Satterlee (F. le Roy)

PSORIASIS:

ITS ETIOLOGY, RELATION TO RHEUMATIC DISEASE,

AND THE

RATIONALE OF A COGNATE TREATMENT.

BY

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Presented by A. E. M. Purdy

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To those of the profession who have battled with psoriasis, not only in severe exhibitions where major portions of the body are covered with this most obstinate eruption, but even where presented in more insignificant proportions, a sense of disappointment and impotency are not wanting in viewing the results of all treatment hitherto academically received and adopted.

It is needless to ask whether topical treatment with tar, green soap, oil of cade, blistering, carbolic acid or the like, and with internal arsenical medication, meets with other than temporarily suppressive or palliative results; thus seeming to evince that our treatment is at best an attack upon symptoms.

In the search for cause suggested by this dissatisfaction, it has occurred to the notice of Dr. Bence Jones, and been hinted by two or three other practitioners, that an identity or similarity of cause in psoriasis and in certain rheumatic affections was indicated, but nothing has been presented showing any extended following up or testing of the suggestion. While pursuing with interest this affection of the skin in private practice and in the N. Y. Dispensary for Diseases of the Skin, it fell also to my lot to deal with many rheumatic cases, especially in that

department of the Northeastern Dispensary of this city. The success of the latest and most logical treatment of rheumatism confirming the most scientific theory of its cause, and the continued observation of psoriasis suggesting similar chemical actions, an inquiry of patients under the latter disease developed almost universally the precedence or concomitance of rheumatic exhibitions; or otherwise a rheumatic diathesis in the person or family, and the same characteristics in inheritance of tendency, persistency of continuance or recurrence in both diseases. It was with the satisfaction and encouragement in noting the confirmitory hints alluded to, of Bence Jones and others, that I commenced, some two years since, to test the similarity of physical conditions present in rheumatism and psoriasis, and to treat the latter disease on the theory of an identity of the *materies morbi*, and with results so uniform and permanent that I feel warranted in presenting the rationale and argument after citing a representative case, which fortunately gives necessary test conditions of long continuance, the fullest exhibition of severity and the prior treatment in the best colleges, dispensaries and asylums; thus insuring the most thorough and discreet employment on several occasions of present accepted treatment.

P. H., age 24, Irish; by occupation a porter. The psoriasis eruption broke out eleven years ago, progressing rapidly until the whole body, except the head and hands, was covered. Spots the size of an English shilling; very close to each other, always dry and scaly; worse in cold and damp weather. After five years they appeared on the hands and face also. *Family history:* healthy on the mother's side, as far as known; mother died of some bladder disease (probably calculous). Does not know about the family on the father's side; father was killed; several brothers and sisters had this eruption. *Antecedent history:* always moderate in habits; worked hard; very active. General functions, digestion, circulatory and respiratory symptoms normal; nervous temperament. Has had rheumatism, especially within later years. Seven years ago received treatment in Manchester, Eng.; internal medication for several weeks, with no effect, after which took medicine and applied salve as

recommended by friends, or on his own suggestion, with no effect; nearly killed himself by the excessive use of senna and salts. In this country, first tried the homœopathic and hydropathic treatments, with no effect, except to wash off the scales by excessive bathing. After this he applied to the College of Physicians and Surgeons in this city, and was exhibited to the class as a typical case of psoriasis. Sent to the Strangers' Hospital, where he received the orthodox treatment; alkaline baths, green soap, and Fowler's solution, run up to very large doses per diem. After five weeks of this treatment, no improvement was noticed, as declared by the visiting physician. The same treatment more energetically tried, served only to slightly moderate the severity of the affection; after four months of this treatment he was discharged from the hospital *incurable*. He went back to work covered with the eruption. (I find at this time he suffered for two weeks with inflammatory rheumatism.) He then again tried the homœopathic treatment for three weeks, with no good results. Was sent to the N. Y. Dispensary for Diseases of the Skin, and came under my charge. He was at that time, eight months ago, completely covered with the disease, excepting the face and hands; the legs and arms one mass of eruption. I directed my internal treatment on the theory of an excess of uric acid in the system, which must be oxidized up to the point of urea; putting him on internal treatment, giving alkalies, and restricting the diet to vegetables and fruits and vegetable acids, forbidding meat, and using no external treatment except an occasional alkaline bath. Applied acetic acid externally to one or two inches of the eruption, merely as a placebo. The result manifested itself in three weeks, and from that time he gradually cleared off until in three months he was completely well, and had gained several pounds in weight during the treatment.

