Annual report on the ophthalmic section.

MINISTRY OF THE INTERIOR, EGYPT.

REPORT

ON THE

OPHTHALMIC SECTION

OF THE

DEPARTMENT OF PUBLIC HEALTH,

1912.

BY

THE DIRECTOR OF OPHTHALMIC HOSPITALS.

CAIRO.
GOVERNMENT PRESS.

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BY

Dr. Ernest de Grahan Hewetson.

CAIRO.

1913.

Price P.T. 10.

Cairo, March 6, 1913.

SIR,

I have the honour to enclose my Report on the Ophthalmic Hospitals and on Ophthalmic Progress in Egypt during the year 1912.

I have the honour to be,
Sir,
Your obedient servant,
A. F. MACCALLAN,
Director of Ophthalmic Hospitals.

To the Director-General,
Department of Public Health.

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REPORT ON THE OPHTHALMIC SECTION, 1912.

I.—INTRODUCTION.

Origin of Ophthalmic Hospitals.

In 1903 a sum of L.E. 41,000 was placed at the disposal of the British Agent in Egypt (Lord Cromer), for ophthalmic relief in Egypt, by the liberality of Sir Ernest Cassel. A committee was formed under the presidency of the Director-General of the Department of Public Health (Sir Horace Pinching) to decide on the form in which the relief should be given. It was decided, on the proposition of Dr. Osborne, of Alexandria, to establish a hospital consisting of a tent-camp to travel round the country districts, remaining about six months at each place. The present Director of Ophthalmic Hospitals was brought out from England to organize and administer this and other means of relief subsequently inaugurated. These hospitals became a definite branch of the Egyptian Government Service in 1906, in which year the first permanent hospital was built at Tanta.

Between the beginning of the year 1904 and the end of 1912, eight ophthalmic hospitals have been opened by the Ophthalmic Section of the Department of Public Health in various parts of Egypt. During the year 1913 six new hospitals will be inaugurated. For each of these fourteen establishments both the initial outlay and the cost of maintenance is assured; two were provided and endowed by Sir Ernest Cassel, six are being provided and maintained by local self-taxation (Provincial Councils), while of the remainder, which are all maintained by the Government, the initial cost was borne by public subscription, gift, local taxation, or grant from the Treasury (*see* Table III). The acceleration in the provision of hospitals which has recently taken place has been due to the interest displayed by Lord Kitchener in the means of ophthalmic relief.

Permanent Ophthalmic Hospitals.—Both permanent and travelling hospitals have their place in the Egyptian system of ophthalmic relief, and each of these types has two or more varieties. The permanent hospitals which are now being built in the capital town of each province by the Government architects have accommodation for fourteen in-patients. Some of the hospitals previously constructed, such as those of Assiût and Mansûra, are much more commodious and were to a corresponding extent more costly. But the small type of hospital has been found sufficient for the needs of several of the fourteen provincial capitals. The initial outlay required, which must be provided locally, either by self-taxation, subscription, or gift, is about L.E. 5,000. The expense of maintaining such a hospital, including the salaries of two Egyptian surgeons, is defrayed by the Government at a cost of L.E. 1,500. The number of patients which can be treated a day is from 200 to 300, including some twenty new cases. Operations are performed daily from 9 a.m. until 11 a.m. The second variety of permanent hospital, which has been adopted by the Council of the Province of Gharbîa, and is being built by their architect at a cost of L.E. 1,500 to L.E. 2,000, consists of a commodious out-patient clinic, but has no accommodation for in-patients. The expense of maintaining these hospitals is about half that of maintaining hospitals with in-patient accommodation and provides for one surgeon only (Tables I and II).

Travelling Ophthalmic Hospitals.—The travelling hospitals are an important feature of the system. Each hospital consists of a number of Indian tents, including one especially spacious for the performance of operations. Each camping ground is

occupied for four to six months. In this way most of the larger towns in Egypt have been visited. Only poor people are received as patients and all treatment is gratuitous. It is due to the popularity of these hospitals that the need for ophthalmic relief after countless generations of suffering and disability is becoming felt by the people of Egypt, a need which was not realized until the establishment in 1904 of the first hospital under the sole surgical charge of the present Director of Ophthalmic Hospitals.

