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The Influence of Country and Race in the Etiology of Trachoma

To Dr Fletcher
with the warm regards of
Swan M. Burnett

. . BY . .

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Reprinted from *Annales d'Oculistique*, March, 1896.

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NEW YORK
THE TRANSATLANTIC PUBLISHING COMPANY
63 FIFTH AVENUE

THE INFLUENCE OF COUNTRY AND RACE IN THE ETIOLOGY OF TRACHOMA.

By **SWAN M. BURNETT, M.D., Ph.D.**

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A recent article of Doctor Van Millingen in these ANNALES (September, 1895) on the statistics of trachoma is chiefly interesting from the conclusions which he draws from reports gathered by him from all parts of the world. Conclusious which we beg leave to submit are not at all warranted by the facts as set forth in the answers which his correspondents have given to the questions propounded and which form a part of his communication.

We are all aware in a general way of the liability of statistics to lead astray rather than into the path towards truth and also that their value depends entirely upon who makes them. But aside from the general objection there are several others of a more specific character to which those of Doctor Van Millingen are open, one of which is fundamental.

He has not, so far as these published answers show, clearly defined the disease concerning which he wishes information. It is well known that under the term "granular lids" are comprehended at least two diseases of the conjunction which are recognized by some of our best observers as entirely distinct affections.

This distinction, however, is not recognized by all and many still class all granular affections of the conjunctiva under "trachoma." We are not informed whether "trachoma" means the same thing to Gunning of Amsterdam, for example, and to Lagrange of Bordeaux and Miyashita of Tokio. Gunning tells us distinctly what he means by trachoma—the chronic form.

Lagrange speaks of an acute form also—as does Miyoshita—but neither of the two latter say whether contagiousness is confined to the acute form or not, and certainly confound two phases of disease which many consider distinct.

Conclusions based on such data must, therefore, have but little value in the minds of those who draw a sharp line of distinction between true trachoma and follicular conjunctivitis.

Medical science has always advanced along the lines of diagnosis and etiology, and in our study of trachoma we can hope to

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accomplish enduring results only on a diagnosis as sharply differentiated as a thorough study of the natural history of the disease will allow.

It is certain that all forms of "granular lids" are not clinically the same and the histological investigations of Raehlmann and others have shown that pathologically there is a difference also. One form may continue for any length of time with no ensuing loss of tissue, while the other always leads to destruction of the conjunctival substance in part or as a whole. This last a number of opthalmologists regard as the true trachoma—a specific disease, while the others they look upon as a simple hyperplasia of the normal papillary structure of the conjunctiva.

These points have not been clearly set forth in Doctor Van Millingan's questions and have therefore not been definitely considered in all the replies. Such being the case it is evident that the answers relating to the question as to contagiousness, effect of altitude, race, etc., on trachoma are of only limited value since there is no assurance of a unanimity of opinion as to the disease in question. Assuming, however, for the time, that all the reporters had in mind the same disease and that it was the genuine trachoma, do they give a sufficient basis for the positive opinion at which Doctor Van Millingen arrives?

These conclusions are as follows:

"I. Trachoma is an infectious and contagious disease which predominates uncivilized (inculté) countries and tends to disappear with the progress of civilization and of hygiene. Hygiene and cleanliness are the best preventives of the disease.

II. Trachoma is not influenced by altitude. It may spread wherever the people are uncleanly and live in misery, quite as easily at altitudes of 1,000 to 5,000 meters as on the plains.

III. All races are equally susceptible to the virus of trachoma. An immunity for certain races does not exist."

We will consider these conclusions seriatim:

1. "Trachoma is an infectious and contagious disease." There were 26 responses to these questions and of these, 13 gave a decided opinion in favor of the contagiousness of the disease, 8 expressed themselves against contagion and 5 were either doubtful or had not sufficient experience to warrant an opinion. Where opinions are so nearly equally divided has any one a

right to consider the question in favor of contagion settled and particularly when the anticontagionists are the growing party? It is a most important fact in this connection that those who do not believe in the contagiousness of the disease are usually those who make a distinction between true chronic trachoma and acute follicular conjunctivitis. Some of the contagionists also mention the significant circumstance that the discharge, in the acute form especially, sometimes produces trachoma in those to whom it is transferred and at other times only a simple follicular catarrh. Without doubt bad hygienic surroundings and a purulent inflammation of the conjunctiva due to any cause whatever, hasten the devevlopment of a trachomatous attack in those predisposed to it; but that is an entirely different affair from the transference of a specific disease from one eye to another.

All pathological discharges from the conjunctiva are more or less contagious and may excite a conjunctivitis in another eye and this may lead to the development of a trachoma if that eye is disposed to the disease: but in order to prove their case to the satisfaction of modern science the contagionists must show the existence of a specific trachoma microbe and definitely create the disease in a healthy eye by inoculation. This has not yet been done.

