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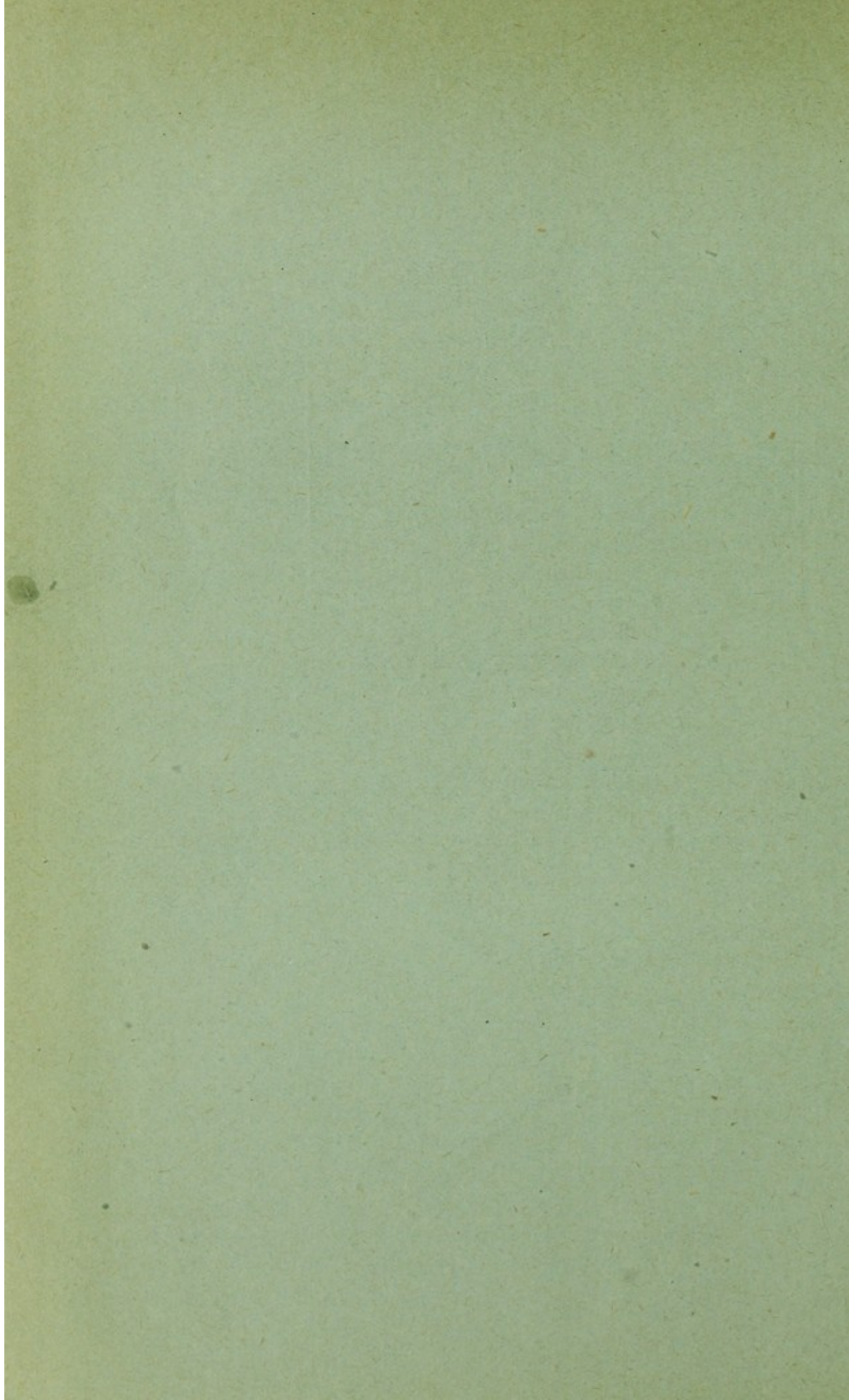
BY

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ON THE PREVALENCE OF TRACHOMA IN THE STATE OF ILLINOIS.

