On Ophthalmia.

Being connected with the Metropolitan Pauper Schools for the reception of children from Hackney and Shoreditch the subject which has principally engaged my attention has been that of Ophthalmia.

The term Ophthalmia as used in reports to the Local Government Board includes Granular lids combined with Conjunctivitis palpebral, ocular or both but generally only the former. Conjunctivitis alone or either of these conditions complicated with Blepharitis, Keratitis, iritis etc. but at least 95 per cent. are of the first and in using the term Ophthalmia in this Thesis I shall refer to that class of case.

In Ophthalmia then there are two factors the Granular lids which are a local manifestation of constitutional weakness and therefore a chronic disease and the Conjunctivitis which due to some irritant is of an acute or subacute character.

The cause of Granular lids appears to be exposure of the individual for a lengthened period to air which contains an excess of moisture or organic matter either of which...
in the constitutionally weak would probably be sufficient to produce them.
The granulations are due to exudation and partial organization of lymph around the lymph follicles of the subcutaneous tissue of the conjunctiva causing hypertrophy of these follicles. When moderate, the granular condition is not of itself a matter of much importance, but it becomes so from the fact that eyelids so affected are far more susceptible to the causes of inflammation than healthy ones and having less vitality, are much more difficult to cure, are much more prone to recurrence and the granular condition is apt to get worse and worse after each successive attack.
Inflammation of the conjunctiva alone is seldom serious but when complicated with granular lids an attack may give rise to chronic cornal ulceration & sometimesritis.
The papillae of the conjunctiva also become enlarged & inflamed making the granular appearance much worse.
Bad granular lids, owing to their rough surface may give rise to irregularities of the cornea causing astigmatism etc, and in severe cases may even produce ulceration.
Granular lids give rise to little or no discharge from the eye and are not caused by contagion but when complicated with conjunctivitis there is always a more or less purulent discharge by which the latter may be propagated. This discharge is more contagious when fresh and moist than when dry. It is said that the disease may be transmitted through the air the contagium passing through the lacrimal passages to the nose and being given off along with the water vapors of the breath. From my own observation I have never been able to note such a case and the nursing staff who were on duty at an epidemic of Purulent Ophthalmia in the Haerst School about 10 years ago neither suffered themselves nor remembered any case which could be attributed with certainty to infection. The discharge is by far the most frequent cause of Ophthalmia. Amongst other irritant causes are dust, soap, draught, frost & East Wind. The greater number of first cases are due to contagion but with recurrence the opposite is the case.

Fevers also act as exciting causes of Ophthalmia.
Measles at the Chorlton Schools in
November 1871 was followed by ophtalmia primary or recurrent in about
three quarters of the cases attacked.
In February and March 1871 there were
epidemics of scarlatina and whooping
cough in the Hackney School, and this
doubled the number of cases in the
infirmary. But what little influenza
there was in the schools in April 1871
and February 1872 made scarcely any
difference.

Predisposing Causes are Serpula tuberola
and insufficient or improper food
Syphilis I have not been able to note as
one.

The Period from the Contagium being
applied to the discharge appearing seems
to be from 48 to 72 hours.
The signs and symptoms of uncomplicated
ophthalmia vary according to the degree
in mild and moderate cases there is a
watery or thin purulent discharge with
hyperaemia of the conjunctiva. In first
cases the inflammation generally affects
both or to the ocular portion but in recus-
rances the palpebral is as a rule alone affected.
These are the symptoms of conjunctivitis: smarting or sand pain, photophobia, and watering. When the conjunctivitis is more acute, the discharge is more purulent sometimes plastic. The signs and symptoms are more severe, and there is great probability of the cornea becoming ulcerated.

In the case of some scrofulous subjects after one or two relapses the palpebral conjunctiva seems almost to have disappeared, the eyelid presenting the appearance of a mass of granulations laden with a callous ulcer.

Of the complications which phthisia gives rise to by far the most frequent is corneal ulceration. Iritis is not uncommon and in a few cases Phlyctenular ulcers at the margin of the cornea occur.

