

On ichthyosis, with special reference to the particular forms in which it occurs / [J. Warburton Begbie].

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X.

ON ICHTHYOSIS;

WITH SPECIAL REFERENCE TO THE PARTICULAR
FORMS IN WHICH IT OCCURS.

(Read to the Medico-Chirurgical Society of Edinburgh, June 5th, 1861.)

THE term Ichthyosis has for a long period been applied to an affection of the skin, characterised by the formation of scales, peculiar in their nature, and bearing a resemblance, more or less marked, to those of a fish.

In several of the older writers, descriptions of cases, designated for the most part as rare and remarkable, will be found, which are, no doubt, examples of one of the now recognised forms of ichthyosis. Panarolus,¹ who flourished as professor in Rome about the middle of the seventeenth century, gives a curious description of a woman who was otherwise free from disease, but whose skin was everywhere covered with scales. ("Mulier in cute squamas undique repræsentans citra morbum.") Stalpartius Vander Wiel,² physician at the Hague, and the contemporary of Panarolus, under the head of "Squameus, ac veluti Phocæ pelle contectus puer," records a remarkable case. It is curious, moreover, as illustrating the notion which was entertained regarding the origin of the disease at the period

¹ Dominicus Panarolus Romanus. 'Iatrologismorum seu Medicinalium Observationum Pentecostæ Quinque, &c.' Hanoviæ, 1654. See p. 146.

² Cornelius Stalpartius Vander Wiel. 'Observationum Rariarum Medic. Anatomic. Chirurgicarum Centuriæ posterioris, Pars prior, &c.' Leidæ, 1727. Observation 35. See p. 374.

in question. The case, indeed, is adduced by Vander Wiel as an example of the power which the imagination exerts over the body, and specially in the instance of pregnant women. In the year 1683, says the author, a boy, about 10 years of age, by name Bernardus, and born in the kingdom of Naples, was seen at the Hague. The hands and feet, legs and arms, of this boy were covered with rough scales; also the whole body, the head alone being unaffected. His maternal aunt, under whose care he was, accounted for the occurrence of the deformity of the skin by the mother, when washing linen at the shore, having seen in the river many scaly animals and shell fishes, by which her imagination had been so occupied, that, not long afterwards becoming pregnant, the fœtus acquired the character described. In this opinion Vander Wiel concurred; and he refers to other instances of a similar kind detailed by different authors. Those interested in the early history of ichthyosis should consult the writings of the physicians now named, as well as those referred to by Vander Wiel. In the treatise, '*De Medica Mirabili Historia*,' of Marcellus Donatus,¹ who lived in the preceding century, some interesting allusions to skin affections of the same nature will be found. I must pass, however, to a brief notice of more recent accounts. Plenck,² of Vienna, the earliest to publish anything like a detailed cutaneous nosology, placed ichthyosis in the class of *Squamæ*, the seventh in order of his arrangement, following in his definition the description of the disease offered by Sauvage in his '*General Nosological Method*,' which had appeared some years previously. By Willan, writing in 1798, ichthyosis was placed in the sixth of the eight classes into which he divided cutaneous diseases; and in the same order, *Squamæ*, it remained in the modification of Willan's arrangement adopted subsequently by Bateman. Alibert, in 1810, attempting to form his cutaneous nosography by grouping together diseases which presented distinct analogies, made a separate class, "*Ichthyoses*." Into this he admitted many varieties dependent on a fancied resemblance to different fishes, or the barks of different trees. Some among the more recent classifiers of cutaneous diseases have apparently experienced much

¹ A physician of Mantua, died in 1600. His work, referred to above, was published at Mantua in 1586.

