

Ophthalmia No. 166.

THE PROPERTY OF  
THE WELLCOME BUREAU  
OF SCIENTIFIC RESEARCH

MINISTRY OF THE INTERIOR, EGYPT.

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DEPARTMENT OF PUBLIC HEALTH.

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THIRD ANNUAL REPORT

ON THE

OPHTHALMIC SECTION,

1914,

BY THE DIRECTOR OF OPHTHALMIC HOSPITALS.

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CAIRO.  
GOVERNMENT PRESS.

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1915.

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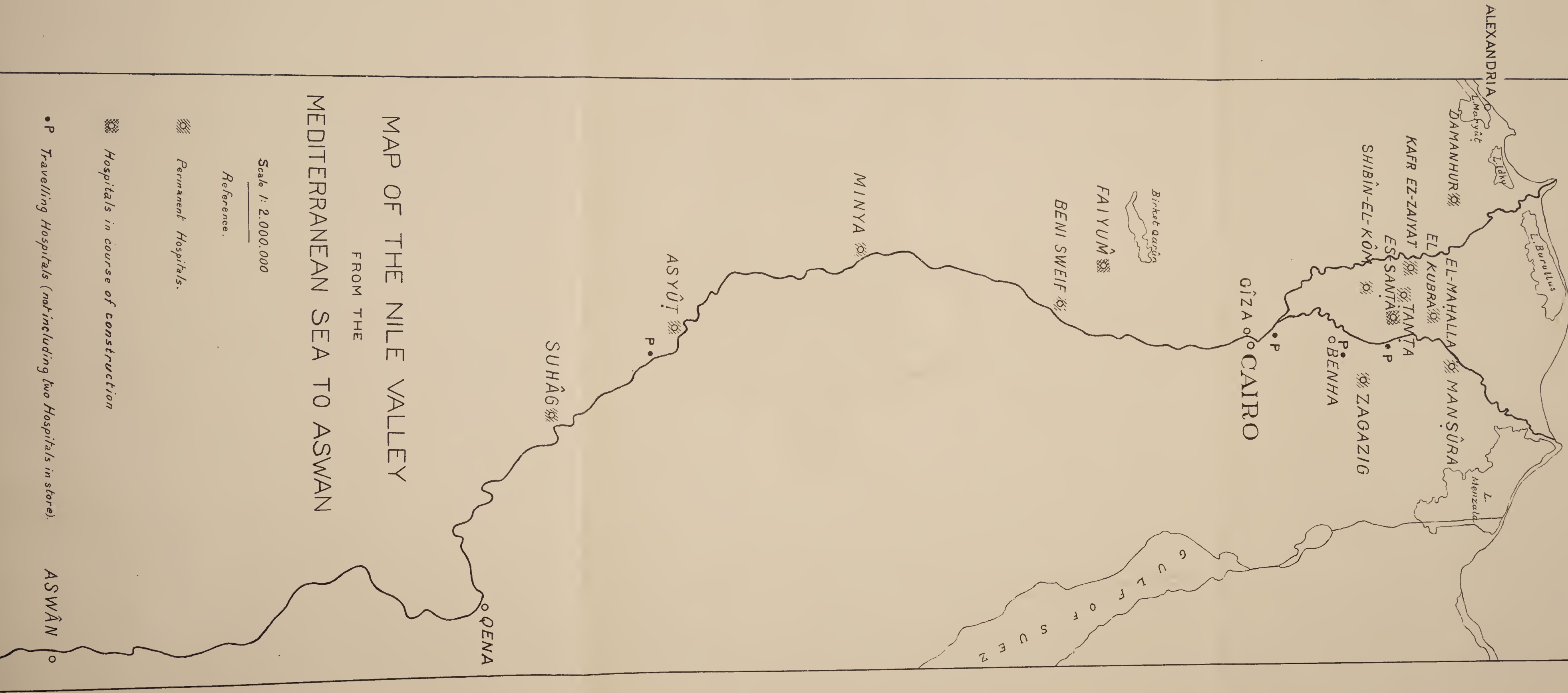
THIRD ANNUAL REPORT  
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1914.

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MEDITERRANEAN SEA




MAP OF THE NILE VALLEY  
 FROM THE  
 MEDITERRANEAN SEA TO ASWAN

Scale 1: 2,000,000

Reference.

 Permanent Hospitals.

 Hospitals in course of construction

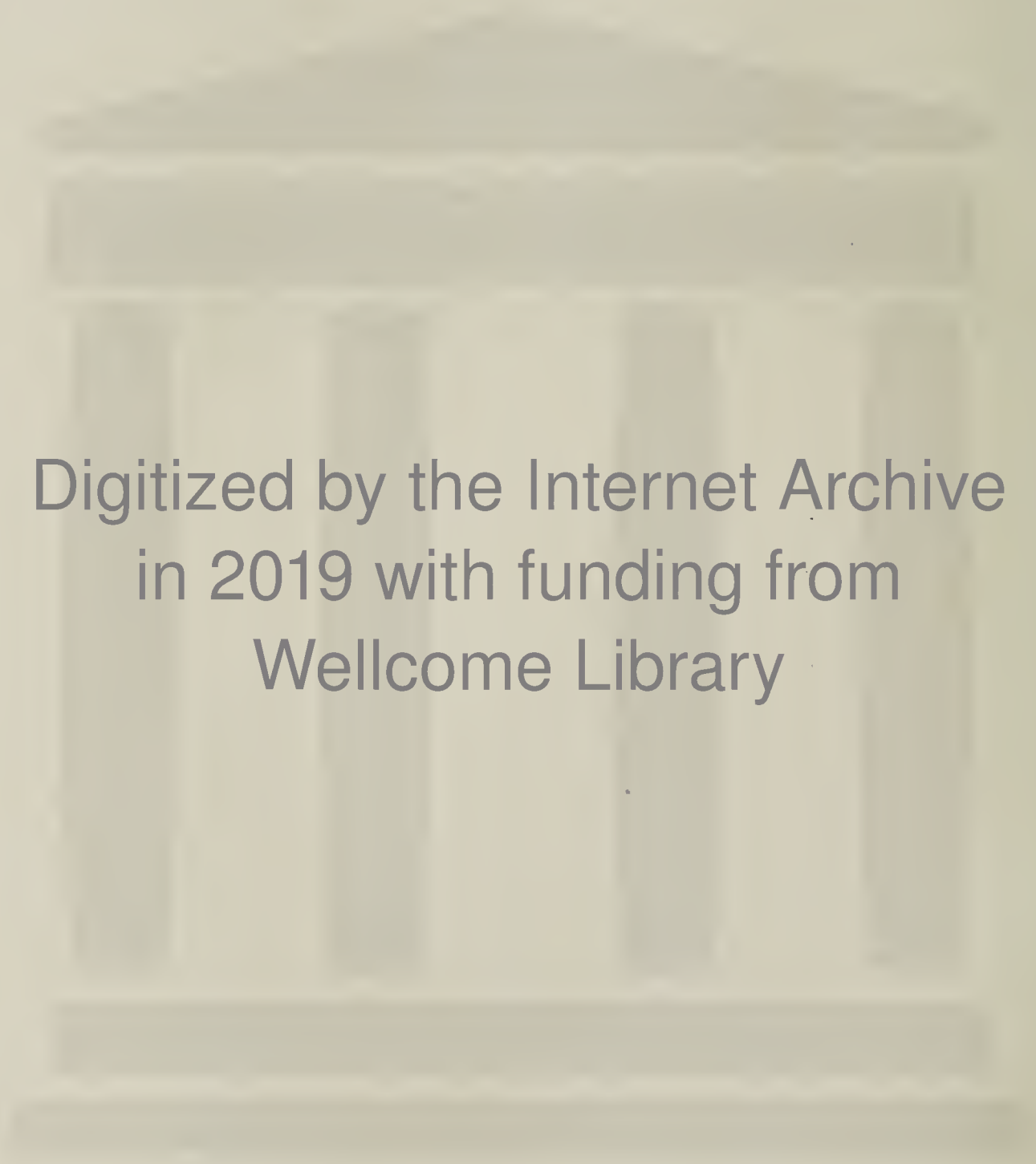
 Travelling Hospitals (not including two Hospitals in store).



NO. 1 TRAVELLING OPHTHALMIC HOSPITAL, DELTA BARRAGE.



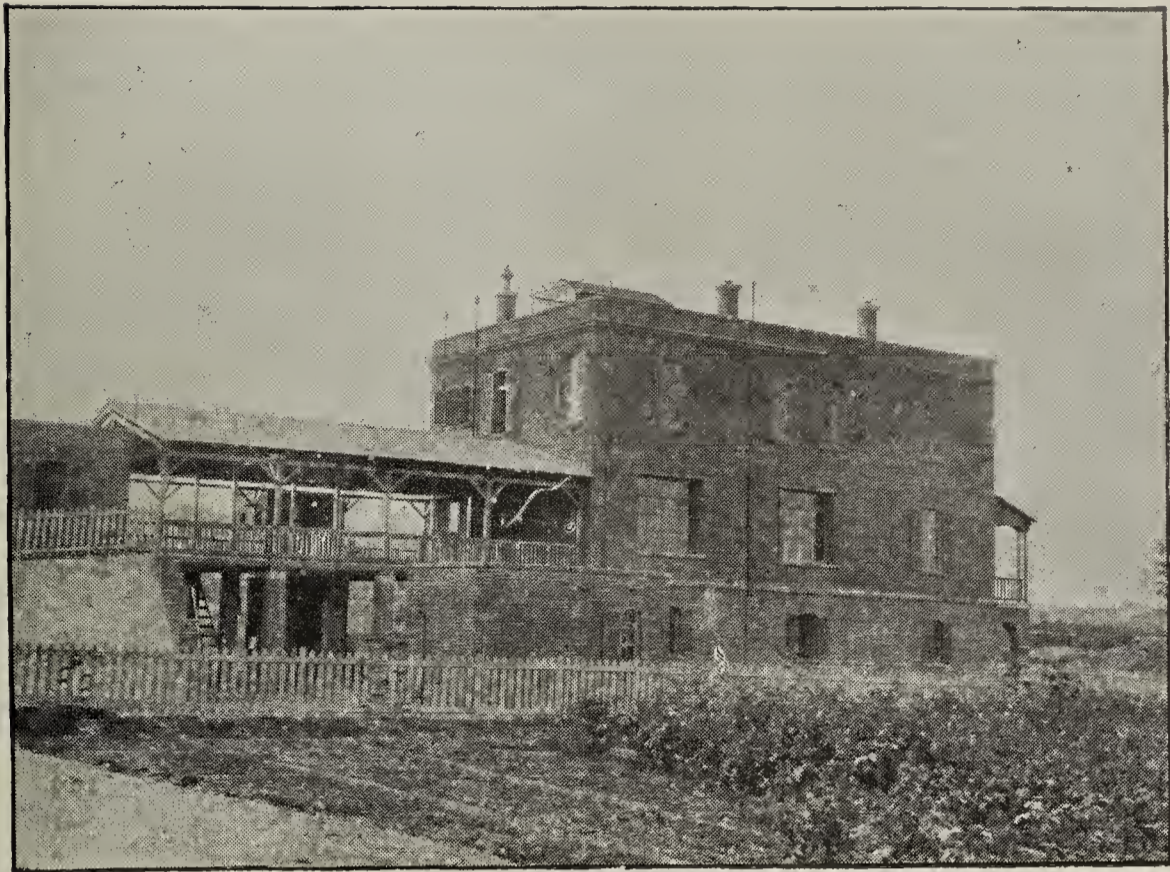
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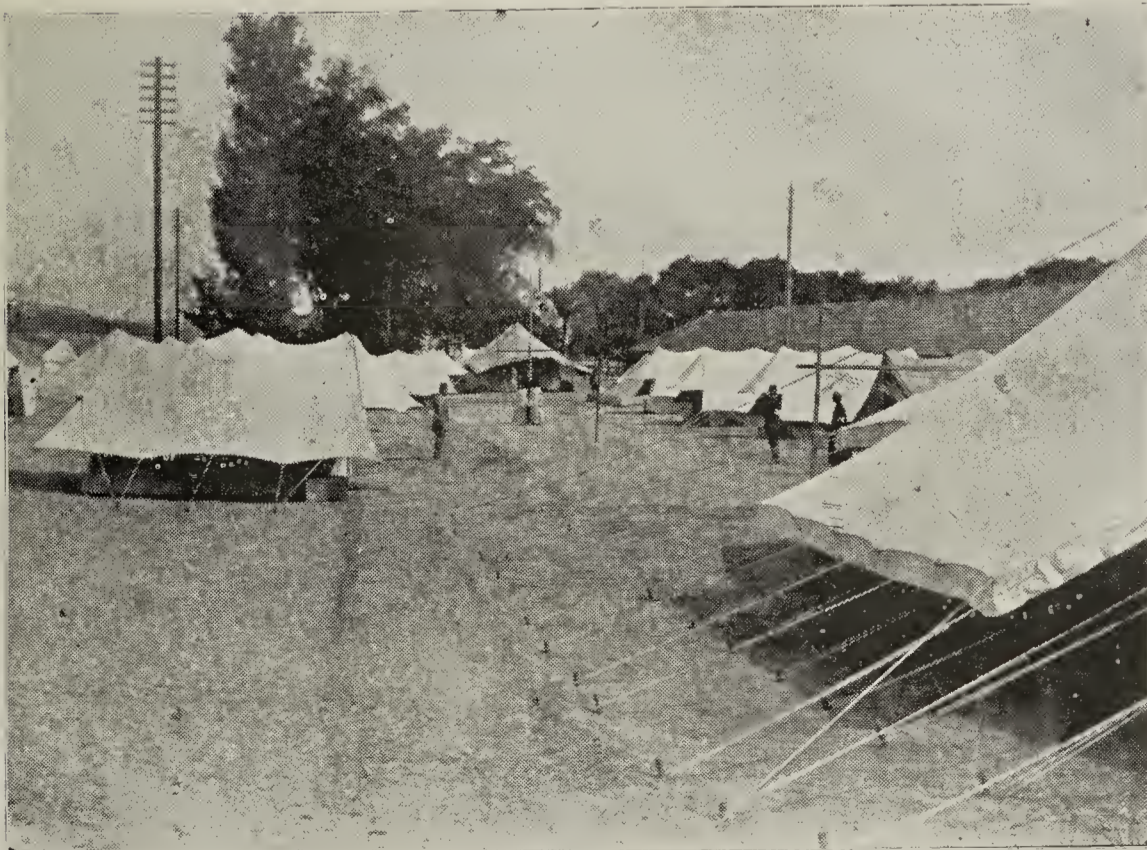
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SOHAG OPHTHALMIC HOSPITAL.