The damages to the cornea occur from 2 causes: irregularities due to the friction of the granular lids, and opacities, cicatrizes or destruction of tissue as the result of inflammation or ulceration. Usually, after a first case has been cured of discharge there remains a hyperemia.
of a lozenge shape corresponding to the
nervebomian glands
In a first attack of a healthy eyelid
which has undergone treatment & cure
I have never observed any hyperaemia
of the palpebral fold left, but in first
cases of scrofulous children and in
recurrences the whole palpebral conjun-
tive from the margin of the eyelashes
to the ocular reflection remains equally
hypermic. A small percentage of
the eyelids attacked regain their normal
appearance but the majority are left
more or less congested

With regard to the prognosis of Ophthalmia
as to the severity and duration of the attack
the facts which I should base it on are:
Slight or Bad Granular lids - Children
apparently healthy or unhealthy - The Con-
dition of the Conjunctiva - The Amount
an Character of the Discharge - Complications
absent or present - the result of treatment
as shown by the diminution of the discharge
and the existing hygienic conditions un-
der which the patient is & has been
The Prophylactic Hygienic treatment will be dealt with after in a description of the two schools.

The medical treatment varies considerably according to the case both as to the local application and the length of time it is kept up. The constitutional is confined to those cases in which the patient is badly nourished, debilitated, shows signs of specific disease, or does not improve under local treatment and for this purpose I have given cod liver oil by itself—mixed with various food—fellows syrup, syrup of iodide of iron—mercury in syphilitic cases—and quinine. The last of these is the only one in which I have found improvement in nearly every case. Even in undoubtedly syphilitic children the mercury does not appear to have done them any good as far as the ophthalmitia is concerned, and in non-syphilitic cases of iritis with or without adhesions I have never seen any benefit from it although many, in fact, nearly all have improved steadily under quinine.
The local treatment in bad cases consists of a solution of nitrate of silver (10 grains to the ounce) applied to the lids every morning, with Boracic Acid Ointment applied in the evening after they have been bathed. For the milder cases a weaker solution of Capis divinus or Ragenstecher's Ointment and to the contused Boracic Ointment only is applied. Shades are used in all the cases where there is photophobia, or when the eyes water excessively. When any strong application has been used the discharge sometimes increases for a day or two but gradually diminishes again if the treatment is persevered with.

Cases in which there has been puffiness of the eyelids I have found benefited by painting inside and out with Tincture of Iodine. In cases where the lids are badly granular the application which has given the best results is 5% pain. The eyelids become smoother, the hyperemia diminished, and the discharge reduced.
The formula used is

- Papain 31
- Cocaine Hydrobromate 37
- Vaseline (Pure White) 31

At frequent

The ointment is applied to the lids which are kept wcrred for about a minute. They are then replaced and the superfluous ointment gently rubbed away.

The idea of using Papain occurred to me from the improvement it has made in carcinomatous ulcerations.

The lids require daily inspection and on any appearance of corneal ulcer on iris' liquor Atropiniae is used with Quinine internally.
I shall now pass to the Hackney and Shoreditch School describing the principal facts about each which have any bearing on Ophthalmia.

Taking the Hackney School first, it is the receptacle for the pauper children of Hackney, Hornerton, and St. Pancras Town. These districts are rather more than twice the area from which the Shoreditch School derives its inmates. They are densely populated by the working classes and overcrowding and unsanitary conditions abound. The houses are old, this district not having been as yet developed by model dwellings. The only open spaces near are Hackney Downs and Hackney Marshes and they are a considerable distance from the poorest and most thickly populated part.