² '*Doctrina de Morbis Cutaneis*.' 1783. See p. 89.

difficulty in assigning a proper place in their arrangements to ichthyosis. Thus, the late Dr. Anthony Todd Thomson, in his edition of the 'Practical Synopsis of Willan and Bateman,'¹ objecting to its being included, as these writers had done, in the order of Squamæ, placed ichthyosis under the head of Tubercula, though evidently with some degree of hesitation; for he observes: "notwithstanding the minuteness of the morbid papillæ, it certainly is more allied to the tubercula." Mr. Plumbe,² whose treatise was first published in London in 1824, includes ichthyosis, with lepra, psoriasis, and pityriasis, under the head of diseases marked by chronic inflammation of the vessels secreting the cuticle, producing morbid growth of this structure; constitutional causes or influence uncertain. Cazenave retains ichthyosis among the Squamæ; but his English editor, Dr. Burgess, regards the disease as being both misnamed and misplaced. "There is nothing," remarks Dr. Burgess, "scaly about it. The term warty disease would be much more appropriate than that of fish skin."³ The German synonym for ichthyosis is Fischuppenkrankheit; and by Hebra, so highly esteemed as an authority on diseases of the skin, it is included along with pityriasis and psoriasis in his third class, that of scaly eruptions, "Die Shuppichten Hautausschläge," Efflorescentiæ Squamosæ.⁴ On the other hand, Dr. Parkes has placed ichthyosis by itself, as a disease of doubtful position.⁵ Rayer,⁶ the well-known writer on cutaneous diseases, describes it under the head of Hypertrophies; and, still more recently, Dr. Neligan,⁷ following Gustav Simon, also removes ichthyosis from the Squamæ, and includes it with molluscum and other disorders in a class of Hypertrophieæ. Other opinions might be

¹ See p. 377.

² 'A Practical Treatise on Diseases of the Skin.' By Samuel Plumbe, &c. See p. 330.

³ 'Cazenave.' Translated by Dr. Burgess. See foot-note, p. 220.

⁴ 'Diagnostik der Hautkrankheiten in tabellarischer Ordnung nach Dr. Hebra's Vorlesungen.' Von Dr. Benedict Schulz. Wien, 1845. See p. 36.

⁵ 'Dr. Anthony Todd Thomson's Practical Treatise on Diseases affecting the Skin.' Edited by Dr. Parkes. See p. 347.

⁶ 'Traité Théorique et Pratique des Maladies de la Peau,' tome iii, p. 614.

⁷ 'A Practical Treatise on Diseases of the Skin.' Dublin, 1852. See p. 257.

quoted, but these statements will probably suffice to indicate the different views which exist in respect to the nature and proper classification of ichthyosis. Whence, then, arises this difference of opinion? My own observation of the disease has led me to regard it as essentially a scaly or squamous disorder, and therefore correctly associated with lepra and psoriasis; but this applies to what, by way of distinction, must be called the true form of ichthyosis, and to it alone; for—and in this is the explanation of the different views which have been expressed to be found—unfortunately, under the one head, Ichthyosis, cutaneous affections possessing no real resemblance have been included. There are two among the most recent writers upon diseases of the skin who have done much to clear away the confusion which has arisen from the cause just adverted to. These are Mr. Erasmus Wilson and M. Devergie, more especially the latter. Mr. Wilson¹ treats of ichthyosis under the general head of “Diseases affecting the Special Structure of the Skin;” Diseases of the sebiparous glands. He has noticed augmentation of secretion, and the opposite condition, diminution of secretion, which he denominates Xeroderma (from the Greek ξηρὸς, aridus, dry), simply dry skin, and then he describes a xeroderma ichthyoides, for which ichthyosis vera, true ichthyosis, is a synonym. Mr. Wilson, in the opening sentence of his account of this affection, accurately explains the origin of the great confusion in the writings of different authors. This, he says, arises “from the want of a distinction between two obvious forms which the disease is apt to present. In one of these, to which I have given the term xeroderma ichthyoides, and which may very properly be called ichthyosis vera, the epidermis is the seat of the morbid alteration; while in the other, which I have named ichthyosis sebacea, and which may also be denominated ichthyosis spuria, the morbid appearances are due to the presence of the sebaceous secretion, altered in its quantity and quality, and deposited on the surface of the skin.” M. Devergie,² retaining this disease among the Squamæ—affections squammeuses, distinguishes three principal forms of ichthyosis. These are—Ichthyose blanche, Ichthyose brune, and Ichthyose porc-epic. The first of these is the true ichthy-

¹ ‘On Diseases of the Skin.’ Fourth edition. See p. 587.