TURKISH CLEARING HOSPITAL, ISMAILIA.



MINISTRY OF THE INTERIOR, EGYPT.

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1915.

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*Cairo, March 31, 1915.*

SIR,

I have the honour to enclose my Report on the Ophthalmic Hospitals and on Ophthalmic Progress in Egypt during the year 1914.

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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#### **ADDENDUM.**

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Hospital accommodation for the wounded being urgently required, the travelling ophthalmic and ankylostomiasis hospitals were removed to Alexandria during the month of May and equipped for general surgical treatment. The number of beds available is 550, and the hospital is run as a military hospital with the Director of Ophthalmic Hospitals as the Officer Commanding and Dr. Kennedy, Inspector of Ankylostomiasis Hospitals as his deputy. The surgical work is carried out under the immediate supervision of the Director by the ophthalmic staff.



# REPORT ON THE OPHTHALMIC SECTION, 1914.

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## I.—INTRODUCTION.

The first result of the outbreak of war on the Ophthalmic Section was the reduction of the staff of inspectors by two reserve officers recalled for active service. Later, the provision of two completely staffed and equipped tent hospitals, the one of one hundred beds and the other of fifty beds, for treatment of Turkish wounded on the line of the Suez Canal, removed from its proper sphere a certain amount of ophthalmic relief. Nevertheless, the number of patients treated has increased during the year by 9,456, and the number of attendances of out-patients by 141,745.

*Number of Hospitals.*—Between the beginning of the year 1904 and the end of 1914 sixteen ophthalmic hospitals have been opened in various parts of Egypt. The cost of maintenance of all, except two, of these hospitals, is assured: two were endowed by Sir Ernest Cassel, with a capital sum of £40,000; four are maintained by local self taxation (Provincial Councils); eight are maintained by the Government, while two are closed for lack of funds.

Of the total cost of provision of these hospitals, which amounted to rather more than £68,000, £49,000 was obtained by gift (apart from the Cassel Fund), public subscription, or local taxation, while £17,000 only was contributed by the Government.

*Permanent Hospitals.*—Different types of hospitals have been erected in various places, but it has been found, as the result of experience, that a satisfactory hospital can be built for £4,000. Such a hospital contains a commodious out-patient department and beds for sixteen patients. This number of beds is quite sufficient for a daily clinic of 200 to 300 patients, when the majority of operations such as those for trichiasis-entropion are performed on out-patients.

*Travelling Hospitals.*—The usefulness of travelling hospitals and their popularity among the *fellahîn* remain as great as ever. The type of travelling hospital which has been found most satisfactory consists of a commodious tent with a double roof for operations, and accommodation for a British Inspector, an Egyptian doctor, eight or ten in-patients, with the necessary attendants and servants.

*Provinces without Hospitals.*—The provinces of Qaliubîa, Qena, Gîza, and Aswân are unsupplied with any form of ophthalmic relief; this is due to their deficient financial resources. It is extremely doubtful if any of them can ever, unaided, raise sufficient money for the necessary capital expenditure, although the province of Qena is putting on one side L.E. 400 a year with this object. Qena and Aswân, with their narrow strip of cultivation and population, need a different ophthalmic organization to other provinces. For each of these two provinces a specially built *dahabîa* should be provided at a cost of about £2,500. For Aswân a sum of £150 has already been collected.\* The Government is pledged to supply the maintenance expenses whenever the necessary sum for the capital outlay becomes available.

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\* This was entirely done by Lady Ninian Crichton-Stuart from amongst her friends.

*Staff and their Training.*—The clinical and administrative direction of the hospitals is vested in the Director and four Inspecting Surgeons, of whom three are British. The brunt of the work is borne by twenty-seven Egyptian surgeons who, having completed the medical curriculum at the Government Medical School, volunteer for ophthalmic training and service. The enormous amount of experience which the surgeons obtain renders the operative ability of the senior surgeons of a high order. A complete course of post-graduate lectures are delivered annually. Fully equipped laboratories have been provided at five of the hospitals; while at Mansûra further provision has been made for experimental pathology and bacteriology, which is now being carried on there by one of the Egyptian surgeons who has been trained in the laboratories of the Royal London Ophthalmic Hospital. The statistics of the work done is shown in Tables VIII and IX of the statistics.

*School Clinics.*—School clinics have been started at the primary schools in those towns in which there is a permanent hospital, and are carried on under the direction of an inspecting surgeon whose appointment was specially authorized by Lord Kitchener. This work, which is based on the experience gained during the last seven years at Tanta school clinic, has been persevered with in spite of the temporarily diminished staff due to the recall of two inspectors for the war.

*Clinical Work and its Cost.*—The actual sum spent on hospital maintenance was £12,400; for this sum 50,126 new patients were treated, 686,012 attendances at the hospitals were made by out-patients, 2,071 in-patients were treated, and 40,710 operations were performed. During the last six months of the year since the outbreak of the war most rigid economies have been carried out so that though the amount of clinical work has increased by about twenty per cent the expenditure has been about the same as the previous year.

*Age of Patients.*—The treatment of children is considered to be extremely important. However crowded the out-patients' department may be, children are never refused admission. The importance of early treatment has yet to be recognized by the majority of Egyptian mothers; nevertheless, hundreds of children are annually saved from complete blindness. The confidence in the hospitals is shown by the fact that five per cent of those treated at the hospital were babies under one year and thirty-eight per cent were children under fifteen years.

*Blindness.*—Fourteen per cent of all the people who were examined at the hospitals were found to be blind in one or both eyes. A slight but steady reduction has been noticed in the incidence of blindness, which has fallen from sixteen per cent in 1912 to fifteen per cent in 1913 and fourteen per cent in 1914. The percentage is, however, still enormously high, and no effort should be spared in the further provision of ophthalmic relief; even though the desirability of the relief of suffering is neglected, the economic loss to the country of disabled workers should not be forgotten.

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## II.—WORK AND PROGRESS IN 1914.

### A.—TRAVELLING HOSPITALS.

The two large travelling hospitals known as the Cassel Fund Hospitals have worked at Maghâgha, Shibîn el Qanâter, Damietta, Minia el Qamh, Delta Barrage. The period spent in each locality is about six months. The places previously visited are Damietta, Mansûra, Menûf, Shibîn el Kôm, Qaliûb, Benha, Shibîn el Qanâter, Zagazig, Damanhûr, Abu Hommos, Rosetta, Zifta, Gîza, Fayûm, Beni Suef, Minia, Maghâgha, Assiût, Sohâg, Luxor, Aswân.

The cost of each of these hospitals is about £1,350 a year; each hospital has two surgeons who can get 200 operations done per month, together with the daily treatment of 250 patients.

The Provincial Councils of Daqahlîa and Assiût maintain travelling hospitals which are managed on behalf of the Councils by the Director of Ophthalmic Hospitals. The activities of each of these hospitals is naturally confined to the limits of the province to which it belongs. The cost of each of these hospitals is £750 a year, each has one surgeon who can get 150 operations done per month, together with the daily treatment of 150 patients. It is to be regretted that the Provincial Council of Assiût has felt obliged to reduce the expenses of the hospital to £500 a year, which will make it impossible to retain the accommodation for in-patients, thereby diminishing the utility of the hospital.

The two travelling hospitals belonging to the Provincial Council of Gharbîa were not opened during the year, their places having been taken by two permanent hospitals erected and maintained by the Council. It is to be hoped that when the financial situation improves these hospitals may be reopened.

### B.—TURKISH CLEARING HOSPITALS.

In response to an offer by the Department of Public Health to assist in the medical arrangements in the war it was decided by the Director of the Army Medical Service in Egypt to accept two camp hospitals for service with the troops stationed along the line of the Suez Canal for the defence of Egypt. The functions of the hospitals were to be those of clearing stations where immediately urgent operations only are done but where all wounds were dressed and all wounded prisoners fed.

The organization of two hospitals with their staff was commenced on January 27, 1915, and equipment and staff were despatched on the following day to Ismailîa and Suez. The equipment and staff were drawn from the ophthalmic hospitals belonging to various Provincial Councils by permission of the Presidents of the Councils of the Provinces of Gharbîa, Assiût, and Daqahlîa. The requisite equipment for general surgical work, as opposed to ophthalmic surgery, was prepared and despatched with great rapidity by the Central Stores of the Department of Public Health.

The hospital at Ismailîa consisted of two operating tents fitted with electric light, tents with beds for 100 patients and lying-down accommodation for several hundred more in case of emergency. There were three medical officers and full staff of employees. The Suez hospital was under the charge of Dr. Oulton with one medical officer. It had beds for fifty patients and plenty of lying-down accommodation.

### C.—PERMANENT HOSPITALS.

The permanent hospitals at Tanta, Assiût, Mansûra, Beni Suef, and Zagazig, have been carrying on satisfactory work. At Mansûra and Zagazig a considerable lull in the number of patients treated was noticed during the colder part of the year, but measures were taken which resulted in a return to the normal number. New hospitals were opened at Damanhûr (provided by the Provincial Council of Beheira) and at Shibîn el Kôm and Sohâg (provided by subscription). Hospitals are under construction at Minia and Fayûm.

The permanent hospitals erected and maintained by the Provincial Council of Gharbîa at Mahalla el Kubra and Kafr el Zayât continue to do satisfactory work. A hospital is also being built at Santa by the same Council.

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### III.—CLINICAL.

*Number of Cases.*—The number of new cases treated has risen during the last year to 50,126 and the total attendances of out-patients to 686,012, the average number of visits of each patient being thirteen. Only such a number of patients is accepted for treatment as can be thoroughly examined and as can receive the requisite treatment, including operation when necessary. Besides those patients treated, 18,024 others were postponed on various occasions because there was no time available in which to treat them efficiently, many of these returning to the hospitals on days when the pressure was less severe were treated or were operated on. The total number of operations performed was 40,710.