To demonstrate fully the theoretical basis of identity of cause and treatment, I may be permitted to allude to the chemical argument of the etiology of rheumatic affections, continuing its application to the morbific cause of psoriasis, previously alluded to as the abnormal amount of uric acid and its non-oxidation to the point of urea formation. In doing this, I use

as far as possible the form of statement of the investigators of this diathesis, whose labors give us authority: "A vast class of diseases can be proved to be errors of chemical action—interferences caused either by want of regulation, or by the introduction from without, or by the generation within the body of substances that increase, diminish, or change the *oxidation* which is necessary for the working of the body." *

"The precise constitution of healthy blood is adjusted by the balance of the nutritive process for maintaining the several tissues, so that none of the materials appropriated for the maintenance of any part may remain in *excess* in the blood. Thus each part is in relation of an excretory organ to all the rest. For example, if the muscles did not take material for their nutrition, there might be an excess of fibrin and their other constituents in the blood; if the bones did not do so, the salts of lime might be in excess, and so on." †

Now, this balance may be destroyed, and there are two conditions most likely to have been the cause; a given constituent of the food in too great an excess; and conditions retarding the normal change of tissue, and thus preventing the appropriation of the new material to construct healthy blood. Accordingly experience shows that gout, rheumatism, and allied affections are met with in individuals addicted to an over-indulgence in nitrogenous diet and generous wines, combined with sedentary habits. These conditions are intimately associated with the presence of uric and oxalic acids in the blood, and their manifestations. That there is an excess of fibrin in the blood in cases of rheumatism, has been shown by the analyses of Alderson and others. It is apparent that in rheumatism fibrin is present in more than double the usual proportion. By still more recent investigation the difference is made even greater, as it has been ascertained the amount of fibrin in healthy blood is considerably less than 3 per cent.

Given, therefore, excessive indulgence in nitrogenous diet, accounting for excess of fibrin in the blood, and conditions which retard the transformation of effete tissue, what is likely

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* Bence Jones. † Kirke's Physiology.

to result? First, fibrin in excess in the blood will render the normal supply of atmospheric air for its required purposes in the economy, insufficient; while a sedentary life, independent of the foregoing, retards metamorphosis. Under these circumstances, it must follow, that if urea, carbonic acid, and ammonia represent the full oxidation of the proteids in the body, a compromise may be the result, and the production of intermediate compounds. "Under ordinary circumstances, when uric acid is formed, as it is in all warm-blooded animals, it must be further oxidized, or else, by its insolubility, it is deposited or combines with alkaline bases, producing calculous diseases."*

Liebig observes that "when uric acid is subjected to the action of oxygen, it is first resolved into alloxan and urea; a *new supply* of oxygen acting on the alloxan causes it to resolve itself into oxalic acid and urea, or into oxaluric and parabanic acids, or into carbonic acid and urea."† The various excretions, as we know, are simply *removed* by the emunctories; and those excretions, it seems, must be in some *required* chemical condition, or they are imperfectly removed and otherwise remain as abnormal disturbants. The varied phases of disturbance in the vital economies produced by these abnormal conditions we can only perceive by observations of *results* and existing states; the molecular methods that determine the specific exhibitions of disease are as yet beyond our ken. What we *do* perceive is, that a certain state of *oxidation* is a prime necessity for elimination. Urea represents the oxidation more or less complete, of effete material, or of superfluous protein matter in the circulation.

If the oxidation of the proteids be not sufficiently complete, intermediate compounds are formed, and these constitute the materies morbi of certain diseases, such as rheumatism, etc. While uric acid may be a normal constituent of the urine, it should exist in but small quantity; hence the greater part of it is, in the system, raised, so to speak, by oxidation to urea. The kidneys do not, then, *form* urea; they merely remove it from the blood where it has been created by chemical changes.

* D. Campbell Black. † Liebig's Animal Chemistry, p. 137.

Urea, carbonic acid, water, ammonia, etc., are the results of the ultimate oxidation of effete tissue—not by direct oxidation, but through a serious of chemical evolutions. In gout and rheumatism, with an excess of fibrin and uric acid in the blood, and excess of uric acid in the urine with sedentary and indulgent habits, we have affections of the white tissues, sheaths of muscles, aponeuroses, bursæ, capsular ligaments, pericardium and endocardium, and deposition of urate of soda in the joints, and we look for a deficient oxidation of effete tissue as the immediate cause of these affections. A theory corroborated by the opposite conditions which occur in the pyrexiæ, in which class of diseases there is *excessive* oxidation of tissue, as represented in excessive excretion of nitrogenous compounds from the body, and in the treatment of which we give such agents as counteract oxidation, viz.: quinine, arsenic, alcohol, etc.*