² ‘Traité Pratique des Maladies de la Peau,’ p. 493. Deuxième édition.

osis, and is to be regarded as a different affection altogether from the remaining two. Of the white, or true ichthyosis, Devergie describes three varieties, distinct in themselves. One of these, which at first sight is scarcely appreciable, is named, "*ichthyose blanche farineuse*;" it is characterised by the skin presenting a farinaceous or mealy aspect, from which, when rubbed in different directions, a mealy powder is detached. In the second form of white ichthyosis, named "*ichthyose écaillée*," the skin is covered with scales or epidermic laminae, pearly in appearance (*lames épidermiques nacrées*), and possessing a size and arrangement which certainly give to the skin thus affected an appearance resembling the skin of fishes. It is, however, seldom that the whole surface of the body presents a similar aspect. The forearms, the legs, and, less frequently, the arms and thighs, are apt to exhibit these pearly scales. The third form of white ichthyosis occupies a position between those already described, the shades of difference, however, being very various. Of it, M. Devergie mentions two varieties—*ichthyose nacrée serpentine*, and *ichthyose nacrée cyprine*. The grand distinguishing feature of these three forms of white ichthyosis in their different degrees of pronunciation—in other words, the most important feature in the recognition of true ichthyosis—is the colourless aspect of the epidermal productions. In true ichthyosis the whole surface of the body is habitually more or less affected, not excepting the face. This general character of true ichthyosis is specially insisted upon by Devergie. He does not recognise what various authors have described under the name of local ichthyosis. True ichthyosis is always a general malady of the skin, not presenting itself in circumscribed patches, as psoriasis and *lepra vulgaris* do; it is always diffused; and when one member, in its whole extent or partially, is found affected in a more or less considerable degree the three other limbs will appear in a nearly similar condition. Such is a somewhat detailed account of the description of true ichthyosis offered by M. Devergie.¹ This is the affection with which clinical experience, more especially in the hospital, has made me familiar, and has afforded me the opportunity of corroborating the views and so establishing the accuracy of Devergie's descriptions. Before passing, however, to a brief consideration of the clinical experi-

¹ *Loco citato*, p. 495.

ence of true ichthyosis, I have to notice very shortly the other affections of the skin included under the same name. These are, in the division of M. Devergie, brown ichthyosis (*ichthyose brune*), and porcupine disease (*ichthyose porc-epic*). Brown ichthyosis has no real resemblance to the white or true ichthyosis. The epidermal production which distinguishes it is of a greyish-brown colour; and, on passing the hand over the affected surface, it is found to be hard like a wart, or even horn—portions breaking off, or irregularly splitting, on any pressure being applied. Unlike the true ichthyosis, this is not a general disease; it is found occurring around the knees, over the popliteal space behind, in front of the ankle, at the elbows and wrists; its most frequent situation by far is in the neighbourhood of the knee, anteriorly and posteriorly. I have twice seen brown ichthyosis, in a very well-marked form, between the leg and foot, in front of the ankle. Like true ichthyosis, this affection may occur in the earlier months of life. Generally speaking, however, it becomes developed at a later period. Lastly, the porcupine disease—*ichthyose porc-epic*. This affection, styled by Mr. Erasmus Wilson *ichthyosis sebacea spinosa*, only differs from the other form of sebaceous ichthyosis he describes, in the shapes assumed by the hardened sebaceous matter when it has become effused. Several well-known examples of this form of ichthyosis are on record in recent times; and there can be little doubt, from the descriptions of older writers, that some of the instances observed by them were of this nature. In 1710 a Suffolk man was known under the name of the "Porcupine Man," owing to the whole surface of his body, with the exception of the face, palms of the hands, and soles of the feet, presenting an appearance of short, hardened spines. The disease appeared in this man two months after birth. He enjoyed fair health, married, and had six children, who were all similarly affected. Two brothers, of the name of Lambert, suffered from the same disease. In this family, ichthyosis of the nature in question was hereditary—appearing, however, only in the male branches. These and other instances¹ are referred to in all works on diseases of the skin. The beautifully-executed model which I show, is illustrative of this disease as occurring in a