*Cataract.*—449 operations were performed for the removal of senile cataract. In these cases an iridectomy is always performed and the capsule of the lens is opened with capsule forceps. The number of cases of senile cataract seen was 1,159; the reason so few of them were operated on was that in many cases the condition was complicated by glaucoma, opacity of the cornea, or active trachoma.

One hundred and ninety-two cases of soft cataract were seen, most of which were operated upon. It is noteworthy that only six of these, or three per cent, were of the lamellar variety, the remainder being generally associated with anæmia, the result of ankylostomiasis.

*Glaucoma.*—Glaucoma simplex was found to be present in 2·3 per cent of the patients seen. The cause for this prevalence is as yet undecided, though I believe the anatomical condition of the eye among the Egyptians, with frequently a very small cornea, to be the predisposing factor.

	1912.	1913.	1914.
Glaucoma :—			
Acute ... ..	3	12	17
Subacute ... ..	10	17	23
Chronic ... ..	829	902	574
Absolute ... ..	282	217	1,147
Operations for glaucoma :—			
Iridectomy... ..	60	28	25
Trephining with iridectomy ... ..	152	317	428

The operation of trephining the corneo-sclera with iridectomy through the trephine hole has almost entirely superseded at the Egyptian ophthalmic hospitals the classical iridectomy operation for reasons given in my last report.

The total number of the operations performed at the ophthalmic hospitals has been as follows :—

	Trephining Corneo-sclera with Iridectomy.
1911 ... ..	14
1912 ... ..	152
1913 ... ..	317
1914 ... ..	428

It has been stated that trephining with iridectomy in glaucoma, while temporarily successful, is occasionally followed some months after the operation by suppuration owing to the entrance of infective micro-organisms through the intact conjunctiva roofing in the trephine hole. Only one such case has been seen out of the 911 operations performed up

to the present date (March 14, 1915), in spite of the fact that every effort is made to see the result of operations. This was observed at Mansûra by Dr. Zaki Seddik in a boy (No. 5899) of ten years of age who was operated on by him on October 28, 1913, for adherent leucoma with increased tension. An excellent result was obtained, the tension being brought down to normal. On November 24, 1913, he came to the hospital stating that he had been struck in the eye with a stick four days previously. On examination it was found that there was much œdema of the lids and conjunctiva, the eyeball was tender, the anterior chamber was full of exudate, the tension was increased, and the projection of light was bad. The patient refused excision.

Therefore the danger of inflammatory changes in the eyeball, the result of local weakening due to the presence of the trephine hole, is not very real, at any rate in Egypt.

Glaucoma was found to be the cause of blindness in 1,151 eyes out of a total of 11,955 blind eyes examined during the course of the year, or 9·6 per cent.

The frequency of the disease and the knowledge that at some time or another the disease, if present, manifests itself in both eyes, makes me advise the performance of a prophylactic operation in the unaffected eye immediately the diagnosis of primary glaucoma has been made in the other.

Secondary glaucoma, the result of perforation of the cornea by ulceration and subsequent adhesion of the iris to the cornea, is extremely common; 2,187 cases were seen which still had some vision, 1,977 cases were seen already blind. A rise of tension occurs so frequently after adhesion of the iris to the cornea takes place that all recent cases are recommended to undergo iridectomy as a prophylactic measure even though glaucoma is not already present.

*Acute Ophthalmias.*—The satisfactory classification of conjunctivitis prevents a great deal of inaccurate diagnosis and loose thinking. That which I recommend depends on the bacteriological cause of the disease:—

- I.—Gonococcus.
- II.—Koch-Weeks bacillus.
- III.—Morax-Axenfeld diplo-bacillus.
- IV.—Other organisms: pneumococcus, streptococcus, Klebs-Löffler bacillus, etc.

Each variety has an acute, a subacute, and a chronic form. Mixed infections are very frequent. Such a diagnosis as muco-purulent conjunctivitis should no longer be made, as it is merely a description of the subacute form of any variety of conjunctival inflammation.

The diagnosis of the bacteriological cause of acute ophthalmias is made by microscopical examination. During the past year 7,784 such examinations were made:—

	TOTALS.	PER CENT.
Gonococcus ... ..	3,396	43·6
Koch-Weeks ... ..	1,535	19·5
Morax-Axenfeld ... ..	1,294	16·6
Pneumococcus ... ..	423	5·4
Xerosis ... ..	230	2·9
Staphylococcus ... ..	37	0·47
Micrococci... ..	15	0·19
Streptococcus ... ..	3	0·03
Diphtheria... ..	5	0·06
Micrococcus catarrhalis ... ..	1	0·01
Mixed infection ... ..	311	3·9
Negative ... ..	534	6·8
TOTAL... ..	7,784	

It is to be clearly understood that these bacteriological diagnoses were made in the ordinary clinical routine by the surgeons. The numbers of the more important organisms

which were found by the surgeons at the hospitals may be compared with the numbers found by our bacteriologist, Dr. Subhy :—

	CLINICIAN'S RESULTS.		BACTERIOLOGIST'S RESULTS.	
	Number.	Per Cent.	Number.	Per Cent.
Gonococcus ... ..	3,396	54.5	317	47.2
Koch-Weeks ... ..	1,535	24.6	222	33.0
Diplo-bacillus ... ..	1,294	20.7	132	19.6

The above results may be usefully compared with Meyerhof's results on gonococcal and Koch-Weeks infection :—

	CLINICIAN'S RESULTS.		BACTERIOLOGIST'S RESULTS.		MEYERHOF'S RESULTS.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Gonococcus ... ..	3,396	68.8	317	58.8	497	24.3
Koch-Weeks... ..	1,533	31.1	222	41.1	1,541	75.6

Meyerhof's results (*Archives d'Ophthalmologie*, 1911) are taken through a period of six years, during which he was probably absent from Egypt during the summer on several occasions, causing him to miss a good many gonococcal cases which he would have otherwise seen.

There is not a great deal of difference between the two results, not more that may be accounted for by difference in the localities from which the specimens were obtained. There is a strong presumption therefore that the bacteriological examinations have been accurately carried out by the surgeons.

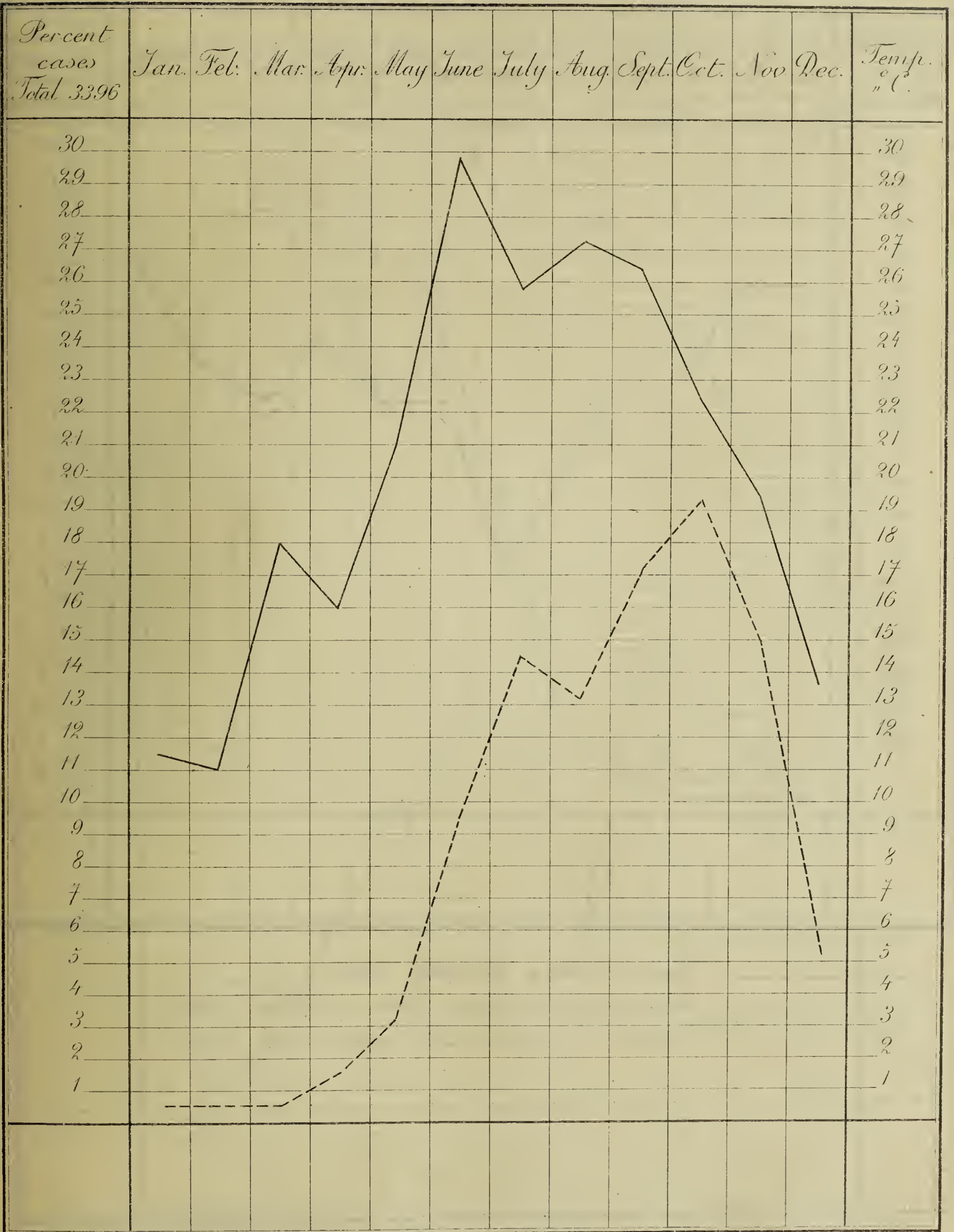
The great majority, forty-three per cent, of the cases shown in the above table were caused by the gonococcus. Such gonococcal conjunctivitis is rarely accompanied by gonorrhœal urethritis. Infection, therefore, usually occurs from eye to eye. Chronic or subacute gonococcal conjunctivitis is seen occasionally during the cold months of the year, while the acute gonococcal conjunctivitis is mainly seen in the hot weather. The organism therefore persists during the winter months on the conjunctiva of various sufferers without the necessity of a sojourn on the urethral mucous membrane.

The monthly incidence of the three most important organisms is here given :—

	GONOCOCCUS.		KOCH-WEEKS.		MORAX-AXENFELD.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
January ... ..	10	0.29	37	2.4	80	6.1
February ... ..	10	0.29	13	0.8	64	4.1
March ... ..	9	0.26	48	3.1	46	3.5
April ... ..	60	1.7	118	7.6	87	6.7
May ... ..	113	3.3	147	9.5	121	9.3
June ... ..	328	9.6	205	13.3	162	12.5
July ... ..	505	14.8	171	11.1	110	8.5
August ... ..	411	12.1	98	6.3	78	6.02
September ... ..	593	17.4	215	14.0	143	11.05
October ... ..	648	19.08	188	12.2	127	9.8
November ... ..	517	15.2	164	10.6	142	10.97
December ... ..	192	5.6	131	8.5	134	10.3
TOTAL... ..	3,396		1,535		1,294	

It is interesting to compare the numbers of cases seen with the average temperature for each month throughout the year.