2. He states further that "it prevails in uncivilized countries and tends to disappear with the progress of civilization and hygiene" and in substantiation of this gives a table in which the amount of illiteracy of each country is set against the amount of trachoma found among other eye diseases. If this table prove anything it proves too much. It shows, for example, that Holland with an illiteracy of 4 per cent. has 7.05 per cent. of trachoma, while Scotland with an illiteracy of 15 per cent. has only 0.7 per cent. of trachoma, and England with an illiteracy of 6 per cent. has but 0.07 per cent of trachoma. Clearly then something aside from illiteracy and the condition of civilization must exist to bring about such a difference as 7.05 and 0.07 in two countries so nearly on a par in civilization as Holland and England and this something most manifestly is race. Some of the excess of trachoma in Holland, he admits, is due to the large number of Jews in that country. This, however, is a confession that race has its influence.

3. "Trachoma is not influenced by altitude." While it is not

contended that altitude or climatic conditions gives an immunity from trachoma there can scarcely be a doubt that it is much rarer in occurrence at high altitudes and in salubrious climates and runs a milder course. That great clinician Von Graefe was quick to recognize this fact. There are localities where it is rarely or never seen except it is brought there from elsewhere. The reporters from Switzerland, Magdeburg, Wurzburg and Cape of Good Hope all state that the disease is practically unknown to them among the natives. It can hardly be claimed by any one that cleanliness and civilization are virtues confined to those countries. Locality and climatic influences unquestionably play a very large part in the development of trachoma as they do in all diathetic diseases and should be most carefully studied from the standpoint of the therapeusis of the disease.

4. "All races are equally susceptible to the virus of trachoma." If there is one fact that is clearly demonstrated by these reports it is that country and race play a most prominent part in the development of trachoma. What other factor could be so powerful in causing the difference, as given in these tables, between six countries so nearly equal in culture and civilization as Holland (7.05) Scotland (0.7) England (0.07) France (4) Belgium (4) and Switzerland (0)?

We all know that the "curse of the poor is their poverty" but are the poor of Glasgow for instance so much more miserable than the poor of Erlangen and Wurzburg that the former should suffer at the rate of 6 per cent. and the latter practically not at all?

It has long been known that the Polish Jews suffer greatly from trachoma, and the poor particularly of this race wherever they may be are affected usually to a greater extent than those in the same condition of life by whom they are surrounded. Gunning reports that at Amsterdam the Jews have 35 per cent. of true trachoma among the eye diseases, all the others 2.6 per cent. He states however that at Rotterdam where the hygienic condition of the poor Jews is better than at Amsterdam the percentage is not so high.

But the most striking example of the influence of the race on the susceptibility to trachoma is shown in the negroes in the United States.

In Doctor Van Millingen's statistics the only reporters from the

United States, Doctor Howe and Doctor Knapp, both state the fact among their observations that the negro is virtually free from the disease. Doctors Finlay and Santos Fernandez of Havana corroborate this opinion also. It was in 1876 in a paper read before the International Ophthalmological Congress in New York that I first called attention to this immunity of the negro, and during the 19 years that have intervened and in a dispensary practice, two-thirds of the patients of which are negroes of pure mixed blood I have seen but 2 or 3 cases of what I consider genuine trachoma among them and they were in mulattoes. This is the experience of almost every practitioner in the regions where the negro abounds. The almost universal testimony is that the negro does not have trachoma and those cases that are reported are always open to the doubt of having been follicular conjunctivitis of a severe type, a disease which they not unfrequently have. I have never seen a negro with an entropion caused by cicatricial contraction of the conjunctiva, the result of trachoma.

These facts I have laid before the profession at various times, the last of which was at the International Medical Congress at Berlin.

At the same meeting Doctor Chibret presented a most interesting paper on the immunity of the Celtic race in Europe.

It is unfortunate for the comparative study of diseases in the white and colored races in this country that the reports of the clinics and hospitals do not as a rule make a separate classification of the white and colored patients. In my own clinic I have done so since 1877 and with the result above stated.

In a recently published paper by Doctor Ray of Louisville (*Amer. Practitioner and News*, August 10, 1895) "On the blind of Kentucky based on a study of 175 pupils of the Kentucky Institution for education of the blind," he finds trachoma as a cause of blindness in 12 per cent. among the whites and not a case among the negroes. And yet there is a form of trachoma prevalent in the southern and eastern sections of the state of so virulent a nature that it has received the distinction of "Kentucky trachoma." This is a rural region of native population and but little or not at all mixed with Polish Jews or Italians.