¹ See 'Medico-Chirurgical Transactions of London' (vol. ix, 1818) for Mr. Martin's well-known "Case of Hereditary Ichthyosis," p. 52.

man 45 years of age, who enjoyed good health and suffered no inconvenience from his unseemly disorder. The disease appeared to be hereditary, but as in the case of the Lamberts, through the males, the females always escaping. This man had one child, happily a female, who was quite free from the disease. There appears to me no good reason for separating the brown ichthyosis from that form of the malady now described. Both are included by Mr. Wilson¹ under the head of Ichthyosis Sebacea; in the one the affection is localised, in the other it is more diffused; but evidently in both the essence of the disease consists in an increased as well as altered secretion of sebaceous matter. It is the sebiparous cutaneous glands which are primarily at fault. Neither is there any real distinction to be sought between the sebaceous ichthyosis when the hardened matter assumes the form of flattened plates, and when, on the other, its comparison to the quills of the porcupine more correctly distinguishes it. These are essentially the same disease—forms of ichthyosis spinosa, as Mr. Wilson has well named them. It is certainly to be regretted that a disease, or the two forms of a disease, bearing no resemblance whatever in their external characters to the appearance of a fish, should have been thus named, and for a lengthened period familiarly recognised; but this cause for regret will be in great measure removed, by the adoption of correct views in regard to the nature of the two different diseases included under the one name. It is altogether erroneous to say that the term ichthyosis, when used, is always misapplied. This, however, is the statement of Plumbe,² as well as of Dr. Burgess, in the passage already noticed. There is a cutaneous disease of general diffusion, characterised by the formation of altered epidermal scales, sometimes more correctly styled plates, which are colourless, or nearly so, and which on some parts of the affected surface bear the closest possible resemblance to the scales on the sides or back of certain fishes. In this disease it is the epidermis which is affected; the secreting glands of the skin are wholly uninvolved. There is no increase of sebaceous matter; on the contrary, the skin is unusually dry, and as a consequence of that alone, it is rough. This is the ichthyosis vera, true ichthyosis—the ichthyose blanche of Devergie. A short account of my clinical experience of this disease will con-

¹ Loco citato, p. 596.

² 'Diseases of the Skin, p. 331.'

clude these observations. Several instances of true ichthyosis have fallen under my notice since I first became familiar with its appearance in the Saint Louis Hospital at Paris, and chiefly in the wards of M. Devergie. Of those observed in the Infirmary I select two for more particular notice :

R. H—, æt. 15, bookbinder, a native of Edinburgh, entered the Infirmary in January, 1857, suffering from a very severe attack of acute bronchitis. A peculiar condition of the skin was immediately observed to exist; it was very dry, and over the trunk, harsh. On the upper and lower limbs the surface was much smoother though equally dry. Epidermal scales, closely resembling in appearance, and more especially in their relation to each other, the scales of a fish, were seen over the limbs, particularly over the thighs and calves of the legs, also over the whole of the lower part of the abdominal surface. The remarkable smoothness of some parts of the affected skin allied it to the so-called ichthyosis nitida; in others, the distinctly shining aspect of the scales established the appropriateness of Alibert's appellation, *ichthyose nacrée*. The skin of the face was very slightly affected. The morbid condition of the surface had existed since infancy. Maternal grandfather was stated to have the same disease. This lad had a very narrow escape from death in his bronchitic attack. No diaphoretic remedy had the very slightest effect. He did, however, recover, and thereafter was treated for the cutaneous affection. He was undoubtedly benefited by arsenic, and the continued use of the warm bath, more especially when sulphur was added; but when the former remedy was omitted, the disease, never altogether removed, returned; and lately I found him quite as much affected with ichthyosis as before.