The School at Brentwood stands high about 300 feet above the sea level. It is a block building which during the last twenty-five years been three times enlarged and supplemented in addition to the School Buildings.
there are the Probationary, the Infirmary and the Infections Hospital.
So the first, the Children who are sent down from the Hackney Workhouse are relegated and kept in quarantine for a fortnight. They are examined on admission and again on discharge.
The Infirmary contains 76 beds and the Infections 32, so the latter all Infections & contagious cases are sent except those suffering fromphthalmia.
The Buildings are of fireproof being entirely built of brick and are warmed by hot water pipes. The Rooms are ventilated by the ordinary cot- or desk ventilators besides fanlights. The hot water pipes, although they keep the rooms more evenly warm than fires appear to me to create a more or less moist heat which I should not think would be beneficial to the Ophthalmic cases.
The subsoil drainage of the schools is good, there being strata of sand & gravel.
The ages from which Children are admitted are from 3 to 16.
The number of children the School can contain is 540 and it usually has within 10 of that limit.
The ordinary diet as laid down by the Local Government Board is good and wholesome, but having the same week after week the children do not relish it as they might otherwise do.
In an Establishment of this kind there being a common kitchen it is impossible to have the variation in cooking that one might have in a smaller community. All the children with ophthalmia are on ordinary diet. Those with bad complications are sometimes ordered an egg a day in addition.
The children are inspected fortnightly as to their eyes, eyelids and those which show signs of relapse are sent to the Infirmary as in or out patients. It is a very difficult matter to make a selection, the following figures which at one of the inspections will show. It is difficult to obtain from the children answers which would be accurate however with the assistance
information from the attendants and nurses the following is, I think approximate.

Of 536 children examined 320 said they had suffered from bad eyes. Of these 320, 30 had normal eyelids which would reduce the number of those showing more or less hyperaemia and granular lids to 281. Of the 281 who said they had not 98 showed signs of a previous attack or were slightly granular. Adding these 98 to 281, the number of children either suffering from or predisposed to ophthalmitis was 379, or nearly three quarters of the total.

Twenty seven children were markedly scrofulous. Twenty had had or were suffering from elephantitis, ten had slight spots or cicatrices on one cornea. One had opacities of one cornea causing total blindness of that eye. Two had corneal ulcers which would probably cause no serious damage, and one with iritis and posterior synechiae of the right eye and keratitis of the left.
Jutten were in-patients and four out-patients at the Infirmary.
From these figures it will be seen that although the number of predisposed eyelids are large, there is only about 1 per cent of the children with slight corneal damage and less than \( \frac{1}{2} \) per cent with severe.

The average number of in-patients taking the returns for the last 18 months, excluding months of and after epidemics is \( 16 \frac{3}{4} \) of out-patients 4, making a percentage of about 4. It is difficult to say what percentage of children are predisposed who come direct to the school from their homes but probably not more than 20%.

Until 1886 the Shoreditch Children were sent to the Hackney School owing to want of room etc., the Cottage homes at Homerton were built. They receive the Children from Shoreditch Spitalfields and part of Spitalfields. This is a much smaller area than the previous and not nearly so overcrowded as a great deal of space is occupied.
by warehouses etc. This district is as badly off for open spaces as is Hackney.

This is the first and I think the only one of the metropolitan Parker Schools on the Cottage Home System. There is a Probationary Department at the Lodge and almost all the same arrangements as at Hackney prevail in this School.

The Buildings consist of Superintendent's House - School - Chapel - Store - Infirmary and Infection Department besides 11 cottages. These are built to accommodate 30 children and their Officers. Each Home has a garden and a large grass plot at the back. There is also a general playground and a field.

The Rooms are heated by fires and ventilated by Tobin's tubes. The halls and corridors are airy and the stairs of metal and wood.

The total number that can be admitted is 330 but as one cottage is set apart for long convalescents from Ophthalmia and rarely contains more than ten 310 may be put down as the maximum.
The arrangements for cleansing and washing the children were omitted in the description of the Hackney School but they are briefly as follows. There is a basin fitted with tap and plug in which each child washes or is washed. For each child fresh water is always used and it is supplied with a small towel which after use is directly sent off to the laundry. The ablutions are under the direct supervision of the attendant.

A warm bath is given to each child once or twice a week according to age.

