disorders which we recognize as largely symptomatic; while in the etiology of dermatitis herpetiformis we may recognize the pregnant and puerperal condition, pyæmia and the influence of profound nervous perturbation, it is to be noted that there have been found after death lesions of the cerebro-spinal system, that may to some extent attest the secondary character of the cutaneous lesions. In Kaposi's latest case of typical impetigo herpetiformis it was found that in the cervical portion of the spinal medulla the dura and pia-mater were adherent. The cord itself was large and smooth. Upon section the cervical portion showed a sharply-margined cavity of from three to five millimetres broad by six centimetres long. At the autopsy of a case reported by Jahrich as anomalous but resembling herpes iris, and which Duhring has adopted as belonging to the group included in dermatitis herpetiformis, there was discovered inflammatory alteration in the gray axis extending irregularly from the third cervical to the eighth dorsal vertebra;<sup>6</sup> a case which Duhring, likewise, concludes to have presented symptoms common to dermatitis herpetiformis, was reported by Meyer,<sup>7</sup> the disease, beginning as eczema, assumed the appearance of pemphigus and gradually came to resemble pemphigus foliaceus. In the small cutaneous nerves were found many empty nerve-sheathes and a number of nerve-fibres in an early stage of parenchymatous degeneration. The spinal ganglia were unaltered. The cord, however, was extensively diseased throughout the cervical and dorsal portions and partially in the lumbar portion. The interstitial tissue was thickened. The sclerosis extended along the columns of Goll. Scattered areas of sclerosis were found in the columns of Burdach as also in the lateral columns. The anterior columns were intact. The gray substance was not essentially changed.

Other examples of the dependence of cutaneous lesions upon, or their concurrence with, disease of the central nervous system and of the viscera, are abundant and are everywhere acknowledged; so, also, are the evidences that many cutaneous affections have each a varying etiology. The subject is, indeed, trite. But while prime etiological factors may vary and while differing in themselves may produce identical results, it is to be well understood that these results are not always the immediate effects of their action,

<sup>6</sup> Viertelj. f. Dermatol. u. Syph., p. 195. 1880.

<sup>7</sup> Archiv. f. Path. Anat., xciv. 1883.



but are, very often, to be recognized as products secondary to more subtle changes evoked in parts upon the healthful status of which normal nutrition depends. When such primary morbid processes come to be well understood, it may be confidently asserted, that it will be shown that in proportion to their distribution and intensity will the alterations secondary to their immediate influence over nutritive processes, resemble or differ. It is the important task of pathology to discover these and until our knowledge becomes more definite, we cannot hope that our classifications of disease will prove more than tentative. Symptomatology must be permitted to form with pathology their groundwork. It does not lessen our conception of a disease characterized by a peculiar and circumscribed eruption and by definite subjective symptoms, if we call it "herpes zoster," though we know that this eruption is associated with, and probably dependent upon, inflammatory changes in the sensitive nerves and ganglion of the spinal cord and trifacial nerve. Whether the determining influences of this inflammation are constant, and to what extent they are comparable to other more diffuse and less determinable processes and of what nature they are, it remains for pathology to discover. Until this be done we cannot expect that diseases will be considered so much as what they are, as what they appear to be.