Upon this case I may remark, that, owing to the serious aggravation of the chest inflammation caused by the cutaneous disease, I was especially anxious, on the recovery of the lad from the former, to adopt the treatment most likely to be serviceable in removing the skin affection. Arsenic did influence it, but only for a time; the disease returned. This is a special character of ichthyosis; it is little amenable to treatment. Devergie remarks, "Ichthyosis is generally an incurable malady."¹

In the second case recently under my care in the Infirmary, the patient, a young boy of 14, who has had the disease nine years, without any hereditary history, has been decidedly benefited by the arsenic; but still the morbid condition remains, and I believe will remain. In this boy the fishy scales are tolerably well marked on both lower limbs, as distinctly

¹ Loco citato, p. 497.

above as below the knees. The warm bath, the use of the flesh-brush or a rough towel, and oleaginous applications, which may be considered as requisite adjuvants in treatment, have been employed in his case.

The late Dr. Anthony Todd Thomson, in his edition of 'Bateman's Synopsis,' mentions a case of ichthyosis as having been materially benefited by the internal use of a decoction of the *rumex acutus*. Dr. Parkes, again, in his edition of Dr. Thomson's own 'Treatise on Cutaneous Diseases,' refers to his successful employment of the *rumex obtusifolius*.¹ "If," remarks M. Devergie, "there be anything capable of effecting a cure, it is arsenic; but arsenic has failed in nearly all the instances in which it has been used." There is little risk of confounding true ichthyosis with any other cutaneous malady; but from the remaining scaly affections, for one or other of which it might possibly be taken, there are two characters which will readily distinguish it. First, as already insisted upon, its diffusion—ichthyosis is always diffused; secondly, the condition of integrity in which the subjacent skin is always found when the thickened and altered epidermal scales are removed. By both of these characters is ichthyosis to be distinguished from lepra or psoriasis and pityriasis, but especially by its general diffusion, from the latter—by the absence of any inflammatory indication, from the former.

In ichthyosis vera there is never any complaint of heat, itching, or uneasiness in the skin; nor, among the several instances of the affection which have fallen under my own notice, do I remember to have seen one person to whom the disease was more than a matter of curiosity. The existence of this form of ichthyosis in a marked degree may, however, prove serious in the way of aggravating, or at least complicating, other maladies. That the severity of the acute bronchitis in the first instance briefly related, was to a certain extent determined by the condition of the skin, there can, I think, be no reasonable doubt; while, unquestionably, the very harsh and dry cutaneous surface stood directly in the way of those febrifuge and specially diaphoretic remedies, upon whose beneficial operation in the treatment of that disease we are accustomed to place very considerable reliance.

¹ Page 349.

but briefly to the causes upon which dimness of vision or more decided loss of sight, when it does occur in diabetes, depends. One cause of defective vision in diabetes, and the first I shall notice, is cataract. This association had been at least casually observed by various writers¹ before the able and satisfactory elucidation of the subject by Mr. France, in the 'Ophthalmic Hospital Reports' for January, 1859, and more recently in 'Guy's Hospital Reports' for 1860. Among the former, Dr. Mackenzie,² the distinguished oculist of Glasgow, and Dr. Matthews Duncan,³ of Edinburgh, had specially observed certain instances.⁴ Mr. France has himself seen four cases, and from different sources has collected others, so as to raise the number to about twenty. To this list I am now able to add two cases which have recently fallen under my observation in the hospital, through the kindness of my colleague, Mr. Walker; both patients having, in the first instance, applied at the ophthalmic wards for advice in regard to their failure of sight. It is unnecessary to furnish minute details of these cases; the following summary of facts in each, from the more extended notes of my clinical clerk, Mr. Wilson Moore, will suffice. It is somewhat remarkable that both cases fell under observation at the same time:—

