Annual report on the ophthalmic section.

SIXTH ANNUAL REPORT

ON THE

OPHTHALMIC SECTION, 1918.

MINISTRY OF THE INTERIOR, EGYPT.

DEPARTMENT OF PUBLIC HEALTH.

SIXTH ANNUAL REPORT

ON THE

OPHTHALMIC SECTION,

1918,

BY THE DIRECTOR OF OPHTHALMIC HOSPITALS.

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Cairo,
March 27, 1919.

Sir,

I have the honour to enclose my Report on the Ophthalmic Hospitals and on Ophthalmic progress in Egypt during the year 1918.

I have the honour to be,

Sir,

Your obedient servant,

A. F. MacCallan,

Director of Ophthalmic Hospitals.

The Director-General,

Department of Public Health,

Cairo.

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REPORT ON THE OPHTHALMIC SECTION, 1918.

I.—INTRODUCTION.

Permanent Hospitals.—During the last ten years ten of the fourteen provinces of Egypt have been supplied with a well designed and well built ophthalmic hospital, each of which was built and equipped at the expense * of the province concerned and is maintained by the Government at a pre-war cost of L.E. 1,500 per annum inclusive. In addition, the Provincial Council of the large province of Gharbîya has provided, and now maintains, ophthalmic dispensaries in specially designed buildings at three of the larger towns.

Hospitals Under Canvas.—Stationary hospitals under canvas are maintained by the Government† at Aswân and Gîza, the first of which was originally provided by Sir Ernest Cassel, and the latter was provided by the Provincial Council of Gîza Province. One Cassel Fund travelling hospital is maintained by the Government, and two smaller travelling hospitals are maintained by the Provincial Councils of Daqahlîya and Asyût.

A Hospital for Post-Graduate Study in Cairo.—Formerly a large proportion of the time of the Director of Ophthalmic Hospitals was devoted to ophthalmic propagandism: to designing and organizing new hospitals and to the establishment of a stable ophthalmic administration; these, however, are now accomplished facts. His attention should now be directed to the important work of teaching ophthalmic surgery by clinical and operative demonstration, and by more formal lectures to the recently qualified surgeons of the Government Medical School, who join the staff of the ophthalmic hospitals. In former days, when the ophthalmic staff was small in number, the Director was able to carry on his teaching duties during his constant visits to the few provincial ophthalmic hospitals then existing. Now, however, with eighteen hospitals and a staff of thirty-two surgeons, it is impossible to give adequate instruction to the younger surgeons and to maintain the traditions of ophthalmic surgery, which the Director himself learnt at the Royal London Ophthalmic Hospital, in the short and infrequent visits which he is able to make at these provincial hospitals. Administrative inspections of hospitals can be made in a few hours, but inspections for teaching purposes, lasting a few days even if recurring every few months, are of little value. In order to provide a central hospital, it has been found necessary to place one of the tent hospitals at Gîza near Cairo, and make it stationary there as a teaching centre. The accommodation is quite inadequate for the purpose for which it is being used, and a hospital well equipped for teaching purposes is urgently required in Cairo.

Clinical Work.—The number of new patients treated in 1918 was 82,316. The number of attendances of out-patients was 1,013,282. The number of operations performed was 54,277.

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* Except Tanta which was built entirely at the expense of the Government, and Asyût which was built at a cost of L.E. 12,000 of which L.E. 5,000 was subscribed locally and the remainder provided by the Government.

† Two tent hospitals were provided in 1903 and 1904 by Sir Ernest Cassel and are maintained from the interest of the sum of L.E. 40,000 given by him for the purpose.

Finance.—The budgetary credit in 1918 was L.E. 23,662,* not including a sum of L.E. 4,351 granted at various times for equipment and drugs. Besides this, various provincial councils provided L.E. 3,503 for the maintenance of five hospitals. A total sum of L.E. 31,516 was therefore available for ophthalmic purposes. The amount of money raised from local sources since 1906 for capital expenditure, and thereby saved to the Government Treasury, now amounts to L.E. 54,907.

Age of Patients.—The importance of obtaining treatment for babies and children attacked by ophthalmia is beginning to be recognized by the people. More than seven per cent of all the patients treated were under the age of one year, and thirty-nine per cent were under the age of fifteen years.

Blindness.—Thirteen thousand two hundred and thirty, or 14·5 per cent, of all the patients examined, were blind in one or both eyes. Of these, 4,261 were blind in both eyes. The cause of blindness, in most cases, was not trachoma but acute conjunctivitis or ophthalmia.

School Clinics.—School ophthalmic clinics are carried on at eleven of the Government provincial primary schools, and form the subject of a separate report. (*See* p. 21.)

Ophthalmological Society.—The annual meeting of this Society, which is affiliated to the Ophthalmological Society of Great Britain, was held in March 1918. The proceedings have been published in the annual bulletin of the Society.

Pathological Laboratory.—The pathological and bacteriological laboratory which was started at Asyût Ophthalmic Hospital, and later was transferred to Mansûra, has now been brought to Gîza adjoining the stationary hospital, and is installed in suitable premises which have been rented at a low rate. It is fully equipped for the examination of material sent up from the various ophthalmic hospitals.

Post-Graduate Course of Ophthalmology.—A complete course of post-graduate lectures, including pathological and bacteriological demonstrations and lantern slides of the principal diseases of the fundus, was given during 1918 by the Director with the assistance of the inspectors at the School of Medicine.

Reasons for the Provision of Special Ophthalmic Hospitals in the Provinces.—It is advisable to restate the reasons which induced Sir Horace Pinching, the Director-General of the Department of Public Health, to recommend, in 1905, to the late Lord Cromer, the establishment of special ophthalmic hospitals, rather than the provision of a ward or wards with out-patient accommodation at each provincial general hospital. This question was gone into again in 1910 very carefully by the Financial Adviser, Sir H. P. Harvey, and the previous decisions were maintained.

It must be remembered that the Government ophthalmic hospitals have been built without any expense to the Government, by virtue of an agreement that where ophthalmic propaganda persuaded the governors and the notables of provinces to provide money for building and equipping an ophthalmic hospital in the capital town of their province, the Government would provide the necessary sum for maintenance (at that time L.E. 1,500 per year); and it is actually under these conditions that the hospitals have been built.

The main reason for the decision to build seperate hospitals was that no land adjoining any of the Government general hospitals for building the necessary accommoda-

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* This includes L.E. 2,560 derived from Sir Ernest Cassel's gift.

tion was obtainable, except in the case of Mansûra where the present Government hospital is too low-lying to be sanitary, and the construction of other buildings in its vicinity could not be recommended ; and in the case of Beni Suef, where land is available, but the hospital being in the middle of the town, the daily arrival of three or four hundred eye patients was not considered advisable from a sanitary point of view.

At the other hospitals: Tanta, Damanhûr, Zagazig, Faiyûm, Minya, Sohâg, Aswân, Benha, and Shibîn el Kôm, as is well known to those familiar with these towns, no land for extension of existing buildings is available. The owners of the neighbouring land at Asyût refused to part with their property on terms considered advantageous to the Government.

The other reasons need not be considered here, in view of the impossibility of providing at, or adjoining, the existing general hospitals sufficient ground-space for out-patients' shelters, operation rooms, and examination rooms, as well as wards for in-patients and administrative rooms.

Future Ophthalmic Policy.—Two provinces only are now unprovided with ophthalmic hospitals, namely, Qalyûbîya and Qena. These provinces, however, have already obtained a certain proportion of the funds necessary for building and equipment, and it is merely a question of time before their hospitals are at work.

Aswân province, however, is in a different case. Extremely poor, it is quite unable to provide money for building a hospital. It is now being ministered to by one of the Cassel Fund hospitals, which has become stationary at Aswân town until such a time as the Government is able to provide a built hospital. Permanent work under canvas during the hot summer at Aswân is extremely trying for the staff.

II.—OTHER ADMINISTRATIVE DETAILS.

Staff.—The inspecting staff has been reduced by one-half, owing to Dr. Waddy having been recalled for military service in the Special Reserve of Officers, and Dr. Oulton having been drafted to other administrative work to supply deficiencies in the staff of the Department of Public Health caused by war. The amount of work done, however, is practically the same as in the previous year.

Alexandria Municipality Ophthalmic Hospital.—At the request of the Director-General of the Municipality, the hospital which is maintained by that body is regularly inspected. The surgeon in charge was formerly on the ophthalmic hospital staff, and the work done is of considerable value. The number of new cases seen was 3,419, and the number of operations done was 490. The premises of the hospital are highly unsuitable for hospital work.

III.—CLINICAL SECTION.

(1) Causes of Non-Trachomatous Ophthalmia in Egypt.

In a communication to the Ophthalmological Society of the United Kingdom, session 1917–1918, I reported certain observations on the relation between various varieties of conjunctivitis and the average climatic temperature. Similar observations have been

regularly made and published in the annual reports of the Egyptian Ophthalmic Hospitals since the year 1912.

We have found that the number of new patients who present themselves for treatment is very much greater in the summer than in the winter. This may be due, to some extent, to the shorter days of winter giving less time for those who come from a distance to go to and come from the hospital, and to the condition of the roads during rainy weather preventing travelling, but is mainly due to the increased amount of communicable eye disease, that is acute conjunctivitis, during the summer months. We have previously shown that neither atmospheric humidity nor variations in the level of the Nile bear any relation to this increased incidence of conjunctivitis. The following table shows the number of patients seeking treatment in each month of the year :—

TABLE I.—New Patients treated per Month during 1918.