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Trachoma or granular conjunctivitis is one of the most widespread as well as one of the most serious diseases that affect the eyes.

On account of its insidious nature, it is often overlooked, even by the patient, who is not aware that he has been infected until the disease is well established.

The severity of its complications and sequelae are frequently such as to baffle the therapeutic resources of the surgeon, and to require important operative measures to correct the deformities of the lids that ensue. In some parts of the world it is so prevalent as to furnish one-half of all the eye cases under treatment.

Owing to the neglect of precautions to prevent its spread, and to the inability or neglect of the patients to have it properly treated, it probably causes more blindness than any other disease of the eyes except gonorrhoeal ophthalmia and optic atrophy.

Under certain conditions of crowding in ill-ventilated and non-hygienic quarters, it may assume epidemic proportions, as in barracks, jails, asylums, etc., while in certain parts of the world as in Egypt, Russia and I think also, in parts of our own state it is endemic.

The serious epidemics of the disease that have occurred from time to time, establish beyond a doubt, it seems to me, its contagious nature, although, fortunately, most of the cases that are seen by the surgeon are not of the acute virulent type, which simulates purulent ophthalmia in its course and results.

The disease has probably been endemic in Egypt and eastern countries for ages, for it is mentioned by the earliest medical writers, but it was not until the beginning of the last century that it attracted the attention of the medical profession when it began to spread with frightful rapidity through Europe. It is supposed to have been

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introduced by the armies of Napoleon after the Egyptian campaign during which most of the soldiers were affected with a violent ophthalmia. On their return, according to Fuchs, many of these trachomatous soldiers were dismissed to their homes with the result that the disease was disseminated among the civil population, in some countries as in Belgium to a frightful degree. Quoting Fuchs, there were "in the Prussian army from 1813 to 1817, 20,000 to 30,000 men attacked with it; in the Russian army from 1816 to 1839, 76,811 men were subjects of the disease. In Belgium, in 1840, one out of every five soldiers was affected with trachoma." From its supposed origin, it has been given by some authors the name of Egyptian ophthalmia. But it is by no means confined to armies, for once it gains entrance, it may flourish in schools, asylums, jails, infirmaries, or other places where large numbers of persons live under unhygienic conditions favorable to the spread of the infection. Fortunately the institutions of our country have not suffered in this respect like some of those in Europe, for they have profited by the lessons that were taught there; but with our continuous stream of foreign immigration, trachoma is a constant menace to our institutions, and one not to be ignored.

The acute form is, it is true, the more contagious, but the chronic form, particularly when there is secretion from the lids, may be equally so. Whether or not atmospheric or telluric conditions play an active role in the propagation or spread of the disease is a very much debated question, but I can not agree with those who argue against the contagiousness of trachoma because "it is not most rife or pernicious in the overcrowded habitations of cities, but occurs with equal virulency in sparsely populated country districts and mountain regions." (Burnett, *Amer. Jour. Ophth.*, Sept., 1896.)

That it may be present in sparsely populated country districts or in mountain regions speaks nothing against the contagiousness of trachoma, unless we know the character and habits of the people in regard to personal cleanliness. In some sparsely populated country districts, the habit of personal cleanliness has never been formed or even conceived, judging from the class of people that I frequently see from such localities. A bath tub is an unknown contrivance, and the basin and hand towel used in common by the whole family are the only substitutes.

It is safe to say that this is one of the diseases of filth, and,

given the infective element, that it flourishes in those surroundings where people are intimately associated and where the simplest principle of hygiene, personal cleanliness, is neglected.

While it is commonly said that it occurs with great frequency in places where people are crowded together, in small and ill-ventilated dwellings, this statement must be qualified by saying that the crowding is only contributory to the spread of the disease, after the infection has once gained a foothold, because of the neglect of certain simple precautions of cleanliness that frequently obtain in such quarters. It is believed by most authorities that the focus of infection must be present and then the means of transmission of the contagion directly from one eye to another to cause any extensive dissemination. In all probability the infection is not conveyed through the atmosphere, but gains entrance to the eye through sponges, wash cloths, basins, towels, handkerchiefs, etc., that may be used in common by a number of people one or more of whom may be suffering from trachoma.