I cannot of course call in question the statements of those well

qualified observers who find trachoma among the Africans in Europe or elsewhere. I only state and claim as a fact that the negro in the United States[1] has an almost complete immunity from trachoma and that this immunity is not due to their superior hygienic surroundings as Dr. Van Millingen seems to think. Since the days of slavery many of that race have come to the front and live in good houses with comfortable and in every way healthy surroundings. But with the large majority the reverse is the case. Their habitations are overcrowded and their manner of life is in contravention of every law of hygiene. They suffer greatly from all diseases of malnutrition, and scrofulous keratitis forms a large contingent of their eye diseases. Certainly their social condition is not in any way as good as that of the poor Irish who are so afflicted with the disease. And, by the way, it is unfortunate that there are no special statistics from Ireland in Doctor Van Millingen's report. The south of Ireland particularly, it is well-known, is a hot bed of trachoma and a large part of "American" trachoma is Irish.

But even supposing that there are some Africans who have trachoma, that does not invalidate the fact that race has an influence in the etiology of the disease. Africa is an immense country, and its population is probably no more homogenous that that of Europe, and it may well be that some of its tribes or races have idiosyncrasies and tendencies which others do not.

It is, therefore, no more rational to judge the whole of Africa by those that come from one or two localities, than to accept as a standard European a native of Genoa, for example. It is more than probable that the negroes in this country came from a stock different from that from which those seen in Constantinople sprang. And it may be, too, that those cases of trachoma that have been reported among the negroes in the United States, especially those in the islands off the Carolina coast, may also have been brought from a section of Africa, remote from the district from which the majority of the slaves were imported into this country. As stated in my original paper, in 1876, my attention was first called to this immunity of the negro in East Tennessee,

1. The aboriginal North American Indian suffers greatly from trachoma. The 3 per cent. of "Americans" in Dr. V. M.'s statistics can of course have no significance or value as regards race or nationality.

where, during the construction of a railroad, in which both negroes and Irish were employed, the white employees, and especially the Irish, were severely afflicted, while the negroes escaped. The conditions under which all those employees lived were essentially the same, any difference being in favor of the whites.

It is a well recognized fact in the large clinics in this country, that nationality plays an important rôle in the etiology of trachoma; the Poles, the Italians and the Irish furnishing the larger contingent of the "trachoma brigade." Is it not a significant fact that among the four millions of negroes in the United States, who were, until comparatively recently, in a state of degradation and slavery, there should be only an occasional case of trachoma? And is it not fatal to the acclimatization theory that the aboriginal races of North America suffer largely from the disease?

Viewed, then, in the light of the evidence produced by Dr. Van Millingen's reporters, we claim that a proper analysis of the testimony leads to conclusions the very opposite to those enunciated by the author of the paper, and that:

1. Trachoma is not an infectious and contagious disease, pure and simple. That on the contrary it is the expression of a diathesis or constitutional tendency, and may arise *denovo*, or be excited by an attack of conjunctivitis of any kind. Nettleship, in his examination of the school children of London, found numerous instances of "sago grain" granulation in conjunctivæ, which had not yet shown any signs of inflammation. The fact that surgeons and nurses who, it is fair to presume, live cleanly and under good sanitary condition, are infected while treating trachoma patients, is a clinching argument in favor of the existence of a predisposition towards the disease, which only requires some exciting cause as a conjunctivitis to call it forth.

Dirt, filth, unhygienic surroundings and improper living reduce the resisting power to all forms of disease, and in the case of trachoma still further increase the facilities for acquiring conjunctival inflammation, either primary or by contagion, which hastens the outbreak of the affection.

Improved conditions of living are, therefore, imperative in the treatment and prevention of trachoma, as it is in every other form of diathetic disease.

2. While it is no doubt true that high altitudes do not afford an

entire immunity for the disease, there can be no question that trachoma flourishes, as a rule, much less in the mountains than on the plains, in which particular, as in many others, it bears a strong analogy to tuberculosis. I attach, however, much more importance to race than to altitude in the matter of immunity.

3. There are races which suffer much from the disease, and there are races which are but little affected, and there is one race in one country, at least, which seems to enjoy a practical immunity from its ravages.

If these are facts, and we submit that the testimony of Dr. Van Millingen's reporters substantiate them, then our attitude toward trachoma must change in the matter of etiology and therapeutics.

We must no longer limit our attention therapeutically to the conjunctivitis, which is merely a symptom of the disease, and treat it only by caustic and astringent applications. We should seek to remove the diseased adenoid tissue by surgical procedure, and on the same principles that the surgeon removes tubercular glands. Under this view the "mechanical" treatment of trachoma is the only rational one.

We entirely agree with Dr. Van Millingen in regard to the part played by unsanitary conditions, though not as to the manner of their action; and both for the prevention of the disease and its thorough cure, when established, these conditions should be changed as radically as possible.

Patients should be placed in good hygienic surrounding and removal to a high altitude, if for no other reason than its purer air, should be accomplished when practicable.

It might be said that then, after all, the practical result is the same under the one view as under the other. But there is this most important difference that under the one a clean differential diagnosis and a clearer conception of the nature of the disease, and a more enlightened knowledge of its etiology, must inevitably place us upon a higher vantage ground as to the future study of therapeusis and general management of a disease which forms so large a per centum of serious ocular affections.