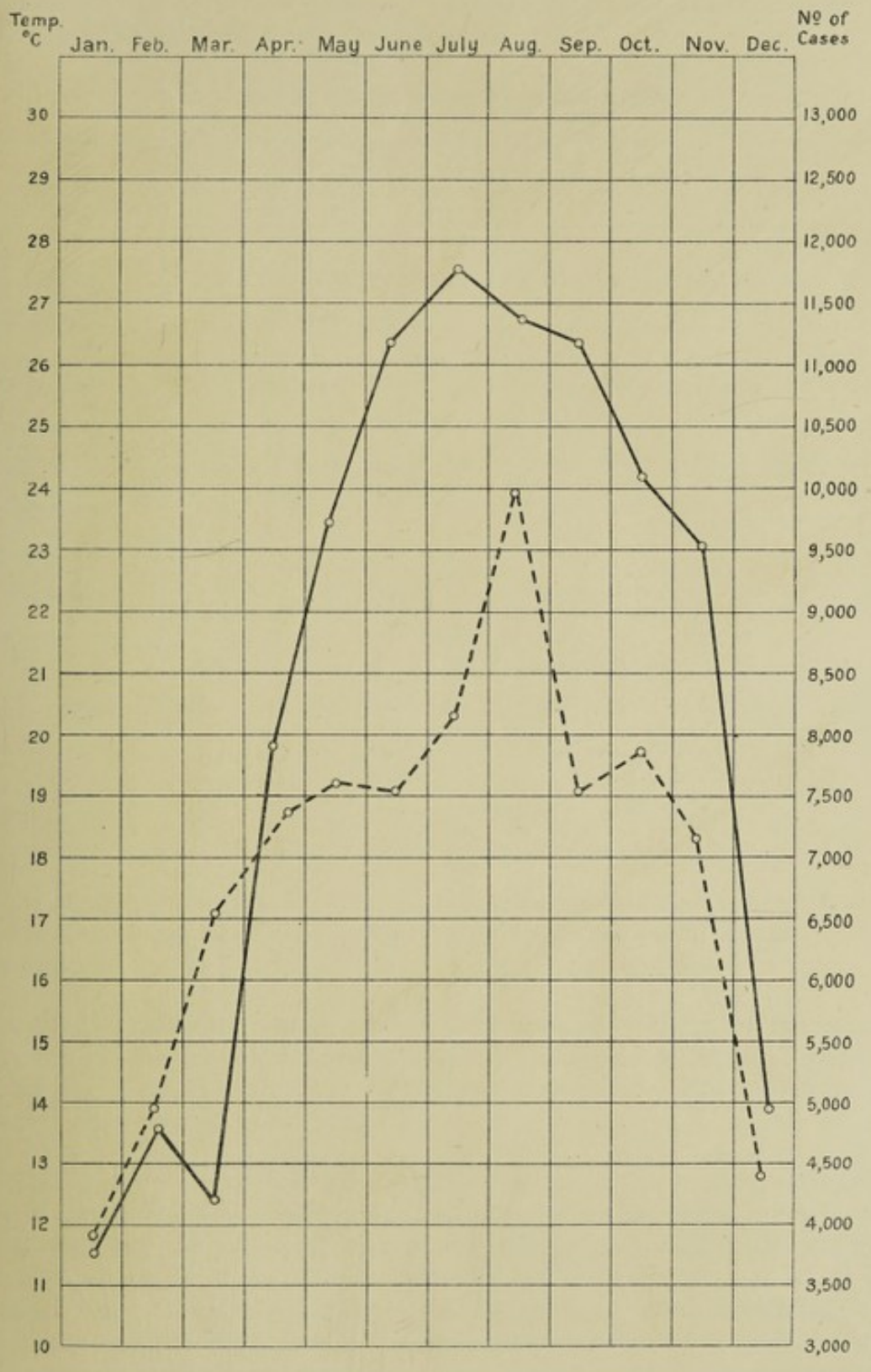
January	3,954
February	4,648
March	6,511
April	7,288
May	7,583
June	7,503
July	8,181
August	9,980
September	7,494
October	7,782
November	7,115
December	4,277
TOTAL	82,316

Table II exhibits the relation between the average atmospheric temperature and the number of new patients treated per month. The average temperature is obtained by taking two places in Lower Egypt (Qorashîya and Zagazig), and two places in Upper Egypt (Beni Suef and Asyût), and obtaining an average figure from the mean temperature at each place on the 1st and 16th of each month. This average temperature is supplied by the kindness of the Controller of the Physical Department.

While in December and January the new patients are about 4,000 or 5,000 per month, in August they number 10,000. The increase begins in the spring of each year, about the same time as the rise in the average temperature ; this was more marked in our records for 1917 than in the accompanying curve for 1918.

It is seen that the general trend of the two curves is very similar, and it is impossible to resist the impression that there is a definite relation between rises and falls of temperature and increased desire for ophthalmic treatment.

TEMPERATURE AND NUMBER OF NEW PATIENTS TREATED



Reproduced by the Survey of Egypt June 1919 (65)

Table III shows that 11,500 microscopical examinations with a one-twelfth oil immersion lens, showed the presence of one or other of the causative organisms of acute conjunctivitis out of a total of 13,500 examinations made. The number per month varying from about 300 in January to about 1,600 in October.

TABLE III.—Organisms found during 1918.

Organisms.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Gonococcus	66	61	63	101	416	410	604	669	794	1,003	825	270	5,282
Koch-Weeks	51	70	198	330	503	377	263	352	284	342	269	120	3,219
Morax-Axenfeld or Diplo-bacillus ..	181	225	344	185	253	141	184	207	198	165	118	74	2,275
Pneumococcus ...	17	12	23	35	27	28	29	23	48	43	63	30	378
Xerosis	11	3	8	11	21	29	18	20	17	12	14	15	179
Staphylococcus ...	1	1	7	3	11	5	8	8	6	6	7	1	64
Micrococcus	—	—	—	1	4	—	—	3	—	—	—	—	8
Streptococcus	—	—	3	3	1	1	—	—	3	—	1	3	15
Other organisms ...	7	2	17	7	12	6	15	8	7	9	2	1	93
Total ...	334	374	663	736	1,248	997	1,121	1,290	1,357	1,580	1,299	514	11,513
Negative	68	79	139	169	259	189	194	227	212	209	225	101	2,071
Grand Total...	402	453	802	905	1,507	1,186	1,315	1,517	1,569	1,789	1,524	615	13,584

As practically all cases of acute conjunctivitis are examined microscopically, the number of microscopical examinations bears a pretty fair relation to the amount of acute conjunctivitis.

Table IV exhibits the monthly percentage of organisms found in the various months of the year, the curve for which is seen to rise shortly subsequent to the rise of temperature, and favours the conclusion that the main increase in the number of patients is due to the increased prevalence of acute conjunctivitis.

Table V shows the relations of the gonococcus to the temperature, while Table VI does the same for the Koch-Weeks bacillus and Table VIII for the Morax-Axenfeld bacillus.

In each case the table: (*a*) exhibits the average temperature; (*b*) exhibits the monthly percentage of a particular organism on the monthly total of all micro-organisms found, that is to say, it shows what frequency the particular organism exhibits as compared with the total number of micro-organisms found; (*c*) exhibits the monthly percentage of a particular organism on the total of all micro-organisms found during the year, that is to say, it shows the seasonal variation as compared with all other micro-organisms; (*d*) shows in another form to that exhibited in (*c*) the varying seasonal incidence of the particular organism.

The gonococcus is seen to be the main cause of the increase of acute cases of conjunctivitis (Table V), and the increases appear subsequent to the rise of temperature, although the upward trend of the gonococcal curve continues disproportionately long, as compared with that of the temperature; also the maximum amount of gonococcal conjunctivitis is found in October, while the maximum temperature is reached in July.

The conjunctivitis due to the Koch-Weeks bacillus certainly increases with the spring rise in the temperature, but its maximum incidence is found in April or May, and not in October, as we have seen is the case with the gonococcus.

Conjunctivitis due to the Morax-Axenfeld bacillus does not vary so much during the year in its incidence as the above-mentioned organisms. It is, however, somewhat more prevalent in the early part of the year, and, comparatively to the other organisms as seen in Table VII, to be much more frequent at this time.

The conclusions arrived at from these curves are not materially different from those published in my previous reports.

The average temperature was arrived at by taking two places in Lower Egypt (Qorashîya and Zagazig) and two places in Upper Egypt (Beni Suef and Asyût), and obtaining an average figure from the mean temperature at each place on the 1st and 16th of each month. This is shown in appended table, the readings being in degrees centigrade.

TABLE VIII.—Average Temperature.

MONTH.	Qorashîya. (1)		Zagazig. (1)		Beni Suef. (2)		Asyût. (1)		Average.
	1st.	16th.	1st.	16th.	1st.	16th.	1st.	16th.	
January	12·9	11·1	12·5	9·1	9·8	10·8	14·5	10·4	11·4
February	12·6	15·0	10·4	15·3	12·6	15·0	9·9	17·4	13·5
March	11·9	13·0	11·8	12·6	—	—	12·6	13·9	12·6
April	12·8	21·8	13·3	21·4	21·2	24·9	16·6	25·8	19·7
May	21·9	23·4	21·0	22·4	22·9	22·3	26·9	27·4	23·5
June	22·9	27·3	22·4	26·0	—	—	27·8	32·3	26·4
July	25·4	29·1	24·6	26·9	—	—	28·9	31·0	27·6
August	26·2	25·1	25·1	—	—	—	29·0	28·0	26·7
September	25·3	24·8	—	—	—	—	27·6	27·7	26·4
October	24·0	23·0	—	—	—	—	26·2	23·4	24·2
November	23·6	21·6	—	—	—	—	25·6	21·1	23·0
December	13·0	12·3	—	—	—	—	16·0	13·9	13·8

(1) = Mean of day $\frac{8h + 14h + 20h + Min.}{4}$ (2) = Mean of day $\frac{Max. + Min.}{2}$

These figures were kindly supplied by the Controller, Physical Department, Ministry of Public Works.

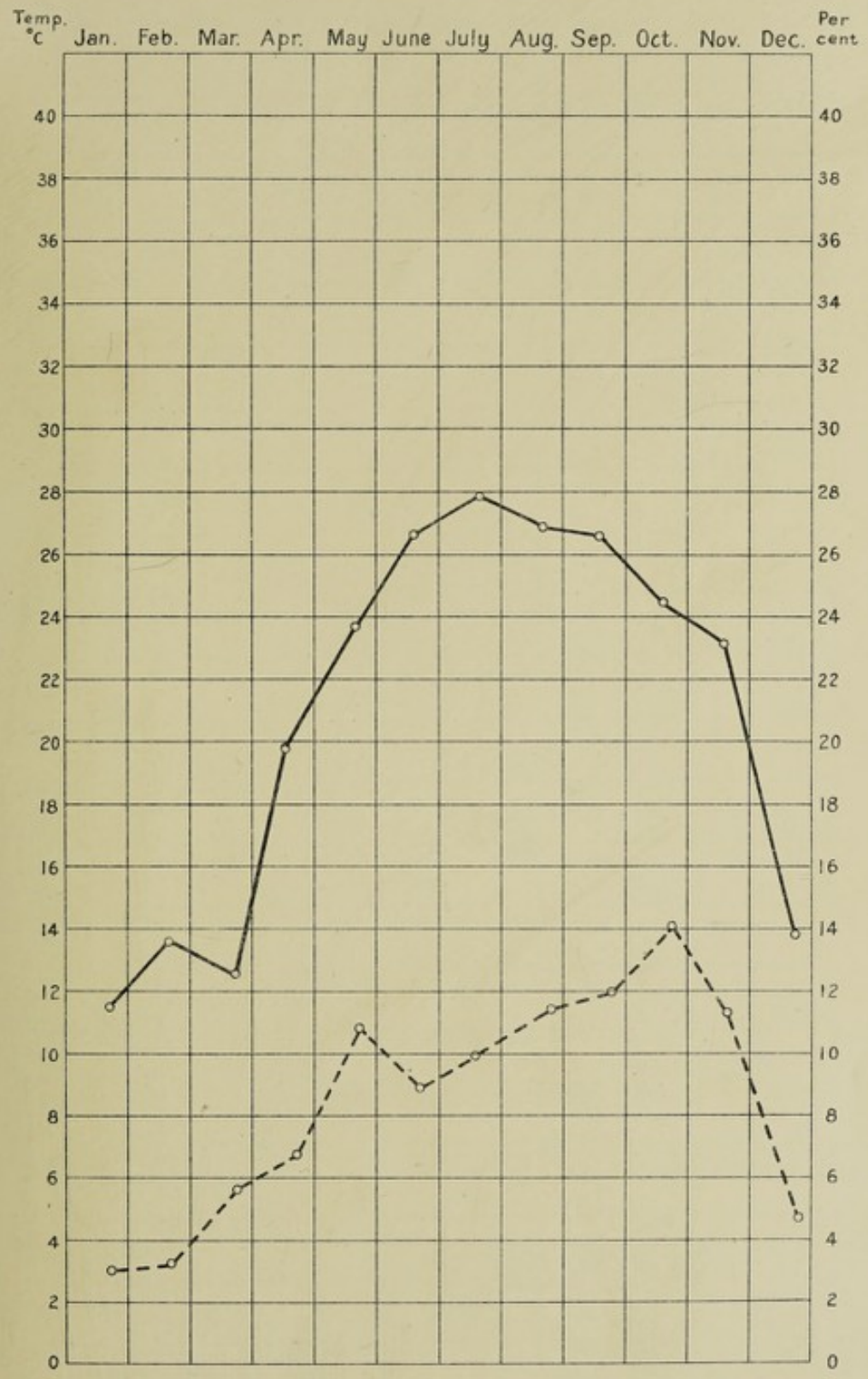
(2) Causes of Blindness in Egypt.