Three types of travelling hospitals are carried on. The most completely equipped type has two surgeons attached to it and is able to treat 200 to 300 patients a day ; the second type is similar but on a smaller scale, it has only one surgeon in charge and is capable of providing treatment for 100 to 150 patients per day; the third type differs from those previously described in having no accommodation for in-patients, but provides treatment for 100 to 150 out-patients a day. There are at the present time six of these travelling hospitals at work in various parts of Egypt.

Staff.—The administration and clinical direction of these hospitals are vested in the Director with the assistance of two British and one Egyptian Inspecting Surgeons. The subordinate staff consists at the present time of twenty-three Egyptian surgeons who, having completed the medical curriculum at the Government Medical School in Cairo, volunteer for ophthalmic training and service; the average man makes a good and careful operator for all lid affections; while a few of the senior men have attained to quite first-class operative ability in the performance of intraocular operations.

Post-Graduate Instruction.—A complete course of post-graduate lectures is delivered every year by the Director and the Inspecting Surgeons. Complete laboratory facilities for clinical pathology and bacteriology exist at Tanta, Assiût, Mansûra, Beni Suef, and Zagazig.

Clinical Work.—The clinical work carried on at the Egyptian Ophthalmic Hospitals differs from that of any other country in the large proportion of patients for whom an operation of one kind or another is required, which amounts to about 60 per cent. The conditions mainly responsible for this are trichiasis and entropion (in-growing eyelashes) ; they are the direct result of trachoma, a disease which attacks more than 90 per cent of the native population. Operations were performed on 6,942 sufferers from these complications during 1912, but were refused to an equal number for lack of available time.

A system of ophthalmic treatment, including facilities for the requisite operative measures and for the provision of spectacles for all who require this aid to vision was instituted for one of the Government Primary Schools, that of Tanta, in 1907. A remarkable improvement in the ophthalmic condition of the school has already been produced (*see* report on page 8). The extension of this boon to other schools should be effected as soon as surgeons who are sufficiently trained in ophthalmic surgery become available for the work.

A scheme has been instituted for the training of " First Aid " Assistants to help the District Medical Officers. Part of their training is carried out at the various ophthalmic hospitals where lectures and demonstrations are given and where they are taught to carry out a little simple treatment.

Finances.—While inadequate for the provision of sufficient ophthalmic relief for the needs of a suffering but inarticulate country population, the annual Government grant has risen from L.E. 3,352 in 1906 to L.E. 12,090 in 1913; to this must be added L.E. 2,564, the interest on the Cassel Fund, and L.E. 4,500, the amount granted by the various Provincial Councils. A total of L.E. 19,154 is therefore available each year for the relief of eye disease.

The actual sum spent last year on hospital maintenance (not including Central Administration expenditure) was L.E. 7,116·293 milliemes. For this sum 31,643 new patients were treated ; 341,211 attendances of out-patients were made ; 20,385 daily diets were issued to 909 in-patients ; and 21,315 operations were performed.

Ophthalmic Relief in Aswân Province.—It is probable that every province, except one, will, in the course of time, supply itself with at least one ophthalmic hospital. The exception is Aswân, where the long river frontage with its scanty strip of cultivation and population needs a different ophthalmic organization to other provinces. Though the village of Abu Simbel in the south and the town of Edfu in the north, separated by a distance of 200 miles, would no doubt send a number of their inhabitants to a central hospital in the capital town, it would be infinitely more convenient for the inhabitants of each district to be visited by a floating or *dahabia* hospital. But there is no money from local sources available or likely to be available for such a scheme, although the Government is pledged to provide the maintenance expenses. The cost of a specially built *dahabia* complete with all equipment would be about L.E. 2,500.

