THE ÆTIOLOGY OF TRACHOMA IN IRELAND

(Preliminary Communication)

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It is only very recently that trachoma has been made a notifiable disease in this country and prior to this efforts to estimate the extent of its incidence were based largely on conjecture. Lavery (1930) in his first investigation quoted the figures for the Royal Victoria Eye and Ear Hospital in Dublin. During the years 1919-1928, 1,081 new cases of trachoma were seen, an average of 108 cases each year. These figures could be regarded as high for a preventable disease taking into consideration the sequelae to which it gives rise. He showed, however, that these figures were in reality of little value as an index to the degree of infection, as it was in orphanages and similar institutions that the core of the problem lay. In two orphanages examined by him he found an incidence of 20.5 per cent. and 25 per cent. respectively and almost equally high figures in others. The incidence amongst 384 school children examined in Dublin was 1.8 per cent.

In a later investigation Lavery (1939) was able to report a slight improvement in the position. New cases at the Royal Victoria Hospital for the years 1936-1938 were 97, 66 and 77 respectively. The orphanages and institutions examined also showed an improvement, in some cases dramatic, in others slight. Of the figures for Dublin school children he states that in 1937, 18,868 children were examined with 35 cases of trachoma, and in the following year 60 cases were found amongst 21,924 children. Dealing with trachoma as a cause of blindness, he regards the problem as a major one and estimates (1939a) that trachoma is the cause of approximately 9 per cent. of blindness in Ireland. This figure is staggering when it is considered that in Scotland, in the years 1929-1935, the corresponding figure was 0.81 per cent. (Marshall and Seiller, 1942.)

It will now be possible for the future to gauge from the annual returns of notifications the progress which is being made in tackling the problem. The latest available returns are for 1943, during which year 80 cases were notified. This may possibly be regarded as an understatement, as trachoma is par excellence the disease which may be missed unless a close watch is kept for it.

This communication is a preliminary report of an investigation into the etiology of trachoma in Ireland which, aided by a grant from the Medical Research Council of Éire, was undertaken in conjunction with Dr. F. S. Lavery. The work was begun towards the end of 1944 and is still in progress. The investigation, the first of its kind to be undertaken in this country, had several main objectives in view. Stated briefly, they were: firstly, to discover whether trachoma as it occurs in Ireland is similar to the disease found elsewhere. Perdrau (1940) has pointed out the possibility that Egyptian and Brazilian trachoma, for example, may not be caused by the same virus or strain of virus; secondly, to find out if inclusions could be found in Irish cases of the disease, and if so, whether these inclusions were similar in type to those found elsewhere.
Our third objective was to find if, in the event of inclusions being found, they could be found in a sufficient proportion of cases to put the diagnosis by the examination of conjunctival scrapings on a firm scientific basis. As a sideline, but not the main feature in that part of the investigation reported on here, some attempt was made to assay the value of the sulphonamides and penicillin in the treatment of the disease. At the time no report on the use of penicillin in trachoma had appeared in the literature. Sorsby and Hoffa (1945) and Sorsby (1945) have since published accounts of its use in ophthalmia neonatorum, including cases of inclusion blennorrhoea.

The cases used during the investigation were drawn in the main from hospital patients, together with a number of private patients. Some of them were trachoma patients under Dr. Lavery's care before we started and had therefore been under treatment. It was unfortunately not found possible, owing to transport difficulties, to examine cases from the various "nest" areas of the country where trachoma is endemic (Lavery, 1939). Efforts were made to obtain specimens of conjunctival scrapings from these areas, but without success. The cases are therefore taken chiefly from the city of Dublin.

This report is confined almost exclusively to the laboratory side of the investigation and the clinical side of the work is mentioned only in so far as it is necessary to interpret and amplify the laboratory findings. A fuller account, incorporating the clinical findings, and the findings with the sulphonamides and penicillin (which work is still in progress) will be made the subject of a later joint publication.

Etiology.

In the past numerous causes have been put forward for trachoma, and it is indeed surprising, considering the immense amount of work that has been done on the subject, that the causal agent has not yet been conclusively demonstrated. At the present time the choice appears to lie between two theories: (i) that trachoma is caused by a rickettsia, and (ii) that the cause is a virus. They will be examined in that order.

In 1933 Busacca claimed to have demonstrated rickettsia-like organisms in the epithelial and sub-epithelial tissues in trachomatous patients. These he differentiated clearly from the elementary and initial bodies previously described. Cuenod and Nataf (1935) later described similar bodies but, although they considered them to be rickettsial in nature, they identified them with inclusion bodies. These workers are the chief protagonists of the rickettsial theory. They stated that there was a definite correlation in geographical distribution between trachoma, lice and human rickettsial disease. In this connection McCormack (1945) has pointed out that in Ireland some of those areas described as "nests" of trachoma by Lavery are those in which the incidence of lice infestation is heaviest. Cuenod and Nataf (1937) infected lice intra-anally with trachomatous material and claimed success in obtaining rickettsial bodies from the intestines of the lice. These organisms they were presumably able to differentiate from the *Rickettsia da rocha-limae* of lice, a non-pathogenic species occurring naturally, as they claim a successful inoculation of a human volunteer. An emulsion of crushed lice, infected with trachomatous material of the...