During the year 1918 we examined nearly nine thousand (8,969) patients who were blind in one eye, and more than four thousand (4,261) who were blind * in both eyes. (Table IX) That is more than four and a half (4·7) per cent of the patients were blind in both eyes, and ten per cent (9·9) in one eye.

Of course, we depend on the hearty co-operation of all surgeons, but especially of the principal medical officers in recording all cases of blindness.

* The definition of blindness adopted at the Egyptian Ophthalmic Hospitals is inability to count fingers held up at a distance of one metre from the patient.

TEMPERATURE AND POSITIVE EXAMINATIONS

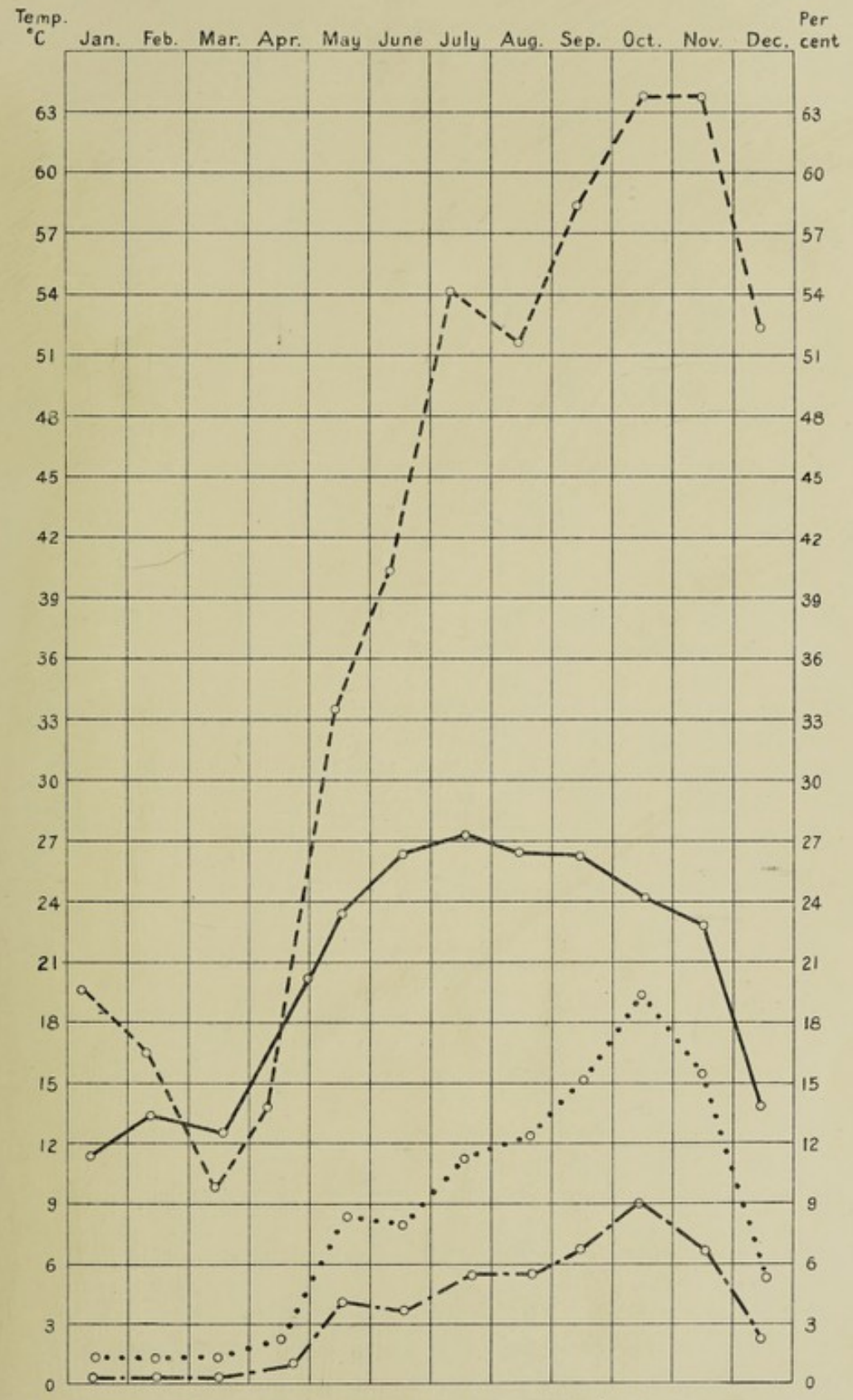


——— *Average temperature in degrees centigrade*

– – – – – – *Percentage monthly of positive examinations on total of all microorganisms found during the year.*

Reproduced by the Survey of Egypt June 1918 (65)

TEMPERATURE AND GONOCOCCUS



(a) ——— *Average temperature in degrees centigrade.*

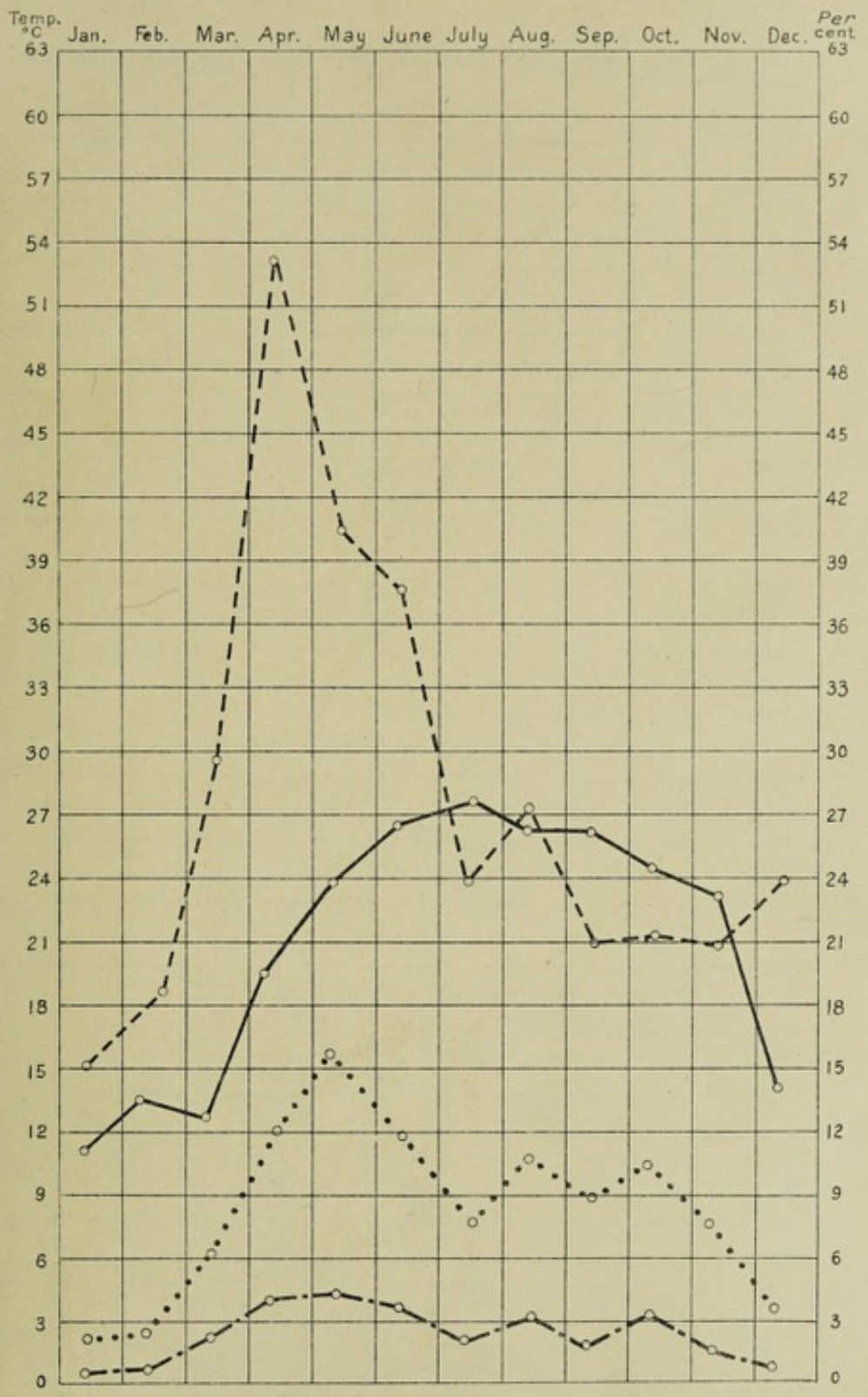
(b) – – – – *Percentage of gonococcal findings on monthly total of all microorganisms found.*

(c) —·—·— *Monthly percentage of gonococcal findings on total of all microorganisms found during the year.*

(d) ..... *Monthly percentage of gonococcal findings on total gonococcal findings during the year.*

Reproduced by the Survey of Egypt June 1919 (65)