Another demonstration of these opposite states should, I think, be shown by the non-existence of rheumatism or psoriasis with consumption in the same subject, which my observation has so far indicated to me. Recapitulating our argument briefly, we have seen that certain habits of body tend to the undue accumulation of proteids in the blood; that they are absolutely in excess relatively to the wants of the system, and relatively to the amount of oxygen consumed; that urea, carbonic acid, and ammonia represent the full oxidation of proteids; and that when this process is imperfect, the formation of intermediate products must result. And that the morbific cause of gout, rheumatism, etc., are the result of the imperfect oxidation of effete tissue, a theory borne out by the treatment most successfully employed. "In gout and rheumatism, then, it is inferred theoretically, on the best possible grounds, and practically on the evidence of our senses, that there is an excess of uric acid circulating in the blood."† With this view of the cause of rheumatism, borne out by the results of its treatment, it has occurred to several observers that in some manner psoriasis seems to occur with the same abnormal physical conditions, and to be associated with the rheumatic diathesis,

* D. Campbell Black. † D. Campbell Black.

and being indicated as the result of a like cause, should be cured by similar treatment. Among those who have noticed this connection between rheumatism and psoriasis I would cite Dr. Begbie, who, after recounting the symptoms usually resulting from the uric acid diathesis, adds: "And there is a tendency to certain cutaneous diseases, such as psoriasis, in these patients." And Dr. W. R. Basham writes: "Psoriasis and some other eruptions are in some measure connected with the defective metamorphosis of uric acid; and the inference is still further strengthened by the well-known favorable results of an alkaline plan of treatment."* Speaking again of the theory of oxidation, he says: "The interpretation, moreover, is strictly in accordance with what the ablest chemists have recently established, namely the conversion, both in and out of the body, of uric acid, by the agency of oxidizing agents, into oxaluric acid, and ultimately into urea and oxalic acid. . . . . The action of alkaline salts, then, appears to be to facilitate the metamorphosis of uric acid and hasten its conversion into oxaluric acid, which, as oxalurate of ammonia or potash, is excreted in the urine, and which, after passing from the bladder, is quickly split up into oxalic acid and urea."†‡ If, then, we will regard psoriasis and rheumatism as produced by the same general cause or condition of the system—namely, the result of the metamorphosis of an excess of nitrogenous substances—our treatment is readily suggested. Decrease the amount of nitrogenous food taken into the body, by restricting the diet, and give such remedies as will promote oxidation, so that the excess of nitrogenous material may be oxidized up to the point where it is easily eliminated from the body. In a chemical point of view, the alkaline salts constitute the most important principles promoting oxidation; even vegetable acids are converted in the system into carbonates for this purpose. The alkalies do not neutralize the uric acid, as was at one time supposed; but

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* Dr. Basham in *The Practitioner*. Nov., 1870.

† Dr. Basham.

‡ Oxaluric acid ($C_6 H_3 N_2 O_7 + H O$) contains two atoms of oxalic acid ($2(C_2 O_3)$), and one atom of urea ($C_2 H_4 N_2 O_2$).

they prevent its formation to the extent which constitutes a materies morbi, by oxidizing it up to urea. Lemon-juice, of which the chief constituent is citric acid, has likewise been shown to possess remarkable therapeutic properties in these, as well as other affections. Large draughts of pure water act by oxidizing, the water being decomposed, its hydrogen contributing to form ammonia, and its oxygen urea. In this treatment the good effects are but slowly manifested. Two or three weeks sometimes pass before a change is noticed; then the eruption begins to pale and to scale less; this is followed by an improved general condition. The patient says that he feels better and stronger than he has done since the first appearance of the disease. The eruption takes a natural mode of subsidence, the spots changing into rings, by the appearance of healthy skin in the centre of each spot. These rings gradually break up into segments of circles, and then disappear, leaving a faint pinkish stain on the skin, which in turn vanishes. The smaller spots (guttata) also disappear, some leaving transitory stains, and others none at all. When the patient is entirely well of the eruption his general health is improved; he has often gained much in weight during the treatment; and I have yet to see a case where the disease has returned after the cessation of alkaline medicine, although I have maintained (but not so strictly as during the treatment) a general vegetable diet. Several times I have suspended the treatment, and allowed a return to a meat diet, with alcoholic stimulants, which was speedily followed by a retrogression in the cure. As psoriasis is essentially a chronic affection, coming on slowly and gradually, requiring sometimes many years to cover the body, we cannot, of course, expect to speedily eradicate the disease. By this treatment, from one to six months may often be necessary to produce the desired result.