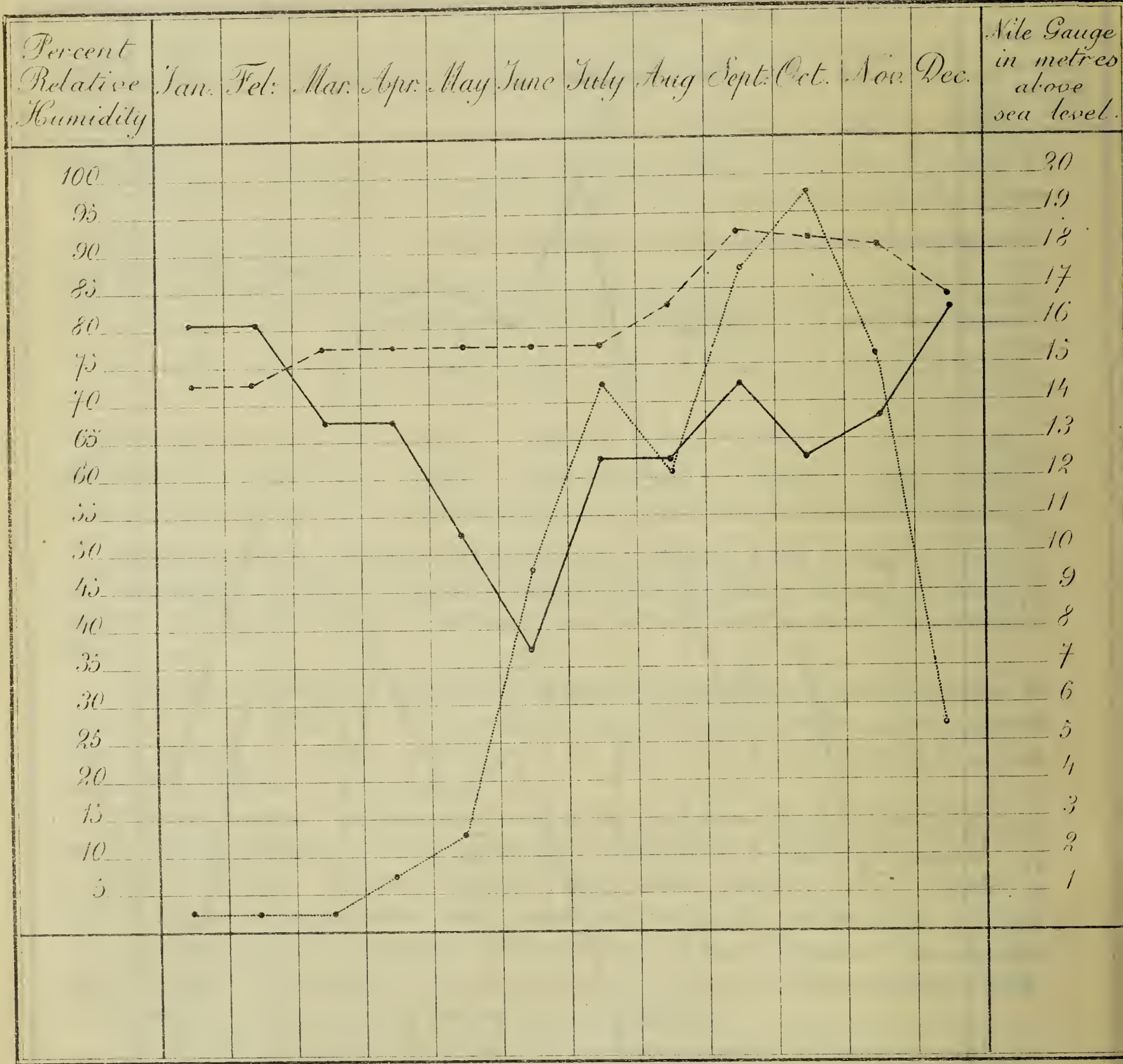
PLATE I.—Curves showing Variations of Temperature and Gonococcal Conjunctivitis  
(see Statistics, Table XII).



————— Temperature in degrees Centigrade, 1914.

- - - - - Percent of cases in each month of total 3396, 1914.

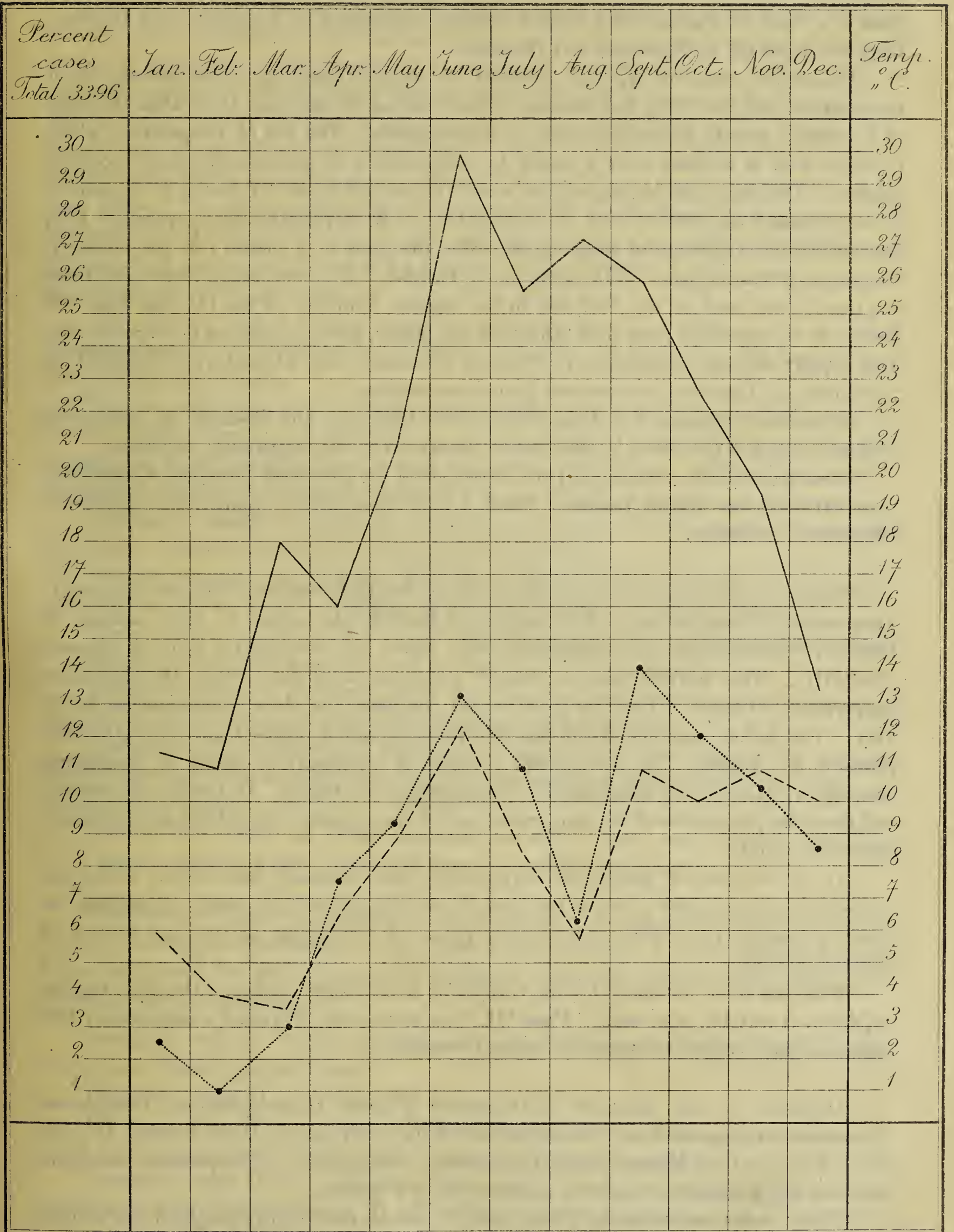
PLATE II.—Curves showing Relative Humidity, Nile Level, and Amount of Gonococcal Conjunctivitis  
(see Statistics, Tables XIII and XIV).



\_\_\_\_\_ Percent Relative Humidity 1914.  
 - - - - - Nile gauge in metres above sea level 1914.  
 ..... Percent of gonococcal conjunctivitis 1914.



PLATE III.—Curves showing Variations in Temperature and Conjunctivitis due to Koch-Weeks and Morax-Axenfeld.



\_\_\_\_\_ Temperature in degrees Centigrade 1914.  
 ..... Koch-Weeks total cases 1535, 1914.  
 - - - - - Morax-Axenfeld total cases 1294, 1914.

*Relation of the Gonococcus to Temperature Variations, etc.*—It is seen from Plate I that the gonococcus is rarely seen during the winter months: January, February, nor in March; its activity becomes awakened in April, and this rapidly increases in May, June, and July; there is a check in August, but a further increase is exhibited in September and October; there is a rapid fall in November and December.

The activity noted in April is preceded by about a month by a considerable rise of temperature, and this rising temperature seems to entail in May and June, after the lapse of a month, a greatly increased amount of conjunctivitis. The fall of temperature which occurs in July is followed after a month by a diminution in gonococcal activity noted in August. The slight rise of temperature which occurs in August is followed in September by an increased number of cases of conjunctivitis. In September the temperature falls, but without any reduction of conjunctivitis after the lapse of a month; on the contrary, the conjunctivitis increases to its maximum in October. It is true that in September there is a rise in the level of the Nile and in the relative humidity (Plate II) but these two factors do not appear to, from their other mensural phases, bear any relation to conjunctivitis. The rapidly falling temperature in October, November, and December, is followed, in November and December, by lessened gonococcal activity.

It therefore appears that temperature alone influences the incidence of gonococcal conjunctivitis, and this effect is manifested a month after the temperature variation.

These results differ somewhat from those given by Meyerhof (*Archives d'Ophthalmologie*, 1911) in the quicker response which, I hold, gonococcal conjunctivitis exhibits to temperature variations.

*Relation of the Bacillus of Koch-Weeks and of the Diplo-bacillus of Morax-Axenfeld to Temperature Variations, etc.*—The bacillus of Koch-Weeks begins to show activity in February,\* immediately the temperature rises above the comparative cold of January (Plate III). This activity goes on steadily increasing until June, when the maximum temperature is reached. Both temperature and conjunctivitis show a simultaneous fall in July. This fall is continued in the case of conjunctivitis but reversed as regards the temperature in August. An unexplained increase of conjunctivitis occurs in September, although by this time the autumnal fall of temperature has begun. In October, November, and December, the curves of the temperature and of the conjunctivitis exhibit a simultaneous downward trend.

As in the case of gonococcal conjunctivitis the increased Koch-Weeks activity in September coincides with a rise in the level of the Nile and with the relative humidity, but these two factors, from their other mensural phases, do not appear to bear any relation to bacterial activity.

What has been said above for the bacillus of Koch-Weeks applies to the diplo-bacillus of Morax-Axenfeld, as is seen in Plate III, thus disproving Meyerhof's suggestion † that diplo-bacillary conjunctivitis has no seasonal variation.

*Difference in the Reaction of Organisms of Acute Conjunctivitis to Temperature Variations.*—It appears from a consideration of the observations above recorded that the Koch-Weeks and the Morax-Axenfeld organisms react at once to temperature variations, but that the gonococcus requires a month to show a reaction.

These results are interesting; from them it follows that the paragraph on this subject in my book "Trachoma and its Complications in Egypt" requires revision (page 17).

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\* I am thus able to confirm the observations of Lakah and Khouri (*Annales d'Oculistique*, 1902) when they state that Koch-Weeks conjunctivitis becomes evident earlier than gonococcal conjunctivitis.

† "La conjunctivite catarrhale subaigue, due au diplobacille de Morax-Axenfeld, ..... reste en dehors d'une influence saisonniere." MEYERHOF: *Archives d'Ophthalmologie*. 1911.

*Treatment of Acute Ophthalmia.*—A routine of treatment has now been established for acute conjunctivitis cases at the ophthalmic hospitals. The first thing is to make a diagnosis of the bacteriological cause of the condition by examining the conjunctival discharge.

The eyes should then be carefully washed by the surgeon by means of an irrigator and the eyelids painted with silver nitrate two per cent. The constantly recurring discharge should be prevented from accumulating by constantly washing away the discharge with an antiseptic solution. This is called constant wash (*ghasseel mustamir* or *lavage continuel*) and is carried out by the patient himself, or, in the case of a child, by his mother. The patient sits in front of two small bowls, one of which contains a number of small pieces of cotton wool floating in an antiseptic solution, the other being empty for reception of the used swabs. The patient keeps wiping the eyelids with one of these dripping swabs, with the result that a little of the solution goes into the eye every time. Where several patients are concerned the two bowls suffice for a group of four persons, a clean glass or wooden rod being used to fish the cotton wool out of the solution.