TEMPERATURE AND KOCH-WEEKS



(a) ——— *Average temperature in degrees centigrade.*

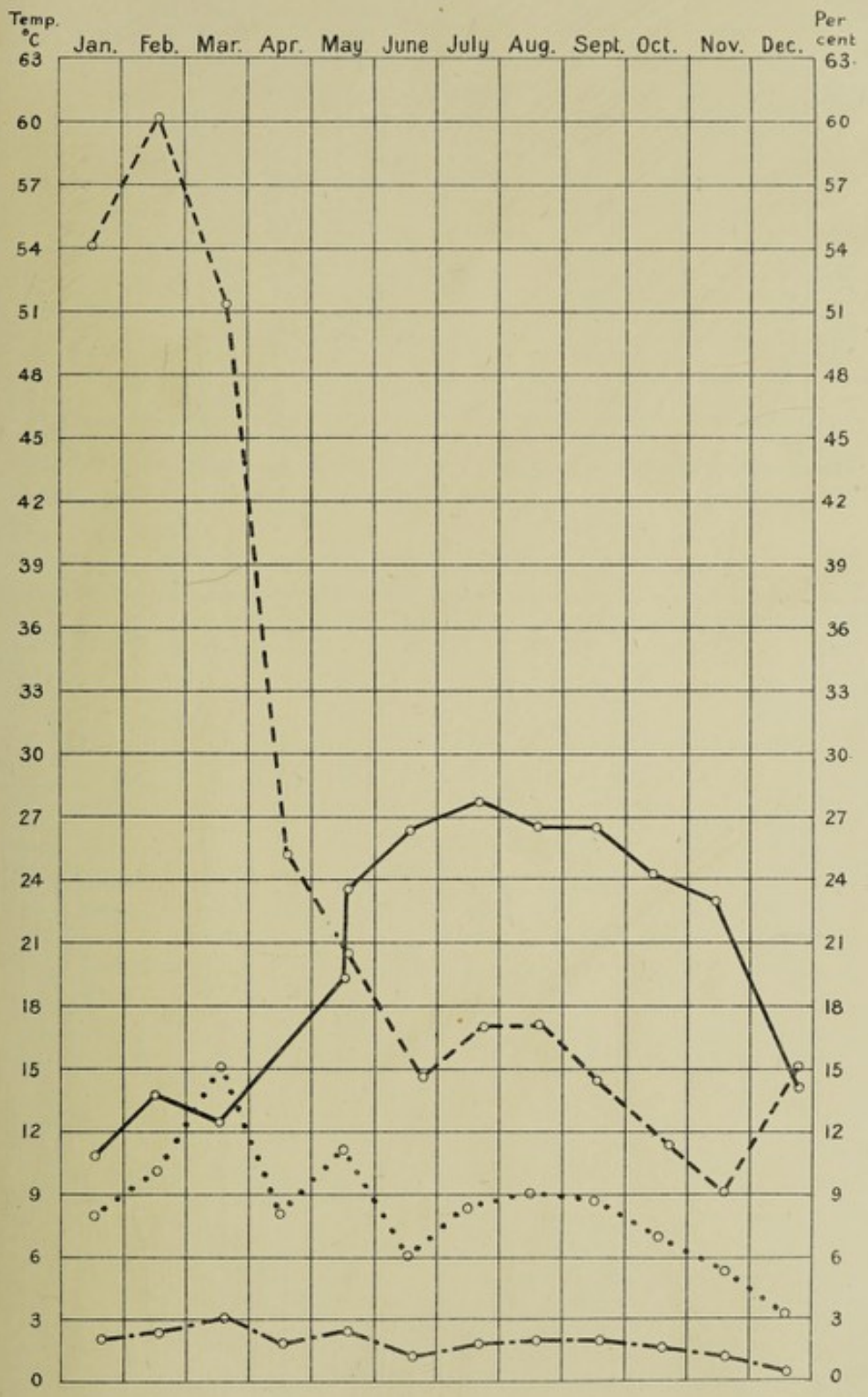
(b) – – – – *Percentage of Koch-Weeks bacillus findings on monthly totals of microorganisms.*

(c) —·—·— *Percentage of Koch-Weeks bacillus findings on total of all microorganisms found during the year.*

(d) ····· *Monthly percentage of Koch-Weeks bacillus on total Koch-Weeks bacillus findings during the year.*

Reproduced by the Survey of Egypt June 1919 (65)

TEMPERATURE AND MORAX-AXENFELD



——— *Average temperature in degrees centigrade.*

– – – – *Percentage of Morax-Axenfeld bacillus on monthly totals of microorganisms found.*

—·—·— *Percentage of Morax-Axenfeld bacillus on total of all microorganisms found during the year.*

····· *Monthly percentage of Morax-Axenfeld bacillus on total Morax-Axenfeld bacillus findings during the year.*

Repreduced by the Surrey of Egypt June 1919 (65)

TABLE IX.—Blindness.

YEAR.	Total Number of Patients Examined.	One Eye.		Both Eyes.		One Eye and Both Eyes.	
		Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1906	40,103	1,297	3·2	663	1·6	1,960	4·9
1907	24,416	1,450	5·9	697	2·8	2,147	8·7
1908	19,614	1,189	6·0	852	4·3	2,041	10·4
1909	22,373	2,116	9·4	1,385	6·1	3,501	15·6
1910	25,506	2,438	9·5	2,010	7·8	4,448	17·4
1911	31,274	3,196	10·2	2,811	8·9	6,007	19·2
1912	43,668	4,115	9·4	2,824	6·4	6,939	15·8
1913	62,233	5,360	8·6	3,878	6·2	9,238	14·8
1914	75,398	6,425	8·5	3,591	4·7	10,016	13·2
1915	71,930	5,637	7·8	2,992	4·2	8,629	12·0
1916	94,447	7,042	7·4	3,504	3·7	10,546	11·2
1917	100,410	9,385	9·3	4,611	4·6	13,996	13·9
1918	90,668	8,969	9·9	4,261	4·7	13,230	14·6
Total... ...	702,040	58,619	8·3	34,079	4·9	92,698	13·2

In the enclosed table are shown the percentage of cases examined who are blind in one or both eyes at the various hospitals (Table X).

TABLE X.—Total Percentage of Blindness in One or both Eyes.

	1914	1915	1916	1917	1918
Permanent Hospitals :—					
Tanta	11·0	8·1	5·3	9·2	8·8
Asyût	14·2	10·1	11·7	18·4	20·2
Mansûra	18·6	15·3	16·6	13·2	13·9
Beni Suef	16:7	16·3	13·2	16·0	16·9
Zagazig	15·9	11·1	9·3	15·0	15·9
Damanhûr	16·8	11·4	11·8	13·5	12·9
Shibîn el Kôm	18·5	11·9	11·8	10·2	12·3
Sohâg	19·7	15·3	14·3	14·03	14·7
Minya	—	22·06	20·7	30·7	20·6
Faiyûm	—	—	11·06	13·0	18·2
Mahalla el Kubra	13·6	16·4	17·03	12·2	12·3
Kafr el Zaiyât	7·8	10·5	8·3	12·6	10·1
Santa	—	—	10·06	13·7	14·2
Travelling Hospitals :—					
No. 1 Camp :—					
Shibîn el Qanâtir	21·7	11·8	—	—	—
Minyet el Qamh	15·0	—	—	—	—
Kafr el Dauwâr	—	—	12·7	11·9	—
Qena...	—	—	—	20·5	18·3
Benha	—	—	—	10·7	—
Alexandria	—	—	—	—	15·0
Aswân	—	—	—	—	12·8
No. 2 Camp :—					
Maghâgha	22·9	—	—	—	—
Damietta	9·6	—	—	—	—
Barrage	—	5·8	—	—	—
Giza	—	—	10·5	12·6	11·1
Rosetta	—	—	—	15·7	—
Fuwa	—	—	—	12·6	—
Embaba	—	—	—	—	15·6
No. 3 Camp :—					
Barrage	—	—	—	—	15·6
Asyût Provincial Council :—					
Manfalût	5·3	6·7	—	8·9	14·7
Manfalût	8·3	—	—	—	—
Dairût	7·4	—	—	6·4	12·3
Mallâwi	5·6	—	6·1	8·2	—
Abnûb	—	—	4·1	—	—
Abu Tîg	—	—	—	9·6	—
Daqahliya Provincial Council :—					
Mit Ghamr	16·5	4·7	7·9	—	8·2
Matariya	8·6	—	—	—	—
Dikirnis	11·2	—	—	10·6	—
Fâriskûr	—	—	7·1	—	7·2
Aga	—	—	—	22·3	14·2
Simbillâwein	—	—	—	10·7	—

This percentage is seen to vary from twenty per cent at Minya (20·6) and Asyût (20·2) to seven per cent at Fâriskûr (7·2). There is no doubt that the higher rate in significant of great care and industry on the part of the principal medical officer.

The age at which patients became blind is of great importance for any study of the prophylaxis of blindness and of the diseases which lead to it.

TABLE XI.—Blindness in One or both Eyes per Age during 1918.

Hospital.	Under 1 year.	From 1–5.	From 6–10.	From 11–15.	From 16–20.	From 21–40.	Over 40 years.	Total.
No. 1 Camp	3	23	54	65	50	361	630	1,186
No. 2 Camp	5	37	41	59	78	476	329	1,025
No. 3 Camp	1	3	8	8	8	57	57	142
Tanta	19	35	43	31	40	231	237	636
Asyût	26	43	68	47	78	526	553	1,341
Mansûra	4	59	33	64	35	331	246	772
Beni Suef	5	20	25	76	81	352	319	878
Zagazig	4	22	28	61	55	360	269	799
Damanhûr	9	29	26	16	38	317	183	618
Shibîn el Kôm	13	22	28	42	65	268	208	646
Sohâg	2	27	28	35	45	230	253	620
Minya	12	21	28	40	53	533	362	1,049
Faiyûm	35	23	42	43	66	391	493	1,093
Mahalla el Kubra	10	19	11	20	20	124	176	830
Kafr el Zaiyât	9	14	13	12	12	189	53	302
Santa	12	8	13	19	17	147	194	410
Asyût P.C.	17	17	48	75	25	366	411	959
Daqahliya P.C.	3	14	36	23	38	113	147	374
Total	189	436	573	736	804	5,372	5,120	13,230

TABLE XII.—Percentage of Blindness in One or both Eyes per Age during 1918.

	Per Cent of Total examined.	Per Cent of Total Blind.	Per Cent of Patients of this Age.
Under one year	0·21	1·42	2·93
From 1 to 5 years	0·48	3·29	5·06
„ 6 „ 10 „	0·63	4·33	6·21
„ 11 „ 15 „	0·81	5·56	8·67
„ 16 „ 20 „	0·88	6·07	11·77
„ 21 „ 40 „	5·92	40·60	19·96
Over 40 years	5·64	38·70	32·30

Of patients under one year, only about one and a half per cent (1·42) were found to be blind in one eye ; from one year to five years, three and a quarter per cent (3·29) ; from six to ten years, four and a quarter per cent (4·33); from eleven to fifteen years, five and a half per cent (5·56) ; from sixteen to twenty years, six per cent (6·07) ; from twenty-one to forty years, forty and a half per cent (40·6) ; over forty years, thirty-eight and a half per cent (38·7). It is therefore a fact either that the majority of the blindness happens after the age of twenty-one years or that the blind among the younger patients are not brought to the hospitals.

The average blindness being thirteen per cent (13·2), the small amount of blindness found among the patients up to the age of fifteen years (three to eight per cent) is remarkable. It is not until after the age of twenty-one years that the incidence rises sufficiently to produce the average of thirteen per cent.