CASE 1.—Elizabeth R—, æt. 32, married, admitted February 1861, mother of two children. A maternal aunt died of diabetes. For nearly two years this patient has suffered from the same complaint. About three months after she first noticed the occurrence of excessive thirst, and the passage of an unusual amount of urine, her sight began to fail; it has gradually become more and more impaired, and for some months has been so bad that she has required to be led about. During last summer she suffered much from the occurrence of obstinate boils on different parts of the body. Latterly she has had cough, with purulent expectoration and frequent attacks of diarrhœa.

¹ See Valleix, 'Guide du Médecin Praticien,' tome iii, p. 552. 1850.

² 'Diseases of the Eye,' p. 747, under the head of "Remote and Predisposing Causes of Cataract." 1854.

³ His translation of 'Braun on Puerperal Convulsions,' foot-note, p. 15. 1857.

⁴ That, as Mr. France has conjectured, several other instances of diabetic cataract have been observed, cannot admit of any doubt. Lately, Dr. Cadenhead, of Aberdeen, informed me that he had seen, at all events, three such. Professor A. Von Graefe, of Berlin, regards their occurrence as far from rare.

On admission, she presents the marked aspect of a diabetic patient—greatly emaciated; skin very dry; much hair of head has fallen, it is now very thin; has double lenticular cataract, evidently symmetrically developed, and, from their colour and bulk, of soft consistence. The amount of urine passed in twenty-four hours varies from 180 to 220 ounces; of density 1·036, and highly saccharine. Physical signs of tubercular deposit exist in the apices of both lungs. The chest affection made rapid progress; signs of extensive softening and excavation in the pulmonary substance on the right side became developed; and the diarrhoea resisted all endeavours to check it. This poor woman died at the close of March. An examination of the body was made within thirty hours after death. Putrefaction had advanced very rapidly; so that a careful examination of the eyes, which Mr. Walker had proposed to make, was defeated. The lungs were the seat of extensive tubercular deposition; several cavities existed in the right. The pancreas was small.

The subject of this observation is still under my care in the Infirmary.

CASE 2.—Jane W—, æt. 37, married, admitted March, 1861. Has had four children. Has been suffering from diabetes for nearly eight months. During the last three months her sight has rapidly failed; that of the right eye became earliest affected. For a few weeks she observed that she could see best during the dusk; lately, however, she has lost sight entirely.

On admission, is thin and emaciated, with dry skin, constipated bowels, and much thirst. Urine has a density of 1·038 to 1·040; amount passed has not exceeded, on any occasion, 200 ounces in the twenty-four hours. Trommer's, the bismuth, and Liquor Potassæ tests show the presence of sugar in very characteristic degree. Has double lenticular soft cataract, precisely similar in appearance to that of the former patient.

Under treatment this patient has very considerably improved. Her strength has increased, and she has gained weight. The amount of urine is diminished to seventy ounces, and has been as low as fifty-five; the density is now uniformly 1·031. Her thirst is easily controlled. Animal food, gluten bread, Vichy water, a moderate allowance of sugar, and London porter, have constituted the dietary. Sensible benefit has resulted from the employment of the combined tinctures of the sesquichloride of iron and nux vomica. By doses of twenty drops of each, administered thrice daily, her thirst has been entirely removed.