The solution should contain potassium permanganate, 1 in 5,000, in the case of all organisms except the diplo-bacillus of Morax-Axenfeld, for which zinc sulphate solution, 1 in 200, should be used.

The case should be seen by the surgeon at least twice a day between eight and nine o'clock in the morning and between four and five o'clock in the afternoon. On each occasion he should irrigate the eye and paint with silver nitrate. If the silver causes an excessive escharotic action on the conjunctiva its use should be temporarily discontinued.

The silver should be applied by means of a tampon of cotton wool on the end of a glass rod. Camel hair brushes are dirty and old fashioned.

Neither irrigation nor painting with silver nitrate should be carried out by hospital attendants except in the case of highly trained and experienced nursing sisters.

The eyes should never be tied up nor should dressings, hot or cold, be applied to them.

Neither atropine nor eserine should be used as a routine treatment.

Should ulceration of the cornea occur the treatment should not be altered; the use of the galvano-cautery or of pure carbolic acid being rarely indicated.

Perforation of the cornea with adhesion or prolapse of the iris indicates the necessity for an iridectomy; the surgeon must decide on the merits of each case when the iridectomy should be performed.

Among the results of acute conjunctivitis which were seen may be mentioned 2,857 cases of shrunken globe and 3,170 cases of total corneal opacity.

*Trachoma.*—Without a classification of trachoma it is impossible for the student to form any intelligent appreciation of the phases of the disease. The classification\* which I have introduced has been in use at the Egyptian ophthalmic hospitals since 1905. It is herewith shortly outlined:—

Trachoma, stage I. Seen typically soon after infection has taken place as slight roughnesses forming greyish dots.

Trachoma, stage II is divided into (a), (b), (c):—

Trachoma, stage II (a). Greyish follicles project above the surface of the conjunctiva which rupture on pressure, allowing the escape of gelatinous material.

Trachoma, stage II (b). Raspberry-like papillæ mask the typical follicles. Two subvarieties may be distinguished, II (b') which is unmixed trachoma, and II (b'') which is trachoma complicated by spring catarrh.

Trachoma, stage II (c). Trachoma complicated by gonococcal conjunctivitis.

Trachoma, stage III. In which cicatrization is beginning.

Trachoma, stage IV. In which cicatrization is complete.

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\* See "Trachoma and its Complications in Egypt," MACCALLAN. Cambridge University Press, 1913.

There are many cases which cannot be stated to belong to a definite stage ; for instance a case may be between stage II and stage III, but for purposes of teaching and treatment the division into stages has been found to be very useful.

The treatment of the various stages of trachoma may be roughly summarized as follows :—

Trachoma, stage I. Silver nitrate, two per cent ; copper sulphate stick.

Trachoma, stage II (*a*). Mechanical rupture of the follicles with Graddy's forceps, squeezing, scraping ; perchloride of mercury solution, one per cent.

Trachoma, stage II (*b'*). Mechanical scraping with a sharp spoon ; perchloride of mercury solution one per cent.

Trachoma, stage II (*b''*). Heisrath's combined excision of tarsus and conjunctiva.

Trachoma, stage II (*c*). Silver nitrate, two per cent.

Trachoma, stage III. Copper sulphate stick. When spots of post trachomatous degeneration occur they should be evacuated by opening with the point of a knife.

*Fundus*.—Amongst other varieties of fundus disease seen may be mentioned 136 cases of optic atrophy, 12 cases of optic neuritis, 3 cases of embolism, 24 cases of detachment of the retina, 29 cases of retinitis pigmentosa, 21 cases of choroido-retinitis, and 22 cases of atrophy of the choroid.

*Giant Electro-magnet*.—A Haab's magnet has been installed at Mansûra Hospital. When a magnetizable foreign body is suspected in the globe of a patient from some other district than Mansûra he will be sent to the latter place for trial with the magnet. The small number of these cases in Egypt does not justify the provision of more than one magnet.

*Operations for Trichiasis-entropion*.—The operation which is usually performed is the Snellen operation as modified by me ; 11,474 such operations were performed. Van Millingen's operation of grafting mucous membrane was performed 2,701 times.

*Origin of Patients*.—As was to be expected the majority of the patients treated, 40 per cent, came from the towns in which the various hospitals were situated ; nearly as many, 38 per cent, came from the markaz or police district in which the hospital was situated, while 21 per cent journeyed from more distant markazes.

## IV.—SCHOOLS AND KUTTABS.

### A.—OPHTHALMIC INSPECTION OF SCHOOLS.

The system of ophthalmic inspection and treatment which has been carried out during the last seven years at Tanta Primary School is being extended to eight other primary schools in different mudiria towns (capital towns of provinces) at the present time. Though dealing with by no means the whole of the school-going population, this scheme is a great advance on anything which has been done previously.

The scheme adopted at each school consists in the active surgical treatment of trachoma and its complications, the isolation and treatment of cases of acute conjunctivitis, the correction of errors of refraction, and the preparation of detailed statistics. The methods of treating trachoma are the same as those in use at the Egyptian ophthalmic hospitals.

*Trachoma.*—The number of pupils affected by trachoma is now 92 per cent. The more infective stages of the disease, which in 1907 amounted to 95·5 per cent, amounted at the beginning of the school session this year to 11·7 per cent and were reduced by the end of the session to 0·27 per cent. In spite of the fact that there is some deterioration of the conjunctival condition during the summer vacation, when the pupils receive no compulsory treatment, the permanent progress is decided.

This year 24 per cent of the first year's pupils presented themselves with the more contagious stages of trachoma, as compared with 55 per cent last year. I am unable to give any definite reason for this diminution. At the end of the school year these cases had been reduced from 24 per cent to under 1 per cent.

The number of pupils who underwent treatment was 150 out of a total of 368. Minor operations were performed on 36.

*In-growing Eyelashes.*—Recommendation was made to guardians for the performance on their wards of operations for trichiasis in 7 cases; in only 4 of them were the operations carried out. Great risk is run in omitting to have the condition cured by operation. In all cases the operation can be performed gratuitously at the local ophthalmic hospital.

*Vision.*—The number of pupils with good and fair vision has depreciated from 64 per cent to 37 per cent. These are the only pupils who have sufficiently good vision to pass into the Government service. This means that new boys have been admitted to the school with worse vision than in former years, or that some change has been made locally in the preparation of statistics, or that during the last session particular damage has been affected on to the pupils by disease or treatment.

I have received a report from the ophthalmic inspector in charge of the school work which shows that the depreciation of vision is apparent only and is due to:—

(1) A change in the test types, the new type being more difficult than that previously in use. (Landolt's optotypes were used instead of Snellen's hooks).

(2) The vision was taken more strictly; unless a pupil could read all the letters or figures in one line of the type he was counted as unable to read the line. Previously, if he read most of the letters in a line he was considered to have read the whole line.

I may therefore state that I do not think there is any difference between the vision of pupils taken this year and that taken last year.

The main cause of subnormal vision was opacity of the cornea, which affected about 52 per cent of the pupils.

Thirty pupils were ordered spectacles after examination under atropin during the last session. The total number of pupils now attending the school, who at some time or another

were ordered spectacles and obtained them, is 93 ; of these, only 7 were wearing their spectacles on the date of inspection. I hope that this will be better in future ; but as I said last year, besides the difficulty of keeping careless boys supplied with spectacles which they are frequently breaking, the constantly altering astigmatism is a difficult matter for the ophthalmic surgeon to deal with, as if cylinders are ordered they must frequently be changed.

*Conclusion.*—The sympathetic assistance which is being shown by the Ministry of Education in the extension of the system of school treatment renders the new work less onerous than I expected.

#### B.—OPHTHALMIC CONDITION OF *Kuttabs* (INFANT SCHOOLS).

An ophthalmic inspection of the children in the *kuttabs* (infant schools) of Tanta and Assiût and of the school premises has been carried out annually for some years. The total number of *kuttabs* inspected was 39, and the total number of pupils examined in detail was 3,129.

The premises of about one-third of the *kuttabs* were definitely dirty, and the accommodation was insufficient in about a similar proportion.

The percentage of pupils infected with trachoma was 94·1 at Tanta and 94·7 at Assiût.

Of those pupils whose vision could be taken accurately, one-half at Tanta and one-third at Assiût had bad vision. Those blind in one eye amounted to 2·3 per cent at Tanta and 4·4 per cent at Assiût. Those blind in both eyes amounted to 0·7 per cent at each town.

The investigation of the ophthalmic conditions, of which a resumé has been given above, has been unaccompanied by any treatment or attempt at amelioration. As I stated last year a great improvement could be effected if the means of carrying on a proper ophthalmic campaign were provided.

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### V.—BLINDNESS IN EGYPT.

From the examination of 75,398 patients in 1914, 11,955 eyes were found to be blind. The causes were as follows:—

Congenital ... ..	10
Acquired:—	
Conjunctivitis resulting in:—	
(a) Total corneal opacity ... ..	3,170
(b) Shrunken globe ... ..	2,857
(c) Secondary glaucoma ... ..	1,977
(d) Other conditions ... ..	1,094
Fundus:—	
Optic atrophy ... ..	119
Retinitis pigmentosa ... ..	19
Various ... ..	184
Glaucoma absolutum:—	
Monocular ... ..	638
Binocular ... ..	513
Cataract ... ..	862
Injury ... ..	47
Operation ... ..	19
Infectious disease ... ..	19
Iritis endogenous ... ..	165
Various ... ..	262
TOTAL ... ..	11,955

All patients were accounted blind who could not count fingers at a distance of one metre.

As was to be expected in a country in which all forms of acute ophthalmia are rife, 76 per cent of the blindness resulted directly or indirectly from this condition.

#### 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
TOTAL ...	344,585	27,586	8·0	18,711	5·4	46,297	13·4

The increasing percentage of blindness from 1906 to 1911 is significant of the greater care taken by the surgeons to make full clinical records of all cases of blindness seen among the hospital out-patients.

## VI.—STAFF.

The ophthalmic staff has temporarily lost the services of two reserve officers, one of whom, Dr. Waddy, was recalled by the War Office to take up his commission in King Edward's Horse, and Dr. Horgan, who was recalled by the Admiralty.

Dr. Waddy has since been transferred to the Royal Army Medical Corps and is working at Aldershot.

Dr. Tahir is about to be transferred to the Ministry of Wakfs as Principal Medical Officer of the new ophthalmic hospital of Qala'ôn.

Dr. Oulton has been in charge of one of the Turkish Clearing Hospitals.

The staff of surgeons, 27 in number, all of whom are Egyptians, continue to do highly satisfactory work.

## VII.—OPHTHALMIC POLICY IN EGYPT.

A forward policy must be temporarily abandoned owing to the financial situation, but all existing ophthalmic work and progress will be maintained.

## VIII.—STATISTICS.

TABLE I.—*Amount and Varieties of Work dealt with at Various Forms of Hospitals.*

NATURE OF HOSPITAL.	WITH OR WITHOUT BEDS.	MONTHS WORKING DURING THE YEAR NOT LESS THAN.	VARIETIES OF OPTHALMIC DISEASE DEALT WITH.	NUMBER OF BEDS.	NUMBER OF NEW OUT-PATIENTS. DEALT WITH PER DAY.	NUMBER OF OLD PATIENTS DEALT WITH PER DAY.
Permanent.	With beds.	12	All.	14	20	200-300
	Without beds.	12	Strictly limited.	—	10	100-150
Travelling.	Large camps, with beds.	11	All.	12	20	200-300
	Small camps, with beds.	10	All.	8	10	100-150
	Small camps without beds.	10	Strictly limited.	—	10	100-150



TABLE II.—*Cost of the Various Forms of Hospitals.*

NATURE OF HOSPITAL.	WITH OR WITHOUT BEDS.	BUILDING.		EQUIPMENT.		MAINTENANCE.	
		Provided by	Cost.	Provided by	Cost.	Provided by	Cost.
			L.E.		L.E.		L.E.
Permanent.	With beds.	Gift, subscription, or Provincial Council.	4,000	Government, gift, subscription, or Provincial Council.	800	Government.	1,500
	Without beds.	Provincial Council.	1,500	Provincial Council.	500	Provincial Council.	650
Travelling.	Large camps, with beds.	—	—	Cassel Fund.	850	Cassel Fund.	1,500
	Small camps, with beds.	—	—	Provincial Council.	720	Provincial Council.	800
	Small camps, without beds.	—	—	Provincial Council.	500	Provincial Council.	600

TABLE III.—*Sources of Provision and Maintenance of Hospitals.*

	PROVIDED BY	MAINTAINED BY	DATE OPENED.
<b>Permanent :—</b>			
Tanta ... ..	Government grant.	Government grant.	1908
Assiût ... ..	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 Zayât ... ..	„ „	„ „	1913
Damanhûr ... ..	„ „	Government Grant.	1914
Shibin el Kôm ... ..	Public subscription.	„ „	1914
Sohâg ... ..	„ „	„ „	1914
<b>Travelling :—</b>			
No. 1 Camp ... ..	Sir Ernest Cassel.	Sir Ernest Cassel.	1904
No. 2 „ ... ..	„ „	„ „	1905
Assiût ... ..	Provincial Council.	Provincial Council.	1912
Daqahlia... ..	„ „	„ „	1913
<b>Travelling Hospitals closed for Financial Reasons :—</b>			
Gharbia No. 1 ... ..	Provincial Council.	Provincial Council.	1911
„ No. 2 ... ..	„ „	„ „	1911

TABLE IV.—Permanent and Travelling Ophthalmic Hospitals.