The deduction to be drawn from this, apparently, is that the danger of blindness is vastly increased with the onset of years, and that this goes on getting greater and greater

from birth onwards. Incidentally, it may be noted that ophthalmia neonatorum is extremely rare among Egyptians.

The ages of all patients treated may be of interest and are given in the following table :—

TABLE XIII.—Patients treated per Age during 1918.

	Number.	Per Cent.
Under 1 year	6,434	7·81
From 1 to 5 years	8,607	10·45
„ 6 „ 10 „	9,213	11·19
„ 11 „ 15 „	8,483	10·30
„ 16 „ 20 „	6,826	8·29
„ 21 „ 40 „	26,904	32·68
Over 40 years	15,849	19·25
Total... ...	82,316	—

From an examination of the ages of all the patients treated, we find that about eight per cent were under one year, ten and a half per cent from one to five years, eleven per cent from six to ten years, ten per cent from eleven to fifteen years, eight per cent from sixteen to twenty years, thirty-two and a half per cent between twenty-one and forty years, and nineteen per cent over forty years. It is, therefore, not a fact that children are not brought to the hospital.

To determine the cause of the increased liability to blindness with advancing age requires a study of the prime pathological causes of blindness which are noted below.

TABLE XIV.—Causes of Blindness.

	1912	1913	1914	1915	1916	1917	1918	Total.	Per Cent.
Congenital...	11	12	10	7	3	4	8	55	0·06
Acquired :—									
Conjunctivitis resulting in :—									
(*a*) Total corneal opacity ...	2,109	2,553	3,170	2,759	2,861	3,565	3,569	20,686	24·15
(*b*) Shrunken globe...	1,933	2,647	2,857	2,317	3,109	3,923	3,713	20,499	23·93
(*c*) Secondary glaucoma... ...	1,630	2,070	1,977	1,815	2,032	2,498	2,480	14,502	16·93
(*d*) Other conditions	635	787	1,094	745	859	1,577	1,483	7,180	8·38
Fundus :—									
Optic atrophy	151	100	119	90	145	178	195	978	1·14
Retinitis pigmentosa	20	29	19	12	23	22	24	149	0·17
Various	203	305	184	182	152	254	194	1,474	1·72
Glaucoma absolutum :—									
Monocular	536	553	638	657	696	893	751	4,724	5·51
Binocular	562	651	513	650	673	903	720	4,672	5·45
Cataract	486	930	862	797	1,053	1,201	1,287	6,616	7·72
Injury...	47	63	47	70	56	148	92	523	0·61
Operation	25	23	19	17	32	52	34	202	0·23
Infectious diseases	4	27	19	19	2	32	11	114	0·13
Iritis endogenous	184	224	165	94	160	277	209	1,313	1·53
Various	67	387	262	230	241	422	331	1,940	2·26
Total... ...	8,603	11,361	11,955	10,461	12,097	16,049	15,101	85,627	—

From this it is seen that, although cataract (7·72 per cent) and glaucoma (10·96 per cent) account for a considerable amount of blindness found, the main cause is conjunctivitis (73·39 per cent) of all kinds, resulting in total corneal opacity, shrunken globe, secondary glaucoma, and various other conditions unspecified in the statistics.

We come back to acute conjunctivitis as the most important cause of blindness. Trachomatous conjunctivitis is, as you are well aware, a chronic disease, and does not frequently produce blindness unaided.

The amount of blindness due to glaucoma is noteworthy, more than one and a half per cent (1·62 per cent) of all the patients who seek treatment at the ophthalmic hospitals being blind from this disease.

(3) Optic Atrophy.

The number of cases of optic atrophy, excluding those due to glaucoma, seen, was 195. Their causes are classified as follows :—

TABLE XV.—**Causes of Optic Atrophy during 1918.**

1. Post neuritic, after optic neuritis	62
2. Consecutive, to diseases of retina or choroid	24
3. Primary, due to Tabes	7
Dis. sclerosis	6
Diabetes	—
Acute fevers	44
Arteriosclerosis	10
4. Anæmia	—
5. Unknown	42
Total	195

The very large number of cases in which the origin of the optic atrophy is unknown is remarkable, and will repay future investigation.

(4) Operations.

The operations performed for the relief of trichiasis and entropion were 28,890; these figures do not include the removal of individual lashes by electrolysis nor epilation. The operations performed were those devised by Snellen, Anagnostakis, and Van Millingen. Practically speaking, all cases of trichiasis and entropion resulting from trachomatous cicatrization can be dealt with successfully by one of these methods. 16,376 minor operations for the treatment of trachoma were performed. Iridectomy for adherent leucoma was performed 1,771 times.

(5) Cataract.

The number of cases of extraction of senile cataract was 353. The number of soft cataracts removed by needling and curette was 154.

(6) Glaucoma.

The total number of cases of primary glaucoma examined was 2,212. The operation of trephining with iridectomy continues to be the operation of election, 509 such operations having been performed during the year.

During the last seven years more than half a million patients have been examined at the ophthalmic hospitals of Egypt, and of these, two per cent were found to have signs of glaucoma. Full clinical notes of all these cases are in existence, and can be referred to if required.

Cases of acute glaucoma are rarely seen, only eighty-three having applied for treatment during the last seven years. Cases of sub-acute glaucoma are rather more frequent, 176 cases having been seen during the same period. The high percentage is made up almost entirely of chronic glaucoma, about half of whom do not apply for treatment until blindness has supervened, more than one and a half per cent of all the patients who seek treatment at the ophthalmic hospitals being already blind in one or both eyes from this disease.

TABLE XVI.—Incidence of Primary Glaucoma.

Varieties.	1912	1913	1914	1915	1916	1917	1918	Total.
Acute	3	12	17	8	19	12	12	83
Sub-acute	10	17	23	28	15	38	45	176
Chronic	829	902	574	396	436	552	637	4,326
Absolute	282	217	1,147	1,194	1,113	1,842	1,518	7,313
Total... ...	1,124	1,148	1,761	1,626	1,583	2,444	2,212	11,898
Total number of patients examined	43,668	62,233	75,398	71,930	94,447	100,410	90,668	538,754
Per cent of glaucoma cases	2·57	1·84	2·33	2·26	1·67	2·43	2·44	2·21
Per cent of absolute glaucoma cases...	0·65	0·34	1·52	1·66	1·17	1·83	1·67	1·36
Operations:—								
Iridectomy...	60	28	25	30	78	153	203	577
Trephining with iridectomy...	152	317	428	464	534	655	509	3,806

TABLE XVII.—Synopsis of Work of Hospitals since 1904.

	* 1904-1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
Hospitals in existence :—												
Travelling	2	2	2	2	3	4	5	4	—	4	4	5
Permanent	—	1	1	1	2	4	7	10	11	13	13	13
New patients treated	21,937	7,794	12,092	14,342	20,488	28,029	40,670	50,126	52,752	68,304	81,529	82,316
Total attendances of out-patients	306,753	132,278	177,761	190,247	236,411	341,211	544,267	686,012	735,919	849,366	903,751	922,614
Operations performed	16,402	6,426	9,930	11,486	14,322	21,315	30,648	40,710	42,146	54,205	59,581	54,277
In-patients	575	208	390	443	678	909	1,807	2,071	2,274	2,454	2,847	3,264
Details :—												
Patients examined	19,614	22,373	25,514	31,274	43,668	62,233	75,398	71,930	94,447	100,410	90,668	
Patients regularly treated	7,794	12,092	14,342	20,488	28,029	40,670	50,126	52,752	68,304	81,529	82,316	
Incurable cases	4,550	2,302	1,776	2,620	7,200	9,544	10,554	7,765	9,871	9,675	5,650	
Blind in one eye	1,189	2,116	2,438	3,196	4,115	5,360	6,425	5,637	7,042	9,385	8,969	
Blind in both eyes	852	1,385	3,010	2,811	2,824	3,878	3,591	2,992	3,504	4,611	4,261	
Trichiasis cases examined	8,159	10,060	7,507	7,871	13,176	17,329	21,624	19,220	22,214	27,341	26,164	
„ eyes operated on and cured	2,262	3,128	2,022	3,933	6,942	11,700	16,542	19,149	26,094	30,200	28,890	
New patients treated per age :—												
Under 1 year	247	516	457	761	1,495	2,700	2,472	3,023	4,031	5,168	6,434	
From 1 to 5 years	585	1,645	1,497	1,903	3,317	4,631	6,394	5,762	7,865	7,938	8,607	
„ 6 to 10 „	902	1,442	4,469	2,101	3,210	4,786	5,634	5,229	6,985	9,217	9,213	
„ 11 to 15 „	849	1,294	1,475	2,051	3,056	3,799	4,570	5,651	6,275	7,965	8,483	
„ 16 to 20 „	829	1,156	1,499	2,067	2,588	3,253	3,949	4,491	5,752	6,748	6,826	
„ 21 to 40 „	2,584	3,775	4,845	6,116	8,167	12,679	17,257	18,492	23,017	28,028	26,904	
Over 41 years	1,798	2,206	3,100	5,589	6,196	8,822	9,850	10,104	14,379	16,465	15,849	

* In 1904 there was only one travelling ophthalmic hospital.

TABLE XVIII.—Work done at all Ophthalmic Hospitals during the Year 1918.

(*a*) Statistics.

I.—In-patients :—		
Total number		3,264
Number of available beds		218
Number of diets issued		66,442
II.—Operations :—		
(1) Major :—		
(*a*) Senile cataract	320	
(*b*) Soft cataract	152	
(*c*) Trichiasis	28,890	
(*d*) Other operations	6,293	
Total	35,655	
(2) Minor :—		
(*a*) Scraping lids of trachoma patients	2,937	
(*b*) Other operations	15,685	
Total	18,622	
Grand Total		54,277
III.—Out-patients :—		
(1) Incurable *	3,532	
(2) Postponed	4,820	
(3) Tickets issued, *i.e.* new cases	82,316	
(4) Old cases	922,614	
(5) Total number of out-patient visits		1,013,282
(6) Average number of visits made to hospital by each patient under regular treatment		12·20
(7) Discharges :—		
(*a*) Cured		9,828
(*b*) Relieved		2,583
(*c*) Incurable †		2,118
(*d*) Spontaneously ceased to attend after having attended only once		12,071
(*e*) Spontaneously ceased to attend after having attended more than once		43,785
(8) Trichiasis cases seen among new patients :—		
(*a*) No previous operation having been performed	19,991	
(*b*) Previous operation performed :—		
(i) Successfully	2,828	
(ii) Unsuccessfully (not at an ophthalmic hospital, but probably by some charlatan)	3,345	
Total		26,164
(9) Ophthalmoscope and refraction cases		19,518
(10) General anæsthetics		4,171
(11) Visits of constant wash cases		130,582
(12) Ages of patients examined :—		
(*a*) Under 1 year		6,434
(*b*) From 1 to 5 years		8,607
(*c*) „ 6 „ 10 „		9,213
(*d*) „ 11 „ 15 „		8,483
(*e*) „ 16 „ 20 „		6,826
(*f*) „ 21 „ 40 „		26,904
(*g*) Over 40 years		15,849
(13) Origin of patients :—		
Town in which hospital is situated		34,348
Markaz in which hospital is situated		29,993
Other Markazes		17,975

* Incurable cases do not receive tickets, but are recognized as both incurable and devoid of surgical interest.