In both of these cases the development of the cataracts occurred somewhat earlier in the progress of the general disease than has been observed in other instances; still, there can be no hesitation in concluding that the diminution or entire loss of sight dependent on opacity of the crystalline lens, when it does

occur in diabetes, is a phenomenon of its advanced stage. Mr. France has pointed out—to which the cases now briefly related form no exception—that in every example the cataracts have been symmetrically developed on both sides, and have also been of the soft variety. For a further interesting and accurate account of the eye-disease, I must refer to Mr. France's last communication on the subject.¹

The importance of the connection subsisting between cataract and diabetes is greatly increased by the results of certain experiments performed by an American physician, Dr. Weir Mitchell,² as well as those more recently instituted by Dr. B. Richardson, of London.³ Dr. Mitchell determined that in the frog "the formation of a peculiar variety of cataract is one of the most curious and striking symptoms attendant upon the sugar poisoning;" while the investigations of Dr. Mitchell and Dr. Richardson have demonstrated that, in the instance of several of the lower animals, when sugar, in one way or other, in considerable amount is introduced into the system, the formation of lenticular cataract is the result.

But it is very apparent that all instances of defective vision in diabetes are not dependent on the formation of cataract. There is a diabetic amaurosis as well as a diabetic cataract. Without depreciating the difficulty of determining between these two affections in their early stages, even by a very careful examination of the eye—a difficulty which the introduction of the ophthalmoscope has greatly removed—there are particulars in the instances of diabetic amaurosis which have fallen under my own observation, serving to distinguish it from those cases in which the failure of sight is due to the morbid condition of the lens:—1. In the former, the dimness of vision has occurred at an earlier stage of the disease. 2. It has been accompanied by pain, or at least uneasiness, in the eyes; or by peculiar noises in the ears; or by general headache. 3. The failure of sight early noticed continued to exist, making very gradual advance; and in some instances, after being stationary for a time, lessened.

¹ "Additional Notes on Diabetic Cataract," 'Guy's Hospital Reports,' Third Series, vol. vi.

² 'The American Journal of the Medical Sciences,' January, 1860. "Production of Cataract in Frogs by the Administration of Sugar."

³ 'Journal de Physiologie' for July, 1860.

I am disposed to think that these peculiarities, taken in connection with the careful inspection of the eyes themselves, will be found to establish the diagnosis; for, in the case of cataract—1, the failure of sight is not an early phenomenon of the diabetic state; 2, impaired vision is not accompanied by ocular pain, and still less by pain in the head generally; 3, instead of making slow progress, the sight, once affected, never improves, but becomes rapidly worse; and, when so, the cataractous appearance will assuredly be marked.

In one case of diabetes which fell under my care about five years ago, and which terminated fatally by coma, the condition of enfeebled sight had existed for many months, without the least appearance of cataract; and in that instance, as well as another, seen since, severe headache and tinnitus aurium were not unfrequent symptoms. In such instances the nervous system generally must be held as being injuriously affected through the altered condition of the blood. Precisely similar symptoms occur in the progress of renal disease.

It is not necessary, I think, to ascribe the failure of sight, as M. Mialhe does, to a milky state of the blood (*latescence du Sang*), caused by the presence of what he styles his modified albumen, altering the transparency of the humours of the eye;¹ for, firstly, there is no distinct proof of the existence of such a substance in the blood of diabetes; and, secondly, the phenomenon in question is really best explained by the operation of the blood—altered, impoverished, or poisoned—on the retina itself. In the so-called Diabetes Insipidus, a failure of sight, if not of precisely the same nature, nevertheless closely allied to it, occurs; also in anæmia and chlorosis, and in various other affections.

Failure of sight, then, occurring in diabetes is not necessarily to be ascribed to the existence of cataract, but may be truly of the nature of amaurosis. I have thought it expedient to direct attention to this point, specially at the present time, when, through the interesting observations of Mr. France, and the important experiments of Dr. Mitchell and Dr. Richardson, the subject of diabetic blindness is being discussed.

¹ 'Chimie Appliquée à la Physiologie et à la Thérapeutique,' p. 164.