	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914
Hospitals in Existence :—											
Travelling ... ..	1	2	2	2	2	2	2	3	4	5	4
Permanent ... ..	—	—	—	—	1	1	1	2	4	7	10
New patients treated ... ..	2,954	4,210	7,327	7,446	7,794	12,092	14,342	20,488	28,029	40,670	50,126
Total attendance of out-patients ... ..	15,039	50,680	94,204	146,830	132,278	177,761	190,247	236,411	341,211	544,267	686,012
Operations performed ... ..	1,282	2,480	5,846	6,794	6,426	9,930	11,486	14,322	21,315	30,648	40,710
In-patients ... ..	49	140	202	184	208	390	443	678	909	1,807	2,071
Details :—											
Patients examined ... ..	...	...	...	...	19,614	22,373	25,514	31,274	43,668	62,233	75,398
Patients regularly treated ... ..	...	...	...	...	7,794	12,092	14,342	20,488	28,029	40,670	50,126
Incurable cases ... ..	...	...	...	...	4,550	2,302	1,776	2,620	7,200	9,544	10,554
Blind in one eye ... ..	...	...	...	...	1,189	2,116	2,438	3,196	4,115	5,360	6,425
Blind in both eyes ... ..	...	...	...	...	852	1,385	3,010	2,811	2,824	3,878	3,591
Trichiasis cases examined ... ..	...	...	...	...	8,159	10,060	7,507	7,871	13,176	17,329	21,624
” ” operated on and cured... ..	...	...	...	...	2,262	3,128	2,022	3,933	6,942	11,700	16,542
New patients treated per age :—											
Under 1 year ... ..	...	...	...	...	247	516	457	761	1,495	2,700	2,472
From 1 to 5 years ... ..	...	...	...	...	585	1,645	1,497	1,903	3,317	4,631	6,394
” 6 ” 10 ” ... ..	...	...	...	...	902	1,442	4,469	2,101	3,210	4,786	5,634
” 11 ” 15 ” ... ..	...	...	...	...	849	1,294	1,475	2,051	3,056	3,799	4,570
” 16 ” 20 ” ... ..	...	...	...	...	829	1,156	1,499	2,067	2,588	3,253	3,949
” 21 ” 40 ” ... ..	...	...	...	...	2,584	3,775	4,845	6,116	8,167	12,679	17,257
” 41 and over ... ..	...	...	...	...	1,798	2,206	3,100	5,589	6,196	8,822	9,850

TABLE V.—*Work done at all Ophthalmic Hospitals during 1914.*

(1) In-patients. Total number	2,071
Number of available beds	181
Number of diets issued	40,679
(2) Operations. Total number	40,710
I.—Major (22,412) :—	
(a) Senile cataract	449
(b) Soft cataract	211
(c) Trichiasis	16,542
(d) Other operations	5,210
II.—Minor (18,298) :—	
(a) Scraping lids of trachoma patients	9,722
(b) Other operations	8,576
(3) Out-patients :—*	
I.—Incurable	7,248
II.—Postponed	18,024
III.—Tickets issued, <i>i.e.</i> new cases	50,126
IV.—Old cases	610,614
V.—Visits made by patients to hospital for treatment	686,012
VI.—Average number of visits made to hospital by each patient under regular treatment (old cases + tickets issued) ÷ tickets issued. The factor of incurable cases is neglected...	13.18
VII.—Discharges :—	
(a) Cured	6,580
(b) Relieved	4,544
(c) Incurable	3,306
(d) Spontaneously ceased to attend after having attended only once	7,576
(e) Spontaneously ceased to attend after having attended more than once	23,748
VIII.—Trichiasis cases seen among new out-patients :—	
(a) No previous operation having been performed	17,743
(b) Previous operation performed :—	
(i) Successfully	1,180
(ii) Unsuccessfully (not at an ophthalmic hospital, but probably by some charlatan)	3,881
IX.—Ophthalmoscope and refraction cases	11,281
X.—General anæsthetics	6,583
XI.—Number of tickets in tickets box on January 1, 1915	11,982
XII.—Ages of patients treated (50,126) :—	
(a) Under 1 year	2,472
(b) From 1 to 5 years	6,394
(c) „ 6 to 10 „	5,634
(d) „ 11 to 15 „	4,570
(e) „ 16 to 20 „	3,949
(f) „ 21 to 20 „	17,257
(g) Over 40 years	9,850
XIII.—Origin of patients (50,126) :—	
Town in which hospital is situated	20,051
Markaz in which hospital is situated	19,425
Other markazes	10,650

\* N.B.—(3) I.—Incurable cases do not receive tickets, but are recognized as soon as seen by the surgeon as both incurable and devoid of surgical interest.

VII.—Discharges (a, b, c, d, e) + Cases under treatment on December 31 = Tickets issued.

VII (c).—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 VI.—*List of Diseases.*

Ametropia :—		Cornea :—	
Hypermetropia ... ..	190	Ulceration, simple ... ..	2,547
Myopia ... ..	332	Ulceration, hyopyon ... ..	216
Astigmatism... ..	189	Ulceration, perforation ... ..	1,012
Presbyopia ... ..	14	Ulceration, special form ... ..	37
Conjunctiva :—		Pannus ... ..	29,573
Conjunctivitis simple... ..	1,675	Keratitis, interstitial ... ..	17
Conjunctivitis muco-purulent or pu- rulent... ..	5,327	Keratitis, trachomatous ... ..	140
Conjunctivitis gonorrhœal ... ..	3,164	Nebula or leucoma ... ..	21,393
Other varieties ... ..	236	Adherent leucoma ... ..	4,844
Trachoma, stage I ... ..	1,958	Totally opaque cornea ... ..	2,918
Trachoma, stage II ... ..	11,603	Staphyloma ... ..	1,284
Trachoma, stage III ... ..	26,476	Xerosis of cornea ... ..	211
Trachoma, stage IV ... ..	2,467	Abcess of cornea ... ..	45
Spring catarrh ... ..	1	Conical cornea ... ..	302
Post-trachomatous degeneration ...	10,124	Injuries (burn, foreign bodies, etc.)	139
Phlyctenule ... ..	1,781	Keratocele ... ..	9
Pterygium ... ..	1,033	Iris :—	
Pinguecula ... ..	129	Anterior synechia ... ..	1,179
Xerosis ... ..	170	Posterior synechia ... ..	257
Symblepharon ... ..	165	Inflammation ... ..	240
Dermoid ... ..	40	Iris bombé ... ..	10
Other conditions :—		Irido-dialysis ... ..	21
Argyrosis ... ..	54	Congenital coloboma... ..	13
Colloid degeneration ... ..	6	Aniridia ... ..	1
Hypertrophied caruncle ... ..	59	Persistent pupillary membrane ...	15
Injuries (foreign bodies, burn, etc.)...	26	Sclerotic :—	
Cyst ... ..	8	Ciliary staphyloma ... ..	270
Eyelids :—		Episcleritis ... ..	7
Pediculus ciliaris ... ..	107	Injuries ... ..	10
Trichiasis and entropion ... ..	16,302	Choroid :—	
Distichiasis ... ..	45	Coloboma ... ..	1
Ectropion ... ..	392	Rupture ... ..	—
Lagophthalmos ... ..	1,405	Disseminated choroiditis ... ..	7
Blepharitis ... ..	5,012	Choroido-retinitis ... ..	21
Hordeolum ... ..	227	Atropy of choroid ... ..	22
Wart ... ..	120	Tumours ... ..	—
Meibomian cyst ... ..	180	Albinismus ... ..	5
Chalazion ... ..	111	Retina :—	
Eczema ... ..	107	Retinitis, albuminuric and diabetic...	5
Rodent ulcer ... ..	5	Retinitis, syphilitic .. ..	1
Dermoid ... ..	25	Retinitis pigmentosa ... ..	29
Ptosis ... ..	80	Detachment of retina... ..	24
Erysipelas ... ..	1	Embolism and thrombosis of retinal vessels ... ..	3
Herpes ... ..	2	Glioma ... ..	2
Chancre... ..	—	Other conditions ... ..	36
Epithelioma (rodent ulcer) ... ..	2	Optic Nerve :—	
Other tumours ... ..	39	Neuritis... ..	12
Ankyloblepharon... ..	3	Atropy ... ..	136
Injury of lids ... ..	17	Other conditions ... ..	27
Lacrimal apparatus :—			
Lacrimal fistula ... ..	52		
Stenosis of the duct ... ..	41		
Dacryocystitis, acute... ..	10		
Dacryocystitis, chronic ... ..	339		

TABLE VI.—*List of Diseases (continued).*

Lens :—		Glaucoma :—	
Cataract, senile ... ..	1,159	Primary, acute ... ..	17
Cataract, soft ... ..	186	Primary, subacute ... ..	23
Cataract, traumatic ... ..	28	Primary, chronic... ..	574
Cataract, lamellar ... ..	6	Secondary ... ..	2,187
Cataract, anterior polar ... ..	325	Absolute ... ..	1,147
Cataract, posterior polar ... ..	17	Globe :—	
Cataract, dislocated, traumatic ... ..	46	Shrunken globe ... ..	2,858
Cataract, dislocated, operative ... ..	11	Buphthalmos ... ..	40
Cataract, dislocated, congenital ... ..	4	Exophthalmic goitre ... ..	—
Aphakia ... ..	209	Panophthalmitis ... ..	115
Secondary cataract ... ..	120	Microphthalmos ... ..	15
Vitreous :—		Orbit :—	
Opacities ... ..	60	Tumours ... ..	8
Foreign bodies ... ..	3	Cellulitis ... ..	5
Muscles :—		Periostitis ... ..	1
Strabismus, alternating ... ..	71	Injuries ... ..	3
Strabismus, convergent ... ..	1,007	Cyst, frontal... ..	2
Strabismus, divergent ... ..	1,013	Cyst, ethmoidal ... ..	—
Nystagmus ... ..	496	Contracted socket ... ..	10
Paralyses ... ..	7	Blind :—	
		In one eye ... ..	6,425
		In both eyes * ... ..	3,591

\* Patients are accounted blind who cannot count fingers at one metre.