† Incurable cases include those which are recognized as soon as seen by the surgeon as incurable but are given tickets for statistical or other purposes.

TABLE XVIII.—**Work done at all Ophthalmic Hospitals during the Year 1918** (*continued*).

(*b*) List of Diseases.

Ametropia :—	
Hypermetropia	338
Myopia	531
Astigmatism	256
Presbyopia	24
Conjunctiva :—	
Conjunctivitis, gonococcal	5,282
„ Morax-Axenfeld	2,275
„ Koch-Weeks	3,219
Other organisms or negative	2,808
Trachoma I	3,776
„ II (*a*)	5,822
„ II (*b*)	3,285
„ II (*b*)	602
„ II (*c*)	553
„ III, including post-trachomatous degeneration	59,396
„ IV	3,651
Phlyctenule	2,927
Pterygium	1,496
Pinguecula	204
Xerosis	252
Symblepharon	88
Dermoid	11
Other conditions :—	
Argyrosis	62
Colloid degeneration	15
Hypertrophied caruncle	80
Injuries (foreign bodies, burn, etc.)	66
Cyst	16
Epithelioma	1
Eyelids :—	
Pediculosis ciliaris	182
Trichiasis and entropion	23,247
Distichiasis	241
Ectropion	395
Lagophthalmos	1,053
Blepharitis	8,178
Hordeolum	334
Wart	75
Meibomian cyst	289
Chalazion	260
Eczema	208
Rodent ulcer	15
Dermoid	20
Ptosis	189
Erysipelas	8
Herpes	4
Chancre	2
Epithelioma (rodent ulcer)	2
Other tumours	25
Fly larvæ	1
Lacrimal Apparatus :—	
Lacrimal fistula	44
Stenosis of the duct	36
Dacryocystitis, acute	17
„ chronic	555

TABLE XVIII.—**Work done at all Ophthalmic Hospitals during the Year 1918** (*continued*).

(*b*) List of Diseases (*continued*).

Cornea :—	
Ulceration, simple	4,517
„ hyopyon	340
„ perforation	1,561
„ special forms	214
Pannus	42,323
Keratitis, interstitial	25
„ trachomatous	132
Nebula or leucoma	34,608
Adherent leucoma	5,914
Totally opaque cornea	3,027
Staphyloma	1,367
Xerosis of cornea	392
Abscess of cornea	19
Conical cornea	362
Injuries (burn, foreign bodies, etc.)	231
Iris :—	
Anterior synechia	902
Posterior „	492
Inflammation	272
Iris bombé	14
Tumour	—
Irido-dialysis	43
Congenital coloboma	24
Aniridis	7
Persistent pupillary membrane	4
Sclerotic :—	
Ciliary staphyloma	441
Episcleritis	—
Injuries	32
Choroid :—	
Coloboma	8
Rupture	1
Disseminated	24
Choroido-retinitis	28
Atrophy of choroid	41
Tumours	—
Albinismus	6
Retina :—	
Retinitis, albuminuric and diabetic	2
„ syphilitic	12
„ pigmentosa	51
Detachment of retina	60
Embolism and thrombosis of retinal vessels	2
Glioma	3
Other conditions	8
Night blindness (in which ret. pigment is absent)	109
Optic Nerve :—	
Neuritis	28
Atrophy	203
Other conditions	2

TABLE XVIII.—**Work done at all Ophthalmic Hospitals during the Year 1918** (*continued*).

(*b*) List of Diseases (*continued*).

Lens :—	
Cataract, senile	1,509
„ soft	188
„ traumatic	42
„ lamellar	8
„ anterior polar	477
„ posterior „	9
„ dislocated, traumatic	70
„ „ operative	19
„ „ congenital	2
Aphakia	308
Secondary cataract	267
Vitreous :—	
Opacities	77
Foreign bodies	4
Muscles :—	
Strabismus, alternating	148
„ convergent	1,854
„ divergent	1,805
Nystagmus	509
Paralysis	7
Glaucoma :—	
Primary, acute	12
„ sub-acute	45
„ chronic	637
Secondary	2,300
Absolute	1,518
Globe :—	
Shrunken globe	3,680
Buphthalmos	22
Exophthalmic goitre	2
Panophthalmitis	158
Microphthalmos	12
Orbit :—	
Tumours	12
Cellulitis	13
Periostitis	—
Injuries	—
Cyst, frontal	—
„ ethmoidal	—
Contracted socket	29
Blind :—	
In one eye	8,969
In both eyes	4,261

TABLE XIX.—List of Operations performed during 1918.

EYELIDS :—	
For Trichiasis and Entropion :—	
Snellen's	21,500
Anagnostakis	58
Snellen-Anagnostakis	933
Canthoplasty	301
Grafting mucous membrane	5,207
Electrolysis	449
Excision of lash	309
Other operations	595
Combined excision for trichiasis	37
For Ectropion :—	
Plastic	18
MacCallan's	12
Kenneth Scott's	—
Kuhnt's	1
Other operations	8
For Symblepharon	38
For Hordeolum and Chalazion	752
Cyst removed	109
Wart excised	36
Restitching wounds	46
„ abscesses	259
CONJUNCTIVA :—	
For Trachoma :—	
Expression	3,437
Scraping	2,937
Combined excision of Heisrath	844
„ „ „ „ to relieve trich.	42
Post-trachomatous degeneration	10,002
Other operations	234
Pterygium	748
IRIS :—	
Iridectomy for adherent leucoma	1,771
„ visual	281
„ for glaucoma	203
„ preliminary for cataract	11
Cystoid cicatrix	—
Division of anterior synechia	17
Iridotomy	3
Excision of prolapse	15
LACRIMAL SAC :—	
Excision	108
Various	395
Growth sclera	—
Excision of lacrymal gland	2
LENS :—	
For Senile Cataract :—	
Extraction with iridectomy	320
„ after previous iridectomy	33
For membrane after extraction : Discission	270
Capsule extraction	1
For Soft Cataract :—	
Extraction	2
Discission	32
Curette evacuation	152
For membrane after extraction :—	
Discission	61
Paracentesis	38
Capsulotomy	9
Capsule extraction	19
GLOBE :—	
Trephining of cornea-sclera with iridectomy	509
Excision	383
Evisceration	150
ORBIT :—	
Exenteration	1
For Tumour	4
„ Dermoid	5
„ Cellulitis	9
„ Cyst, frontal	—
„ „ ethmoidal	—
Cornea :—	
Foreign bodies removed	188
Saemisch's section	102
Cautery	132
Tenotomy and advancement	3
Other major operations	138
Trial with magnet (negative)	1
„ „ „ (positive)	3

TABLE XX.—Number of Patients treated and Operations performed at the Ophthalmic Hospitals during 1918.

Hospitals.	Patients treated.	Hospitals.	Operations performed.
No. 2 Camp	6,995	Asyût	4,128
No. 1 Camp	6,422	No. 2 Camp	4,085
Tanta	6,156	Faiyûm	3,910
Asyût	6,143	No. 1 Camp	3,478
Faiyûm	5,396	Tanta	3,377
Mansûra	5,390	Mansûra	3,353
Beni Suef	5,032	Shebîn el Kôm	3,319
Minya	4,976	Sohâg	3,250
Zagazig	4,944	Beni Suef	3,225
Shebîn el Kôm	4,745	Minya	3,185
Damanhûr	4,700	Asyût Provincial Council Travelling Ophthalmic Hospital	3,036
Asyût Provincial Council Travelling Ophthalmic Hospital	4,577	Daqahliya Provincial Council Travelling Ophthalmic Hospital	2,929
Daqahliya Provincial Council Travelling Ophthalmic Hospital	3,663	Zagazig	2,572
Sohâg	3,597	Mahalla el Kubra	2,525
Mahalla el Kubra	3,013	Santa	2,487
Kafr el Zaiyât	2,961	Damanhûr	2,457
Santa	2,819	Kafr el Zaiyât	2,141
No. 3 Camp	787	No. 3 Camp	560
Total	82,316	Total	54,277

TABLE XXI.—Average Number of Operations performed per Month at the Ophthalmic Hospitals during 1918.

Hospitals.	Operations.	
	Major.	Minor.
Asyût	230	114
No. 2 Camp	228	144
Faiyûm	200	125
Mansûra	196	83
No. 1 Camp	193	155
Shibîn el Kôm	187	89
Zagazig	187	52
Beni Suef	186	83
Asyût Provincial Council Travelling Ophthalmic Hospital	185	79
Daqahliya Provincial Council Travelling Ophthalmic Hospital	184	109
No. 3 Camp	183	101
Sohâg	181	90
Minya	176	89
Tanta	165	117
Damanhûr	146	55
Santa	141	68
Kafr el Zaiyât	124	54
Mehalla el Kubra	123	90

TABLE XXII.—Pathological Report.

(A) *Specimens diagnosed microscopically (embedded, cut, and stained).*

				Number.
Affection of the lids	Inflammation			0
	Tumours	Benign with cysts		2
		Malignant		8
Affection of the conjunctiva	Inflammation			3
	Trachoma			12
	Degeneration			4
	Tumours	Benign		10
		Malignant	Sarcoma	0
			Carcinoma	4
Affection of the lacrimal Organs	Inflammation			1
	Tumours	Cyst		2
		Benign		0
		Malignant		3
Affection of the globe	Conjunctivitis with ulcers ending in	Adherent leucoma with Secondary glaucoma		3
		Staphyloma,		1
		Irido-cyclitis		6
	Tumours of tunic	Benign, cornea		2
		Malignant	Retina	1
			Choroid	0
	Retinitis			0
	Tubercular scleritis			1
	Uveitis			1
	Trauma			8
	Infection after operation			4
	Primary glaucoma			6
	Irido-cyclitis	Sympathetic		3
		Endogenous		1
Affection of the orbit	Tumours	Benign		4
		Malignant		4
	Inflammation			3
			Total	97

(B) *Specimens diagnosed microscopically (hardened and sectioned).*

			Number.
Affection of the lids	Cysts		4
Affection of the globe	Conjunctivitis with ulcers ending in	Staphyloma	94
		Irido-cyclitis with atrophy	62
		Phthisis bulbi	2
	Primary glaucoma		5
	Secondary glaucoma not due to above-mentioned causes		2
	Trauma		5
		Total	174

TABLE XXIII.—Sources of Provision and Maintenance of Hospitals.