The means of communication are so simple and so evident, and the means of prevention are just as simple and as evident.

It is quite generally believed that, on account of its specific nature, and its contagiousness, trachoma must be the result of the action of some specific micro-organisms, and numerous observers, Sattler, Michel and Schmitt among others, have described different germs that they have claimed were peculiar to the disease, but the observers do not agree and the results lack confirmation, and do not meet the rigid requirements of bacteriologists. Although there is a lack of agreement on this point, there seems to be none on the subject of the clinical features and course of the disease, and the diagnosis is, as a rule, readily made.

The acute form is rather rare, the disease usually being chronic from the beginning, although there may be remissions or acute outbreaks from time to time in the course of the trouble.

It is a disease of the palpebral conjunctiva, but as it continues the ocular conjunctiva and even the cornea may be implicated and in this lies the great danger to the sight.

As was mentioned, a person may contract trachoma, and may have it for some time without being aware of any trouble more serious than an irritability of the eyes, and a sensation of slight roughness of the lids. Secretion from the lids may be scanty or entirely want-

ing. Eversion of the lids may show the typical granules or follicles scattered through the conjunctiva but more thickly in the fornix. They may be so numerous as to become confluent. After months the contents of these follicles may be absorbed and new connective tissue may be developed both in the conjunctiva and in the tarsus of the lids, to which the conjunctiva is intimately adherent. Contraction of this new scar tissue causes marked shrinking of the conjunctiva and also deformity of the eyelid causing entropion or inversion of the edge of the lid. When this stage is reached there is great danger to the cornea from the irritation caused by the edge of the lid and the eyelashes rubbing against it. Even before this state is reached there may be an involvement of the ocular conjunctiva and an extension of the disease on to the cornea, with development of new vessels, a condition known as pannus. Ulceration of the cornea may occur which may be more serious than usual because of the infected surroundings, even resulting in perforation or pan-ophthalmitis and complete destruction of the eye. Escaping this, the sight of the eye may be seriously impaired by the dense opacity of the cornea that remains after healing of the ulcer.

Even if the trachoma is quiescent, there may at any time be an acute outbreak which may endanger the cornea. These acute outbreaks, however, seem to be nature's means of curing the disease by bringing about the absorption of the contents of the granules, for after the subsidence of the acute inflammation, their number may be gradually diminished. In the course of the acute attack, however, there is much greater danger to the cornea. Trachoma is a frequent cause of blindness. Magnus, (*Die Blindheit, ihre Entstehung und ihre Verhütung*, Breslau, 1883, s. 240) who has tabulated 2,528 cases of double-sided blindness, found that this disease caused 240 or 9.49 per cent. Trousseau (*Archiv d'Ophthalmologie*, 1892, XII, p. 218) from the statistics of the Hospice des Quinze-Vingts for a period of ten years found 625 blind persons 24 of whom, or 3.84 per cent, were made blind by trachoma.

Statistics accumulated by Oppenheimer, of New York, including 572 cases (*Trans. Amer. Ophth. Soc.*, 1891, vol. VI, p. 156, and Mays in Norris and Oliver *System of Diseases of the Eye*, Vol. II, p. 437) show that trachoma was responsible for 23 or 4.02 per cent of the cases. Daumas among 1,178 cases of total blindness found 5.4 per cent due to the disease.

L. Howe (*Twenty-eighth Annual Report of New York State School for the Blind*) found that among 306 pupils at the State Institutions in Batavia and in New York City 3.78 per cent were blind from trachoma.

The careful statistics of A. L. Adams in the *Twenty-sixth Bienial Report of the Illinois Institution for the Blind at Jacksonville*, show that 451 pupils in attendance at that school 41 or 9.09 per cent were blind from trachoma. It is second on the list of idiopathic diseases causing blindness, being preceded only by blennorrhoea neonatorum, which caused 78 or 17.25 per cent of the total number. Both of these diseases are to a great extent preventable. These figures refer only to the cases of total blindness, the number of those partially blind would, of course, be much larger.