TABLE VII.—*List of Operations*

Eyelids :—		Lacrimal Sac :—	
For Trichiasis and Entropion :—		Excision ... ..	34
Snellen's ... ..	11,474	Various ... ..	57
Anagnostakis's ... ..	107	Growth sclera ... ..	2
Snellen-Anagnostakis's ... ..	509		
Hotz-Anagnostakis's ... ..	18	Lens :—	
Canthoplasty ... ..	110	For Senile Cataract :—	
Grafting mucous membrane ...	2,701	Extraction with iridectomy ... ..	349
Electrolysis ... ..	1,436	Extraction, after previous iridectomy	5
Excision of lash ... ..	37	For membrane after extraction :	
Other operations ... ..	125	discission ... ..	172
		For Soft Cataract :—	
For Ectropion :—		Extraction ... ..	3
Plastic ... ..	23	Discission ... ..	65
MacCallan's ... ..	41	Curette evacuation ... ..	130
Kenneth Scott's ... ..	2	For membrane after extraction :	
Kuhnt's... ..	15	discission ... ..	22
Other operations... ..	9	Paracentesis ... ..	37
For Symblepharon ... ..	124	Capsulotomy ... ..	12
For Hordeolum and Chalazion ...	460	Capsule extraction ... ..	5
Cyst removed ... ..	78		
Wart excised ... ..	48	Globe :—	
Restitching wounds ... ..	28	Trephining of corneo-sclera with	
Abcesses ... ..	77	iridectomy ... ..	428
		Excision ... ..	366
Conjunctiva :—		Evisceration ... ..	99
For Trachoma :—		Removal of sclerotic ... ..	3
Expression ... ..	862		
Scraping ... ..	8,472	Orbit :—	
Combined excision of Heisrath	1,125	Exenteration ... ..	3
Post-trachomatous degeneration	8,024	For tumour ... ..	12
Other operations... ..	380	For dermoid ... ..	9
Pterygium ... ..	540	For cellulitis ... ..	3
		For cyst, frontal ... ..	2
		For cyst, ethmoidal ... ..	—
Iris :—		Cornea :—	
Iridectomy for adherent leucoma ...	1,537	Foreign body removed ... ..	104
Iridectomy, visual ... ..	184	Saemisch's section ... ..	23
Iridectomy for glaucoma ... ..	25	Cautery ... ..	71
Iridectomy, preliminary, for cataract	20	Tenotomy and advancement ... ..	15
Cystoid cicatrix ... ..	7	Other major operations ... ..	69
Division of anterior synechia ... ..	12		

TABLE VIII.—*Pathological Report by Dr. Sobhy.*

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

												Number.
Affections of the lids	...	{	Inflammation	...	...	...	...	...	...	...	...	1
			Tumours	{	Benign and cysts	...	...	...	...	...	...	5
					Malignant	...	...	...	...	...	5	
Affections of the conjunctiva.	{	Inflammation	...	...	...	...	...	...	...	...	1	
		Trachoma	...	...	...	...	...	...	...	62		
		Degeneration, <i>i.e.</i> Hyaline, Amyloid, etc.	...	...	...	...	...	...	5			
		Tumours	{	Benign	...	...	...	...	...	7		
				Malignant	{	Sarcoma	...	...	...	...	1	
Carcinoma	...	...	...			...	3					
Affections of the lacrimal gland and duct.	{	Inflammation	...	...	...	...	...	...	1			
		Tumours	{	Cysts	...	...	...	...	3			
				Benign	{	...	...	...	...	0		
						Malignant	{	Sarcoma	...	...	...	1
Carcinoma	...	...	...	3								
Affections of the globe	...	{	Conjunctivitis with ulcers ending in	{	Staphyloma partial with secondary glaucoma	...	...	...	...	7		
					Staphyloma total with secondary glaucoma	...	...	...	7			
					Irido-cyclitis with atrophy	...	...	...	9			
					Phthisis bulbi	...	...	...	2			
			Tumours of tunics	{	Benign	{	...	...	...	...	0	
							Malignant	{	Retina	...	...	...
			Choroid	...	...	...	1					
			Trauma	...	...	...	...	...	4			
			Infection after operation	...	...	...	...	...	3			
			Primary glaucoma	...	...	...	...	...	3			
Irido-cyclitis	...	{	Sympathetic	...	...	...	...	1				
				Endogenous	...	...	...	2				
Affections of the orbit	:	Tumours	{	Benign	...	...	...	...	0			
					Malignant	Sarcoma	...	...	...	2		
Affections of the sinuses	:	Tumours	:	Sarcoma	...	...	...	1				
TOTAL												143

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

Affections of the lids	:	Cysts	...	...	...	...	...	...	...	3
Affections of the globe	...	{	Conjunctivitis with ulcers ending in	{	Staphyloma partial with secondary glaucoma	...	...	...	...	18
					Staphyloma total with secondary glaucoma	...	...	...	33	
					Irido-cyclitis with atrophy	...	...	...	20	
					Phthisis bulbi	...	...	...	6	
Primary glaucoma	...	...	...	...	3					
TOTAL										83

TABLE IX.—*Bacteriological Report by Dr. Sobhy.*

NUMBER OF SMEARS.			
Number of Cases.	Disease.	Organisms.	Number.
95	Acute purulent conjunctivitis ... ..	Gonococcus ... ..	81
		Koch-Weeks ... ..	32
		Diplo-bacillus ... ..	1
		Negative ... ..	6
322	Acute mucus purulent conjunctivitis ... ..	Gonococcus ... ..	197
		Koch-Weeks ... ..	130
		Pneumococcus ... ..	23
		Diplo-bacillus ... ..	18
		Coli communis ... ..	1
		Negative ... ..	13
52	Chronic conjunctivitis ... ..	Gonococcus ... ..	8
		Koch-Weeks ... ..	22
		Pneumococcus ... ..	8
		Diplo-bacillus ... ..	10
		Negative ... ..	14
66	Angular conjunctivitis ... ..	Koch-Weeks ... ..	4
		Pneumococcus ... ..	9
		Diplo-bacillus ... ..	64
		Negative ... ..	2
104	Ulcers of cornea ... ..	Gonococcus ... ..	28
		Koch-Weeks ... ..	18
		Pneumococcus ... ..	21
		Diplo-bacillus ... ..	22
		Negative ... ..	22
		Coli communis ... ..	1
17	Blepharitis... ..	Gonococcus ... ..	1
		Koch-Weeks ... ..	14
		Pneumococcus ... ..	7
		Diplo-bacillus ... ..	17
		Negative ... ..	1
1	Membranous conjunctivitis ... ..	Pneumococcus ... ..	1
5	Mucocele ... ..	Koch-Weeks ... ..	2
		Pneumococcus ... ..	3
5	Panophthalmitis ... ..	Gonococcus ... ..	2
		Pneumococcus ... ..	1
		Streptococcus ... ..	1
		Staphylococcus ... ..	1
1	Orbital collulitis ... ..	Streptococcus ... ..	1
1	Blood count for anæmia ... ..	... ..	—
21	Various conditions ... ..	Various ... ..	—

NOTES :—

(1) In none of the cases of either diplo-bacillus or muco-purulent conjunctivitis was the diplo-bacillus found alone. It was always present with more virulent bacteria.

(2) The small number of the mucoceles, panophthalmitis, blepharitis, is not due to the rarity of these affections amongst the out-patients.

(3) In most of the cases declared as negative, cultures were not made to settle this. In case of purulent conjunctivitis and muco-purulent conjunctivitis the negative slides were not examined for trachoma corpuscles.

(4) One case might contain more than one organism, thus: gonococcus is not infrequently met with Koch-Weeks and diplo-bacillus. This explains why the number of cases is less than that of the organisms.

(5) Xerosis bacillus was neglected as it is insignificant.

(6) It is important to mention that I did not meet with ophthalmia neonatorum.



TABLE X.—*List of Cases examined microscopically at the Ophthalmic Hospitals during 1914 by the Surgeons as Part of Clinical Routine.*

	NUMBER OF CASES EXAMINED.
No. 1 Camp ... ..	294
No. 2 Camp ... ..	241
Tanta ... ..	1,596
Assiût ... ..	1,327
Mansûra ... ..	725
Beni Suef ... ..	562
Zagazig ... ..	960
Damanhûr ... ..	547
Shibîn el Kôm ... ..	183
Sohâg ... ..	94
Mahalla el Kubra ... ..	155
Kafr el Zayât ... ..	528
Assiût No. 1 T.O.H. ... ..	309
Daqahlîa No. 1 T.O.H. ... ..	158
TOTAL ... ..	7,679

TABLE XI.—*Receipts realized from Treatment and Sale of Eye Drops in Government Ophthalmic Hospitals during the Year 1914.*

HOSPITALS.	TREATMENT.		SALE OF DRUGS.		TOTAL.	
	L.E.	M.	L.E.	M.	L.E.	M.
No. 1 Camp ... ..	—		17	55	17	55
No. 2 Camp ... ..	—		13	112	13	112
Tanta ... ..	—		11	923	11	923
Assiût ... ..	4	400	10	110	14	510
Mansûra ... ..	6	800	14	618	21	418
Beni Suef ... ..	—		14	360	14	360
Zagazig ... ..	—		10	840	10	840
Damanhûr ... ..	—		7	130	7	130
Shibîn el Kôm ... ..	—		3	155	3	155
Sohâg ... ..	—		0	790	0	790
TOTAL ... ..	11	200	103	093	114	293

TABLE XII.—Average Temperature.\*

The average temperature was arrived at by taking two places in Lower Egypt (Qorashia and Zagazig) and two places in Upper Egypt 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.

		JAN.	FEB.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
Qorashia *	1st	12·8	10·0	15·8	11·6	17·4	27·7	24·5	27·6	26·8	21·8	21·2	13·6
	16th	11·0	11·1	17·4	16·6	21·8	27·4	25·0	25·0	23·8	20·4	13·6	11·7
Zagazig *	1st	11·0	10·7	16·5	12·2	17·1	29·6	24·0	27·0	25·0	22·2	20·5	13·7
	16th	9·0	8·2	17·0	16·9	21·2	27·1	25·7	25·0	23·5	20·2	15·1	12·6
Beni Suof †	1st	—	10·4	19·4	13·5	20·0	32·4	24·4	27·9	26·6	24·1	20·1	14·6
	16th	—	12·5	18·8	19·6	22·8	28·0	27·2	26·4	24·8	20·8	19·2	12·8
Assiut *	1st	14·7	11·9	20·0	16·1	21·6	34·6	27·4	29·8	28·5	25·2	24·9	15·8
	16th	10·4	13·3	20·6	20·7	26·1	31·7	28·3	30·1	29·4	23·8	19·2	13·9
Total ...		68·9	88·1	145·5	127·2	168·0	238·5	206·5	218·8	208·4	178·5	153·8	108·7
Average ...		11·48	11·1	18·18	15·90	21·00	29·81	25·81	27·35	26·05	22·31	19·22	13·58

\* = Mean of day  $\frac{8^h + 20^h}{2}$  † = Mean of day 8<sup>h</sup> — 8%.

TABLE XIII.—Diurnal Mean Relative Humidity (per cent) for the 1st and 16th of each Month in 1914.\*

		JAN.	FEB.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
Qorashia *	1st	94	85	84	78	66	52	78	73	78	76	83	88
	16th	86	90	76	78	61	47	78	74	74	80	80	94
Zagazig *	1st	92	84	82	75	58	30	60	59	81	80	88	87
	16th	92	92	82	71	62	42	66	70	82	80	68	92
Beni Suof †	1st	67	—	60	66	55	24	51	50	72	42	60	69
	16th	62	74	41	60	50	42	73	64	77	39	41	74
Assiut *	1st	72	71	58	60	44	23	48	50	62	50	58	76
	16th	88	72	54	54	32	37	52	56	65	51	74	62
Total ...		653	568	537	542	428	297	506	496	591	498	552	642
Average ...		81·6	81·1	67·1	67·7	53·5	37·1	63·2	62·0	73·8	62·2	69·0	80·2

\* Mean of day =  $\frac{8^h + 20^h}{2}$  † Mean of day = 8<sup>h</sup> — 8%.

TABLE XIV.—Nile Gauge-Readings at Roda (Cairo) for the 1st and 16th of each Month in 1914 in Metres Above Sea-Level.\*

		JAN.	FEB.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
1st ... ..		14·61	14·32	15·19	15·54	15·46	15·54	15·48	15·32	18·75	18·10	18·92	17·10
16th ... ..		14·16	14·81	15·66	15·34	15·44	15·56	15·42	17·63	18·34	18·39	17·48	16·40
Total ...		28·77	29·13	30·85	30·88	30·90	31·10	30·90	32·95	37·09	36·49	36·40	33·50
Average ...		14·38	14·56	15·42	15·44	15·45	15·55	15·45	16·47	18·54	18·24	18·20	16·75

\* The information given in these tables was kindly supplied by the Director of the Physical Service, Ministry of Public Works.