	Provided by	Maintained by	Date.
Permanent :—			
Tanta	Government grant	Government grant	1908
Asyût	Public subscription and Government grant	" "	1911
Mansûra	Gift by Badrawi Pasha	" "	1912
Beni Suef	Public subscription	" "	1912
Zagazig	Provincial Council	" "	1913
Mahalla el Kubra	" "	Provincial Council	1913
Kafr el Zaiyât	" "	" "	1913
Damanhûr	" "	Government grant	1914
Shibîn el Kôm	Public subscription	" "	1914
Sohâg	" "	" "	1914
Minya	Provincial Council	" "	1915
Santa	" "	Provincial Council	1915
Faiyûm	" "	Government grant	1916
Travelling :—			
No. 1 Camp	Sir Ernest Cassel	Cassel Fund	1904
No. 2 Camp	" "	" "	1905
Asyût	Provincial Council	Provincial Council	1912
Daqahliya	" "	" "	1913
No. 3 Camp	" "	Government grant	1918

TABLE XXIV.—Details of Money raised from Local Sources for Ophthalmic Capital Expenditure.

Hospitals.	Obtained by Public Subscription.	Funds of Provincial Councils.
	L.E.	L.E.
Asyût	5,004	—
Mansûra	5,000	—
Beni Suef	4,000	—
Zagazig	—	4,286
Damanhûr	—	5,000
Shibîn el Kôm	5,422	—
Sohâg	4,000	—
Minya	—	5,500
Faiyûm	—	4,000
Qena	—	2,400
Giza	—	1,500
Aswân	155	—
Kafr el Zaiyât	—	2,200
Mahalla el Kubra	—	2,400
Santa	—	2,600
Asyût Provincial Council Travelling Ophthalmic Hospital	—	720
Daqahliya Provincial Council Travelling Ophthalmic Hospital	—	720
Total	23,581	31,326
Grand Total	54,907	

V.—SCHOOL SECTION.

(1) Report.

The ophthalmic inspection of primary schools and treatment of pupils were commenced at Tanta in the year 1907. It is now carried out at all capital towns of provinces where there is an ophthalmic hospital and consequently a staff available for the purpose. Only Qena, Benha, and Aswân are as yet unprovided with hospitals.

The work, as at present organized, commences in the month of November with the preparation of the preliminary statistics. Actual treatment of those pupils who are found to be in need of it, begins in December and lasts for three months, during which the prescribed treatment is carried out by the ophthalmic medical officer at the school, in a room provided for the purpose. During the months of December and January, spectacles are ordered for those pupils who require these aids to vision and for whom they can be supplied with permanent advantage to the recipient. The month of March is occupied by the preparation of the final statistics. During the remaining months of the school year pupils in need of treatment are given special facilities at the ophthalmic hospitals, there being, for administrative reasons, no staff available for visiting the schools.

The scheme requires constant and detailed supervision by the Ophthalmic Director and Inspectors to render it satisfactory. The information already gleaned, from a close study of the statistics, is important and is expected to become more so in future.

I desire to draw attention to the remarks I made in my report for the year 1916–1917 : " The primary schools of the governorate towns, Cairo, Alexandria, Port Said, Damietta, and Suez, are equally in need of treatment, but without ophthalmic hospitals at these towns there is no staff available for the purpose. At the secondary schools and colleges the students, being older, have to a considerable extent outgrown the need of treatment of trachoma, and are less liable to acute ophthalmias ; there is, therefore, less urgency for the extension of the system to these establishments. The *kuttabs*, hot-beds of acute ophthalmias and of the more serious stages of trachoma, are so numerous that for treatment the pupils, for the present, have to rely on the nearest ophthalmic hospital ; the provision of adequate medical personnel to carry out treatment being out of the question from the point of view of expenses to the Central Government."

The statistics of Faiyûm school are kept seperate for reasons which will be explained later, and are abbreviated.

Trachoma or Granular Ophthalmia.—Ninety per cent of the pupils showed signs of this disease either in an active or a passive form. The active or more serious stages have been reduced from 62·3 per cent in 1907–1908, to 4·2 per cent in 1917–1918. The number of pupils who underwent treatment was 989 out of a total 1,871.

Definite damage to the cornea with consequent diminution of visual acuity has occurred in 24·3 per cent, all of which, however, cannot be laid to the charge of trachoma, much of it having been caused by acute conjunctivitis.

I pointed out last year that trachoma appeared to be closely related to the age of the pupils, the more serious stages being common in the first school year and less common in the fourth year. This is the result of the gradual process of cicatrization which the life history of the disease manifests. These serious stages diminish from 41·7 per cent in the first year, 15·3 per cent in the second year, 9·8 per cent in the third year, to 2·3 per cent in the fourth year. These percentages closely resemble those obtained for the year 1916–1917, and may be taken therefore as fairly accurate. However, trachoma cannot altogether be looked upon as an age disease, as the yearly influx of new pupils are mainly of the first year and naturally have not been subjected to treatment, and it is among untreated pupils in whom the greater part of the more serious cases are found to occur.

It is interesting to note that Faiyûm, an untreated school, had 26·5 per cent of serious stages, which is a larger percentage than the other schools back to 1914–1915, * though not so high as at Tanta school in 1907–1908.

The form of treatment adopted at Faiyûm was merely the application of antiseptic drops, yet, by these means alone, in the course of the session, it is reported that the more serious stages were reduced from 26·5 per cent to 6·3 per cent, a remarkable result which requires corroboration in future years.

Vision.—Eight hundred and forty-seven, or 45 per cent, of the pupils unaided by glasses do not attain the visual standard laid down for admission to the Government service, low though it is. Fifty-five of these after obtaining spectacles attain the standard, the others do not. It is possible that some pupils will become aidable by glasses after their corneæ have become cicatrized, or entirely free from active trachoma. The difficulty of ordering spectacles for boys, the curvature of whose corneæ is altering from month to month as the result of this cicatrization is, and will remain, very great.

Spectacles.—The provision of spectacles for adolescents is by no means a simple matter. The stages of the procedure are as follows: (1) a preliminary examination; (2) the daily instillation of atropin into the eyes for five days; (3) objective examination in the dark-room followed by subjective testing; (4) subjective testing repeated and measuring for spectacle frames; (5) the approval of the Ophthalmic Director must be obtained for each glass ordered; (6) after supply of spectacles the verification of the glasses and frames. The period of the year during which this procedure is carried out is December and January; by the end of the latter month all pupils who can usefully wear spectacles have been examined. Pupils who have not been noted for spectacle examination, but who desire, or for whom the headmaster desires, examination, must apply before the end of December, as after this date the medical officers and the ophthalmic inspectors who supervise the work are engaged in other duties. The total number of pupils who have been ordered spectacles is 154, of whom only eighteen were not wearing their spectacles on the date of the general inspection. This is very satisfactory, showing that the pupils are satisfied with their glasses and find benefit in wearing them, and that the prejudice against wearing spectacles, as likely "to wear out the sight," has disappeared.

(2) Statistics.

Ophthalmic treatment at the Government primary schools at Tanta, Asyût, Mansûra, Beni Suef, Zagazig, Damanhûr, Shîbin el Kôm, Sohâg, and Minya, during the year 1917–1918.

TABLE I.—**Infected with Trachoma.**

School.	Beginning of the Year.			End of the Year.		
	Number of Pupils inspected.	Number of Pupils infected with Trachoma.	Percentage infected with Trachoma.	Number of Pupils inspected.	Number of Pupils infected with Trachoma.	Percentage infected with Trachoma.
Tanta	319	262	82·1	307	256	83·4
Asyût	264	226	85·6	272	223	81·9
Mansûra	279	264	94·6	281	264	93·9
Beni Suef	291	276	94·8	287	272	94·8
Zagazig...	244	228	93·4	248	226	91·1
Damanhûr	80	72	90	81	75	92·6
Shibin el Kôm	121	116	95·04	126	125	99·2
Sohâg	117	114	97·4	121	116	95·9
Minya	152	141	92·8	148	140	94·6
Total... ...	1,867	1,699	90·3	1,871	1,697	90·7

* Table III.

TABLE II.—Condition of Conjunctivitis at various Schools.

SCHOOLS.	Beginning of the Year.							End of the Year.												
								Treated.							Untreated.					
	Healthy.	Conjunctivitis.	Trachoma.				Total.	Healthy.	Conjunctivitis.	Trachoma.				Total.	Healthy.	Conjunctivitis.	Trachoma.				Total.
			I.	II.	III.	IV.				I.	II.	III.	IV.				I.	II.	III.	IV.	
Tanta	57	—	12	19	139	92	319	—	—	1	3	39	50	93	51	—	5	5	17	136	214
Asyût	38	—	18	11	117	80	264	75	—	9	—	98	44	166	34	—	4	—	21	47	106
Mansûra...	15	—	43	24	155	42	279	—	—	1	—	124	30	155	17	—	12	—	43	54	126
Beni Suef	14	1	25	31	150	70	291	—	—	6	2	98	66	172	14	1	2	—	14	84	115
Zagazig	16	—	7	31	143	47	244	—	4	1	2	105	24	136	18	—	1	—	45	48	112
Damanhûr	8	—	12	3	29	28	80	—	—	4	—	31	10	45	6	—	3	—	7	20	36
Shibin el Kôm ...	4	1	3	4	83	26	121	—	—	1	—	60	25	86	1	—	1	—	23	15	40
Sohâg	3	—	11	12	56	35	117	2	—	—	—	—	44	46	3	—	2	—	45	25	75
Minya	11	—	9	7	70	55	152	—	—	1	1	30	58	90	8	—	4	—	2	44	58
Total... ...	166	2	140	142	942	475	1,867	17	4	24	8	585	351	989	152	1	34	5	217	473	882

TABLE III.—Percentage of Conditions of Conjunctivitis at various Schools.

SCHOOLS.	Beginning of the Year.						End of the Year.									
							Treated.						Untreated.			
	Healthy.	Conjunctivitis.	Trachoma.				Healthy.	Conjunctivitis.	Trachoma.				Healthy.	Conjunctivitis.	Trachoma.			
			I.	II.	III.	IV.			I.	II.	III.	IV.			I.	II.	III.	IV.
Tanta	17·87	—	3·76	5·96	43·57	28·83	—	—	1·08	3·23	40·94	53·76	23·83	—	2·34	2·34	7·94	63·55
Asyût	14·39	—	6·81	4·17	44·32	30·30	9·04	—	5·42	—	59·04	26·50	32·08	—	3·77	—	19·81	44·34
Mansûra...	5·38	—	15·41	8·60	55·56	15·05	—	—	0·65	—	80·00	19·35	13·49	—	9·52	—	34·13	42·86
Beni Suef	4·81	0·34	8·59	10·65	51·55	24·05	—	—	3·49	1·16	56·98	38·37	12·17	0·87	1·74	—	12·17	73·04
Zagazig	6·56	—	2·87	12·70	58·61	19·26	—	2·94	0·74	1·47	77·21	17·65	16·07	—	0·89	—	40·18	42·86
Damanhûr	10·00	—	15·00	3·75	36·35	35·00	—	—	8·89	—	68·89	22·22	16·67	—	8·33	—	19·44	55·56
Ṣhibin el Kôm	3·31	0·83	2·48	3·31	68·59	21·49	—	—	1·16	—	69·77	29·07	2·50	—	2·50	—	57·50	37·50
Sohâg	2·56	—	9·40	10·26	47·86	29·91	4·35	—	—	—	—	95·65	4·00	—	2·67	—	60·00	33·33
Minya	7·24	—	5·92	4·61	46·10	36·18	—	—	1·11	1·11	33·33	64·44	13·79	—	6·90	—	3·45	75·86
Total... ...	8·89	0·11	7·49	7·61	50·46	25·44	1·72	0·40	2·53	0·81	59·15	35·59	17·23	0·11	3·85	0·57	24·60	53·63

TABLE IV.—Effect of Treatment on Serious Stages of Trachoma.