The large number of blind from trachoma in the Illinois Institution for the Blind, 9.09 per cent, as compared with the number in the New York Institute and with the statistics of Oppenheimer, in New York, 4.02 per cent, gives us a suspicion of the prevalence of the disease in this state. This is strengthened when we compare the number of cases of the disease treated in the Illinois Charitable Eye and Ear Infirmary with the number treated in other large ophthalmic hospitals of the United States.

The following table shows the percentage of trachoma and entropion in the principal eye hospitals of the country for the year 1900.

REPORT OF HOSPITALS FOR 1900.

	Total No. of Cases Treated.	Cases of Trachoma.	Per Cent.	Cases of Entrop.
Brooklyn Eye and Ear.....	9,199	154	1.7	5
N. Y. Ophthalmic and Aural Institute	9,328	302	3.2	22
Mass. Char. Eye and Ear Infirmary..	21,004	87	0.4	40
New York Ophthalmic Hospital.....	9,969	346	3.6	2
Manhattan Eye and Ear Hospital....	15,038	592	3.9	16
New York Eye and Ear Infirmary...	30,992	1,519	4.9	19
New Amsterdam Eye and Ear Hos..	1,515	71	4.7	3
Harlem Eye, Ear and Throat.....	2,215	76	3.45	1
Wills Hospital, Philadelphia.....	12,909	126	0.97	10
Illinois Eye and Ear Infirmary.....	9,540	533	5.6	56

The large New York institutions must draw much of their material from the host of poor foreigners that live in the tenement districts of that city, and it is quite probable that their quota of

trachoma cases is augmented greatly from such sources; but in the Illinois Eye and Ear Infirmary, as will be shown, most of the cases come from the rural population, and are of American birth, although it is true many of them are of foreign extraction.

The comparatively great number of entropion cases in the list of cases of the Illinois Eye and Ear Infirmary speaks either for the severity of the cases or for neglect of early attention to them; and it is a well observed fact that many of them come to that institution with serious deformities of the lids and irremediable lesions of the cornea who have never had any kind of treatment.

The following table showing the number of cases of trachoma treated each year for the last decade, compared with the total number of cases, and also the number of entropion operations performed on these cases, will illustrate this point.

	No. of Trachomas.	No. of Eye Cases.	Per Cent.	Operations for Entropion.
1891	271	5,028	5.39	192
1892	326	5,288	6.16	291
1893	394	4,641	8.49	215
1894	397	6,400	6.20	200
1895	387	6,738	5.74	126
1896	495	7,018	7.05	81
1897	510	5,289	9.64	91
1898	513	6,858	7.47	128
1899	598	19,081	5.62	109
1900	468	19,081	5.92	81
Total	4,359	66,351	6.57	1,514

This table shows that in the last ten years 4,359 cases of trachoma have been admitted in a total of 66,357 cases or 6.57 per cent.

It is interesting to consider the source of this influx of granular ophthalmia. For years it has been observed at the infirmary that a great many of these cases come from the southern part of the state, and I have made tables showing the total number of cases from each county for the period of ten years, from 1891 to 1900 inclusive, and from this have estimated the percentage of trachoma to the population on the basis of the census report of 1900. By this means it is possible to make a comparison of the different counties and different parts of the state. The results are shown on the map and the accom-

panying charts, on which the lines drawn to a scale, represent the relative percentages in the different counties.

Judging from the number of cases coming to the infirmary for treatment, it is clearly shown that the disease is much more prevalent in the lower part of the state between the Kaskaskia and Wabash rivers, and that it is not as prevalent around the centers of population.

The chart also shows for comparison the total number of cases received from the different counties during the decade 1880 to 1890 and the estimated percentage of trachoma to population on the basis of the census report of 1890. The marked increase is noticeable, and this may signify either an actual increase of the disease or that the sufferers from the malady for some reason have decided in greater numbers to avail themselves of the advantages of the state institution. We have no means of settling positively this question, but in view of the fact that the infirmary has been in operation since 1858 and that it has been a state institution since 1874, I am inclined to believe that those figures indicate an actual increase. It is certain that the disease is not on the decrease if we judge from the statistics available for the last ten years.