TABLE XV.  
 MINISTRY OF EDUCATION.  
 OPHTHALMIC INSPECTORATE, P. H. D.  
 Tanta Government School.—Statistics, 1913-1914.

(a) Number of pupils inspected in November ... ..	375
(b) Number of pupils discharged since November ... ..	26
(c) Number of pupils inspected in November now attending (a-b) ... ..	349
(d) Number of pupils entered school since November ... ..	19
(e) Number of pupils total now attending (c+d) ... ..	368
Percentage infected with trachoma... ..	92.3

(1) Condition of conjunctivitis.

	PREVIOUS TO COMMENCEMENT OF TREATMENT AT SCHOOL 1907.		1913. BEFORE TREATMENT CALCULATED ON 375 PUPILS.		1914 AFTER TREATMENT CALCULATED ON 368 PUPILS.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Healthy... ..	21	4.3	25	6.66	28	7.60
Conjunctivitis ... ..	—	—	3	0.80	15	4.07
Trachoma, stage I ... ..	78	16.0	11	2.93	—	—
Trachoma, stage II ... ..	211	43.5	33	8.80	1	0.27
Trachoma, stage III ... ..	165	34.0	204	54.40	249	67.66
Trachoma, stage IV ... ..	10	2.0	102	27.20	90	24.45

(2) Results of Treatment.

Applied for treatment ... ..	18
Underwent ... ..	150
Untreated ... ..	218
Guardians advised to allow performance of minor operation at ophthalmic hospital ...	46
Guardians consented to allow performance of minor operation at ophthalmic hospital ...	36

*Condition improved.*

Pupils treated: 114, or 76 per cent of those treated.

(3) Vision.

I. Good vision :—

1 (a). Normal vision in each eye 6/6 and 6/6 ... ..	27
(b). Attains this standard with aid of spectacles not greater in strength than $\pm 6$ D ...	—
2 (a). Vision 6/6 and 6/9 or 6/9 and 6/9... ..	57
(b). Attains this standard with aid of spectacles not greater in strength than $\pm 6$ D ...	8

Total 84, or 22.8 per cent.

II. Fair vision :—

1 (a). Vision 6/6 and 6/12, or 6/9 and 6/12, or 6/12 and 6/12 ... ..	51
(b). Attains this standard with aid of spectacles not greater in strength than $\pm 6$ D ...	18
2 (a). Vision 6/6 and 6/18... ..	3
(b). Attains this standard with aid of spectacles not greater in strength than $\pm 6$ D ...	—

Total 54, or 14.6 per cent.

III. Bad vision :—

(a). Attains any of the above standards with spectacles of strength greater than $\pm 6$ D	1
(b). Fails to attain any of the above standards... ..	230

Total 230, or 62.5 per cent.

(4) Spectacles.

Number of pupils ordered spectacles this year ... ..	30
Number of pupils obtained spectacles this year ... ..	27
Number of pupils wearing spectacles ordered this year on date of inspection ... ..	5
Total number of pupils now attending school and obtained spectacles ... ..	93
Total number of pupils wearing spectacles ordered during last six years on date of inspection	7

(5) Trachoma in its Relation to School Years.

BEFORE TREATMENT.

(a) Numbers.

YEAR.	HEALTHY.	TRACHOMA.				CONJUNCTIVITIS.
		Stage I.	Stage II.	Stage III.	Stage IV.	
1 ... ..	13	7	11	32	11	—
2 ... ..	8	1	11	62	29	—
3 ... ..	2	2	7	77	26	—
4 ... ..	2	1	4	33	36	3
	25	11	33	204	102	3

(b) Percentages.

YEAR.	HEALTHY.	TRACHOMA.				CONJUNCTIVITIS.
		Stage I.	Stage II.	Stage III.	Stage IV.	
1 ... ..	17.56	9.45	14.86	43.24	14.86	—
2 ... ..	7.20	0.90	9.90	55.85	26.12	—
3 ... ..	1.75	1.75	6.14	67.54	22.80	—
4 ... ..	2.63	1.31	5.26	43.42	47.36	3.94
	6.66	2.93	8.80	54.40	27.20	0.80

(6) Trachoma in its Relation to School Years.

AFTER TREATMENT.

(a) Numbers.

YEAR.	HEALTHY.	TRACHOMA.				CONJUNCTIVITIS.
		Stage I.	Stage II.	Stage III.	Stage IV.	
1 ... ..	11	—	—	50	15	4
2 ... ..	7	—	1	71	29	8
3 ... ..	6	—	—	81	23	2
4 ... ..	4	—	—	47	23	1
	28	—	1	249	90	15

(b) Percentages.

YEAR.	HEALTHY.	TRACHOMA.				CONJUNCTIVITIS.
		Stage I.	Stage II.	Stage III.	Stage IV.	
1 ... ..	14.47	—	—	65.78	19.73	5.26
2 ... ..	6.48	—	0.92	65.74	26.85	7.40
3 ... ..	5.45	—	—	73.63	20.90	1.81
4 ... ..	5.40	—	—	63.51	31.08	1.35
	7.60	—	0.27	67.66	24.45	4.07

(7) Vision in Relation to School Years.

	YEARS.			
	Stage I.	Stage II.	Stage III.	Stage IV.
I. Good vision ... ..	13	20	31	20
II. Fair vision ... ..	16	16	13	9
III. Bad vision ... ..	47	72	66	45

	PER CENT.			
	Stage I.	Stage II.	Stage III.	Stage IV.
I. Good vision ... ..	15·4	23·8	36·9	23·8
II. Fair vision ... ..	29·6	29·6	24·07	16·6
III. Bad vision ... ..	20·4	31·3	28·6	19·5

(8) Causes of Subnormal Vision.

I. Both corneæ clear ... ..	176
II. One cornea clear, the other showing opacity ... ..	104
III. Opacity of both corneæ ... ..	88

(9) Blindness.

For this purpose pupils are considered to be blind who cannot count fingers at one metre.

Number of blind in one eye ... .. 6

Per cent examined who are blind in one eye ... .. 1·63 per cent.

*Individual Causes of Blindness.*

Ticket No.	CAUSE.
964	Adherent leucoma.
1,043	Central choroidal atrophy.
785	Persistent pupillary membrane.
660	Leucoma, non adherent.
590	Divergent, nebula.
778	Leucoma adherent and shrunken lens.

(10) Recommendations.

Recommendations were made to guardians of pupils as regards the performance of the following operations on their wards:—

Trichiasis ... ..	7
Lacrimal obstruction ... ..	—
Adherent leucoma ... ..	—
Cataract... ..	—
Strabismus ... ..	—
Blind eye ... ..	—

The recommendations were carried out in four cases.

TABLE XVI.—*Statistics of Kuttabs.*

	NUMBER.	PERCENTAGE.
<b>Tanta.</b>		
Total number of <i>kuttabs</i> ... .. .	27	—
Total number of pupils examined ... .. .	2,293	—
Boys... .. .	1,794	78·23
Girls... .. .	499	21·77
Premises :—		
Clean ... .. .	16	59·25
Dirty ... .. .	11	40·75
Accommodation :—		
Sufficient... .. .	20	74·07
Insufficient ... .. .	7	25·93
No Trachoma :—		
Conjunctiva healthy ... .. .	130	5·66
„ chronic ... .. .	1	0·04
Trachoma :—		
Stage I ... .. .	252	10·98
„ II <sub>a</sub> ... .. .	726	31·66
„ II <sub>b</sub> ' ... .. .	126	5·49
„ II <sub>b</sub> '' ... .. .	—	—
„ II <sub>c</sub> ... .. .	—	—
„ III ... .. .	945	41·21
„ IV ... .. .	113	4·92
Cornea :—		
Ulceration ... .. .	—	—
Cicatrization ... .. .	397	17·30
Marked pannus ... .. .	808	35·00
Vision :—		
Good... .. .	302	13·10
Fair ... .. .	223	9·70
Bad ... .. .	510	22·20
Impossible to take vision ... .. .	1,278	55·90
Blind in one eye ... .. .	54	2·35
Blind in both eyes ... .. .	16	0·70
<b>Assiût.</b>		
Number of <i>kuttabs</i> ... .. .	12	—
Total number of pupils examined ... .. .	836	—
Boys... .. .	743	88·87
Girls... .. .	93	11·12
Premises :—		
Clean ... .. .	7	58·33
Dirty ... .. .	5	41·66
Accommodation :—		
Sufficient... .. .	7	58·33
Insufficient ... .. .	5	41·66
No Trachoma :—		
Conjunctiva healthy ... .. .	16	1·91
„ acute ... .. .	6	0·71
„ chronic ... .. .	22	2·63
Trachoma :—		
Stage I ... .. .	66	7·89
„ II <sub>a</sub> ... .. .	336	40·19
„ II <sub>b</sub> ' ... .. .	116	13·87
„ II <sub>b</sub> '' ... .. .	1	0·11
„ II <sub>c</sub> ... .. .	1	0·11
„ III... .. .	234	27·99
„ IV ... .. .	38	4·54
Cornea :—		
Ulceration ... .. .	—	—
Cicatrization ... .. .	156	18·66
Marked pannus ... .. .	89	10·64
Vision :—		
Good... .. .	257	30·74
Fair ... .. .	136	16·20
Bad ... .. .	241	28·80
Impossible to take vision ... .. .	201	24·04
Blind in one eye ... .. .	37	4·40
Blind in both eyes... .. .	6	0·70

Vision :—Good = 6/6 and 6/9.—Fair = 6/6 and 6/12, 6/9 and 6/12, 6/12 and 6/12, 6/6 and 6/18.—Bad = Degrees of vision other than those specified above.

TABLE XVII.—*Publications by the Ophthalmic Staff.*

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- (1) "Four Years' Work with the Ophthalmic Hospitals in Egypt." Published in English and Arabic. Read by the Director at the annual meeting of the British Medical Association, August 2, 1907. (Reprints are out of print.)
  - (2) "Ophthalmic Conditions in the Government Schools in Egypt and their Amelioration." Published in English. "Ophthalmoscope," September 1907. Read by the Director at the annual meeting of the British Medical Association. (Reprints are out of print.)
  - (3) "The Relief of Eye Disease in Egypt with some Consideration of the Incidence of Blindness and Trachoma." Read by the Director at the Sixteenth International Medical Congress, Budapest, September 1909. (Reprinted in English and Arabic.)
  - (4) "The Egyptian Ophthalmic Hospitals." Read by the Director at the annual meeting of the British Medical Association, 1910. (Reprinted in English.)
  - (5) "Ophthalmic Hospitals in Egypt." Printed in "Ophthalmic Record," U.S.A., 1910. (Reprinted in English.)
  - (6) Communications read at the Fourth International Blind Congress in Cairo, February 1911. Printed in "Ophthalmoscope," 1911. Reprinted in English, French, and Arabic. (Out of print in French and Arabic.)
  - (7) "Les Divisions du Trachome, le Traitement de cette Affection et de ses Complications," by the Director. Printed in "Archives d'Ophthalmologie," September 1911.
  - (8) "Trachoma and its Complications in Egypt." By the Director. Published in English. Cambridge University Press, London, 1913.
  - (9) "Report on Ophthalmic Hospitals during 1912." By the Director. Published in English and Arabic. Government Press, Cairo.
  - (10) "Trepining the Corneo-sclera for Glaucoma." Read by Dr. A. F. Rasheed at the annual meeting of the Ophthalmological Society of Egypt, 1913.
  - (11) "Trichiasis Operation without External Incision." Read by Dr. Z. Seddik at the annual meeting of the Ophthalmological Society of Egypt, 1914.
  - (12) "Operation of Combined Excision of Cartilage (Heisrath)." Read by Dr. Mahmud Gamaleddin at the annual meeting of the Ophthalmological Society of Egypt, 1914.
  - (13) "Acquired Juvenile Cataract. Some Observations upon its Incidence, its Character, and its Association with Anæmia, Ankylostoma, and Pellagra." Read by Dr. R. Granville Waddy at the annual meeting of the Ophthalmological Society of Egypt, 1914.
  - (14) "Report on Ophthalmic Hospitals during 1913." By the Director. Published in English and Arabic. Government Press, Cairo.
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