The Shoreditch School differs from the above in one or two points as far as the washings are concerned. Each child has fresh water but except there are not taps and plugs to the basins. So that more supervision is required to see that they do not wash in dirty water. Each child has a numbered peg and towel. This also requires more supervision in making the children use their own towels.
fortnightly inspections of the eyes take place as at Hackney.
The officers at each cottage obtain every day their supplies from the store and each cottage does its own cooking. This is a great advantage over the general kitchen as the food can be and is served up in a great variety of ways, and the children are always hearty and finish their dinners.
The following taken from two of the cottages is a fair sample of the dinner in all:

Sun [Roast Leg of mutton, Potatoes, Bread & Suet Pudding]
Mon [Roast Beef, Potatoes, Greens, Parsnips, Bread]
Tues [Boiled Beef, Dumplings, Potatoes]
Wed [Peach Soup, Bread & Suet Pudding]
Thurs [Roast Veal, Greens, Potatoes, Bread Pudding]
Fri [Coleslaw, Potatoes, Bread, Plum Pudding]
Sat [Bread, Cheese, Cocoa]
At an inspection of 303 children 221 said they had "bad eyes," 32 had normal lids which would reduce this number to 189. Of the 82 who said they had not 19 had slightly granular lids or evidence of previous ophthalmia. Of 208 out of 303 were in a predisposed state for ophthalmia or were suffering from it. Fourteen children were markedly seropuluous, 12 had had blepharitis. Three had slight specks or cataracts on one cornea impairing sight little, if at all. One had opacity of one cornea causing some damage to sight and one had opacities of both likely to damage sight considerably. In no case was the sight of an eye lost. From these figures it will be seen that roughly \( \frac{2}{3} \) of the total were predisposed to ophthalmia and only \( \frac{1}{3} \) per cent had severe corneal damage. There were 17 children being treated as in or out patients and the average amounted to 14 or 3 percent.
The plan of treatment pursued in both schools is to keep the ophthalmia cases under observation for about a week after all discharge has ceased. If the kids are then tolerably healthy, they are discharged. Should they be not so, they are kept in the infirmary or treated as out patients. The long standing, more especially the scrofulous, cases at both schools are sent to a Convalescent Home at Rotting Dean for about 12 months.

It is impossible to estimate precisely the amount of damage or harm done by ophthalmia, but the following certainly does:

It invalidates some has always invalided, a large number of the children - it interferes with their education for the time being and doth makes their eyes weaker for reading and sewing - it damages the sight of some and their prospects of making a living are thereby impaired.

Recurrence is the rule not the
exception and causes idleness and bad habits and lastly children suffering from ophthalmia are always a source of danger to others.

The way in which ophthalmia is propagated in the schools is by the children rubbing their fingers on each other's faces and eyes in most cases unintentionally but sometimes deliberately to initiate a new comer into the ophthalmic state.

With regard to the prophylactic treatment, no doubt there should be more isolation than it is at present practicable or possible to carry out. If instead of isolating the unhealth, the healthy were to be isolated and the predisposed divided into two schools according to the severity. The cases from the infirmary going from one to the other as in school standards until they reached the healthy. Of course frequent inspections would be required and any doubtful case would have to be reported to the standard below.
The granular eids form a very delicate test of the state of health of any community, not individually but more as to the purity of the air and satisfactory hygienic conditions. The hygienic treatment must be directed to the following if they exist:

Bad Ventilation - over crowding.

Bad Drainage, both house & soil.

Want of cleanliness. Bad on open air exercise & defeces in clothing.

The Cottage Homes described have none of these faults and the system is probably the nearest approach to perfection that has yet been tried.

But whatever the system is it will to be successful require the utmost supervision from the medical officer, it will require a sufficient and efficient staff from the superintendant and matron down to attendants on the children.

In this description of the schools it may possibly be considered that
the details are trifling and superfluous but my apology must be that I think that it is not by any single method or treatment but by the minutest attention to every subject which has any bearing on the case that we may hope to free institutions of this kind from their present unsatisfactory ophthalmic condition.

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Brentwood
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