What is the reason for the prevalence of this disease in certain parts of our state, and can anything be done to check it?

In the first place it seems to be endemic in some localities, but I have no doubt that it is spread by reason of ignorance concerning it, and it is certainly the duty of the medical profession to enlighten the community on this important subject. We have no proof that it may develop sporadically, but even if it does, there is abundant evidence to show that it may be spread by contagion from one eye to another through the medium of sponges, cloths, handkerchiefs, wash basins and towels, particularly the unhygienic, unsanitary and usually filthy roller towel.

It is by no means a virulently contagious disease, in fact experiments show that the eyes must be inoculated repeatedly in many instances before the infection secures a hold, and that only those cases where there is secretion from the lids are liable to transmit trouble.

With proper care there need be no danger of the disease spreading in a hospital, even when large numbers of cases are affected with it as in the Eye and Ear Infirmary. Such patients should be

assigned to separate quarters of course. The means of prevention are therefore so simple that it seems strange that they should be neglected, but ignorance is partly responsible for it.

For economic reasons, if for no other, it would pay the state to make every effort to check the spread of trachoma. Many of those who are blind from it are a permanent charge on the community; as I have shown 9 per cent of the cases in the Jacksonville Institution for the Blind being there because of this disease. The wards of the Illinois Eye and Ear Infirmary are full of cases of this affection, many of them almost helpless, and they remain with us longer than any other class, and so markedly increase the expense of the institution. Many of these sufferers, although not blind, see so poorly that their usefulness is greatly curtailed and they are in a great measure dependent on the charity of their friends.

The medical profession has a duty to perform in this matter. It can disseminate and have disseminated through the proper authorities, the knowledge of the communicability of many eye diseases, through articles carrying contagion. It should make itself familiar with the nature of trachoma and its treatment and so prevent the serious ravages of the disease.

Much can be done in the way of prevention; but in too many cases little can be done in the way of cure.

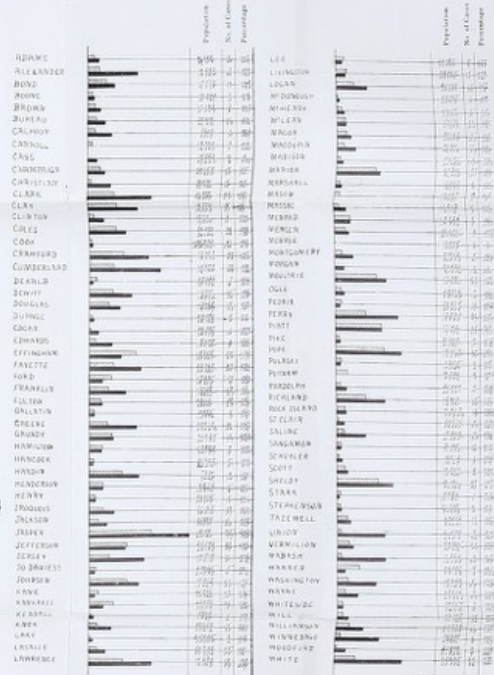
TABLE

Table showing the relative per cent of Trachoma in the various counties of Illinois, based upon the number of cases sent to the Illinois Charitable Eye and Ear Infirmary from 1890 to 1900 and the census returns of each county in 1900:



CHART

Chart showing the relative prevalence of Trachoma in the counties of Illinois, during the past two decades. The percentages are based upon the census returns of 1880 and 1890 and the number of cases received at the Illinois Charitable Eye and Ear Infirmary. Decade from 1880 to 1890 shown by the light shade line. Decade from 1890 to 1900 shown by the solid black line.



MAP OF ILLINOIS
SHOWING THE RELATIVE PERCENTAGE
OF
TRACHOMA
IN EACH COUNTY
one inch equals six miles