Year.	Pupils with any Stage of Trachoma. — Beginning of the Year.	Pupils with Serious Stage of Trachoma I and II. — Beginning of the Year.		Pupils with Serious Stage of Trachoma I and II. — End of the Year.	
	Number.	Number.	Per Cent.	Number.	Per Cent.
1907-1908	464	289	62·3	—	—
1914-1915	1,553	342	22·0	61	4·0
1916-1917	1,528	327	21·4	48	3·0
1917-1918	1,699	282	16·6	71	4·2

TABLE V.—Stages of Trachoma at Beginning and End of School Years.

Stages of Trachoma.	Beginning of the Year.		End of the Year.			
			Treated.		Untreated.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Trachoma I ...	140	8·2	24	2·4	34	4·6
„ II ...	142	8·3	8	0·8	5	0·7
„ III ...	942	55·4	385	60·4	217	29·7
„ IV ...	475	27·9	351	36·2	473	64·8

TABLE VI.—Trachoma and its Relation to School Years (Beginning of the Year).

SCHOOLS.	First Year.						Second Year.						Third Year.						Fourth Year.					
	Healthy.	Conjunctivitis.	Trachoma.				Healthy.	Conjunctivitis.	Trachoma.				Healthy.	Conjunctivitis.	Trachoma.				Healthy.	Conjunctivitis.	Trachoma.			
			I.	II.	III.	IV.			I.	II.	III.	IV.			I.	II.	III.	IV.			I.	II.	III.	IV.
Tanta	14	—	10	14	37	1	18	—	1	2	45	11	13	—	1	2	28	36	12	—	—	1	29	44
Asyût	10	—	13	3	38	4	12	—	3	2	32	23	12	—	2	6	34	26	4	—	—	—	13	27
Mansûra	8	—	34	17	25	4	3	—	5	1	29	13	1	—	3	4	52	9	3	—	1	2	49	16
Beni Suef	3	—	12	16	38	12	3	1	7	6	39	12	5	—	4	8	36	27	3	—	2	1	37	19
Zagazig	1	—	4	13	17	8	5	—	2	14	40	13	7	—	—	3	39	17	3	—	1	1	47	9
Damanhûr	2	—	7	—	4	1	1	—	4	2	13	7	1	—	—	1	5	5	4	—	1	—	7	15
Shibîn el Kôm	2	—	3	2	9	2	2	1	—	2	17	6	—	—	—	—	19	10	—	—	—	—	38	8
Sohâg	—	—	2	5	9	2	1	—	5	5	14	12	1	—	4	2	13	8	1	—	—	—	20	13
Minya	2	—	6	3	13	5	4	—	2	2	24	9	5	—	1	2	15	18	—	—	—	—	18	23
Total	42	—	91	73	190	39	49	2	29	36	253	106	45	—	15	28	241	156	30	—	5	5	258	174

TABLE VII.—Comparison of Serious Stages of Trachoma (Beginning of the Year).

Class.	Total Cases of Trachoma.		Serious Stages of Trachoma I and II.		Per Cent.	
	1916-1917.	1917-1918.	1916-1917.	1917-1918.	1916-1917.	1917-1918.
1st Year	312	393	142	164	45·5	41·7
2nd „	377	424	106	65	28·1	15·3
3rd „	421	440	51	43	12·1	9·8
4th „	415	442	28	10	6·7	2·3

TABLE VIII.—Vision of all Pupils Without Spectacles.

	Tanta.	Asyût.	Mansûra.	Beni Suef.	Zagazig.	Damanhûr.	Shibin el Kôm.	Sohâg.	Minya.	Total.	Grand Total.	Per Cent.
1. Good Vision :—												
(*a*) Normal vision in each eye 6/6 and 6/6...	10	20	39	46	50	31	15	11	22	244	—	—
(*b*) Vision 6/6 and 6/9, or 6/9 and 6/9	70	48	41	58	46	10	20	29	40	362	606	32·4
2. Fair Vision :—												
(*a*) Vision 6/6 and 6/12, or 6/9 and 6/12, or 6/12 and 6/12.	92	67	49	57	39	13	21	20	30	388	—	—
(*b*) Vision 6/6 and 6/18	1	—	5	7	5	1	—	6	1	26	414	22·2
3. Bad Vision :—												
Fails to attain any of the above standards	146	129	145	123	104	25	65	51	59	847	847	45·3
Total	319	264	279	291	244	80	121	117	152	1,867	1,867	99·9

TABLE IX.—Spectacles Ordered.

	Tanta.	Asyût.	Mansûra.	Beni Suef.	Zagazig.	Damanhûr.	Shibin el Kôm	Sohâg.	Minya.	Total
Number of pupils now attending obtained spectacles in previous year...	10	3	15	4	11	5	2	9	9	68
Number of pupils now attending obtained spectacles in this year	10	21	9	8	2	10	6	11	9	86
Total... ...	20	24	24	12	13	15	8	20	18	154
Spectacles on order or under repair	—	—	—	8	—	10	—	6	1	25
Number of pupils wearing spectacles on date of general inspection	11	19	23	4	13	5	8	13	15	111
Net number not wearing spectacles...	9	5	—	—	—	—	—	1	2	18

TABLE X.—Vision of Pupils Ordered Spectacles.

	Total.	Grand Total.	Per Cent.
(*a*) Before Ordering.			
Good Vision :—			
(*a*) Normal vision in each eye 6/6 and 6/6...	—	—	—
(*b*) Vision 6/6 and 6/9, or 6/9 and 6/9...	4	4	2·6
Fair Vision :—			
(*a*) Vision 6/6 and 6/12, or 6/9 and 6/12, or 6/12 and 6/12	5	—	—
(*b*) Vision 6/6 and 6/18...	—	5	3·2
Bad Vision :—			
Fails to attain any of the above standards...	145	145	94·1
Total... ...	154	154	99·9
(*b*) After Ordering.			
Good Vision :—			
(*a*) Attains 6/6 and 6/6 with aid of spectacles not greater in strength than + or − 6 D.	—	—	—
(*b*) Attains 6/6 and 6/9 or 6/9 and 6/9 with aid of spectacles not greater in strength than + or − 6 D.	27	27	17·5
Fair Vision :—			
(*a*) Attains 6/6 and 6/12 or 6/9 and 6/12 or 6/12 and 6/12 with aid of spectacles not greater in strength than + or − 6 D.	27	—	—
(*b*) Attains 6/6 and 6/18 with aid of spectacles not greater in strength than + or − 6 D.	1	28	18·1
Bad Vision :—			
(*a*) Fails to attain any of the above standards with aid of spectacles not greater in strength than + or − 6 D.	84	—	—
(*b*) Attains any of the above standards with aid of spectacles greater in strength than + or − 6 D.	10	—	—
(*c*) Fails to attain any of the above standards with more than + or − 6 D.	5	99	64·3
Total...	154	154	99·9

TABLE XI.—Condition of Cornea before Treatment.

Schools.	Both Cornea Clear.	One Cornea Clear the other showing Opacity.	Opacity of both Cornea.
Tanta	231	58	30
Asyût	227	27	10
Mansûra	207	50	22
Beni Suef	222	2	67
Zagazig	199	31	14
Damanhûr	5	5	70
Shibin el Kôm	105	11	5
Sohâg	93	20	4
Minya	125	21	6
Total...	1,414	225	228
Percentage... ...	75·7	12·05	12·2

TABLE XII.—Ophthalmic Treatment at the Government Primary School of Faiyûm during 1917–1918.

(*a*) Infected with Trachoma.

	Beginning of the Year.	End of the Year.
Number of pupils inspected	164	157
Number of pupils infected with trachoma	158	151
Per cent infected with trachoma	96·3	96·2

(*b*) Condition of Conjunctivitis.

	Beginning of the Year.		End of the Year.	
	Number.	Per Cent.	Number.	Per Cent.
Healthy	6	3·6	6	3·8
Conjunctivitis	—	—	—	—
Trachoma I	5	3·0	3	1·9
„ II	37	22·6	7	4·4
„ III	99	60·3	107	68·1
„ IV	17	10·3	34	21·6
Total	164	99·8	157	99·8

(*c*) Effect of Treatment on Serious Stages of Trachoma.

Pupils with any Stage of Trachoma.	Stages I and II.			
	Beginning of the Year.		End of the Year.	
	Number.	Per Cent.	Number.	Per Cent.
158	42	26·5	10	6·3

(*d*) Trachoma and its Relation to School Years (*Beginning of the Year*).

YEAR.	Healthy.	Trachoma.			
		I.	II.	III.	IV.
1st Year	1	4	28	30	4
2nd „	2	—	6	22	5
3rd „	2	—	1	27	3
4th „	1	1	2	20	5
Total... ...	6	5	37	99	17

(*e*) Comparison of Serious Stages of Trachoma (*Beginning of the Year*).

YEAR.	Total Number of Cases of Trachoma.	Stage I and II.	Per Cent.
1st Year	66	32	48·5
2nd „	33	3	18·2
3rd „	31	1	3·2
4th „	28	3	10·7
Total...	158	42	26·6

VI.—PUBLICATIONS.

A. Annual.

(1) Annual Report on Ophthalmic Hospitals, 1912, 1913, 1914, 1915, 1916, 1917, and 1918.
(2) Bulletin of the Ophthalmological Society of Egypt, 1911, 1912, 1913, 1914, 1915, 1917, and 1918.

B. Occasional.

(1) "Four Years' Work with the Ophthalmic Hospitals of Egypt." Annual Meeting, British Medical Association, 1907.
(2) "The Relief of Eye Disease in Egypt with some Consideration of the Incidence of Blindness and Trachoma." Sixteenth Internatinonal Medical Congress, Budapest, 1909. Reprints available.
(3) "The Egyptian Ophthalmic Hospitals." Annual Meeting, British Medical Association, 1910. Reprints available.
(4) "Ophthalmic Hospitals in Egypt." "Ophthalmic Record." U.S.A., 1910. Reprints available.
(5) Communication read at the Fourth International Blind Congress in Cairo, February, 1911. Published in "Ophtoalmoscope," 1911. Reprints available.
(6) *Les Divisions du Trachome, le Traitement de cette Affection et de ses Complications.* By the Director, *Archives d'Ophtalmologie,*" September, 1911.
(7) "Trachoma and its Complications in Egypt." By the Director, Ophthalmic Hospitals in Egypt. Cambridge University Press, London, 1913.

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