Blindness in Egypt.—The amount of blindness in Egypt is usually stated by non-professional observers to have largely decreased within the last twenty years ; nevertheless, out of 43,668 patients examined during 1912, 6,939 persons were found to be blind in one or both eyes, that is nearly 16 per cent. It is probable that there has been a small diminution as the result of the enforcement of compulsory vaccination, but enough has been said to show that ophthalmic conditions are still appalling, and no relaxation must be allowed in the efforts to improve them.

Means of Fighting Eye Disease and Blindness.—The different methods in which ophthalmic relief may be given have been thoroughly studied and no time has been spared in the consideration of the various suggestions which have been made. Realizing the impossibility of effecting an ophthalmic revolution in any finite period it has been considered all important to put those means of relief which future generations will use and will profit by on a firm and lasting basis. The means which have been decided on are a permanent built hospital or its equivalent in the capital town of each province, provided locally and maintained by the Government, and a travelling tent-hospital with accommodation for a few in-patients provided and maintained by each Provincial Council. From each of these centres will develop various branches of work, including treatment of the pupils in schools and *kuttabs*, lectures on ophthalmic hygiene, distribution of pamphlets giving instructions for the prevention of infection, provision of first aid in eye diseases in the remoter villages, talks in simple language to collections of women of the necessity of cleanliness for their children and of the way it should be effected. Money, skilled labour, and time, will gradually work a vast improvement among a people who are intensely anxious to avail themselves of the small amount of ophthalmic relief which is at present available.

II.—WORK AND PROGRESS DURING 1912.

A.—Permanent Hospitals (*see* Tables I and II).

The hospital at Tanta, which was the first one to be built in Egypt, now attracts a very moderate number of patients. A determined effort will be made during the month of March to reawaken the interest of the inhabitants in the preservation of their sight by starting a branch dispensary in one of the poorer parts of the town, from which, patients requiring operation will be transferred to the hospital.*

The Assiût hospital continues to treat a very large number of patients. It has been found necessary to keep a British Inspector at the hospital almost constantly since the beginning of October for various reasons.

The Mansûra hospital was opened on October 1, 1912. It proves to be a highly satisfactory building and reflects great credit on the architect, John Price Bey, the Chief Engineer of the Department of Public Health.

Beni Suef hospital was opened on December 31, 1912. It is the first ophthalmic hospital to be completed by the Ministry of Public Works. It has considerably less accommodation than the hospitals at either Assiût or Mansûra, but will be sufficient for the needs of the town of Beni Suef. This hospital was built by public subscription.

A sister hospital to that of Beni Suef will be opened very shortly at Zagazig; some delay has occurred on account of the proximity of a canal exacting detailed study of the foundations. The hospital is being built at the expense of the Provincial Council of Sharqîa.

The Sohag hospital has not yet been commenced; much delay has occurred for which the Department of Public Health is in no way responsible. Considerable irritation is being shown by the subscribers to the building fund.

All initial and maintenance expenses for the above-mentioned hospitals are assured.

Plans are just completed for building hospitals at Damanhûr, Shebin el Kôm, Minia, and Fayûm. In each case the cost of building and equipment is being defrayed locally, while the Government is pledged to pay the maintenance expenses.

The Provincial Council of Gharbîa is now building hospitals at Mahalla el Kubra and Kafr el Zayat, which will be administered by the Director of Ophthalmic Hospitals. The plans were made by the Provincial Council Engineer after a sketch supplied to him and he is responsible for the engineering and drainage of these hospitals. Great credit is due to H.E. Mouheb Pasha, the President of the Council, for the rapidity with which these hospitals have been built.

B.—Travelling Hospitals.

The two large travelling hospitals with accommodation for in-patients known as the Cassel Fund Hospitals were moved from Fayûm and Zagazig to Gîza and Benha at the beginning of the summer. The period allowed between the last day at the old camp when clinical work is finished and the first day at the new camp for seeing patients has been reduced to fifteen days. No further reduction is possible in this period on account of the necessity of replenishing equipment

* June 21, 1913. There is now a daily average attendance of 250 patients. This shows that the previously noted diminution was purely temporary.

and mending tent-canvas. The localities already visited by the hospitals are as follows :—

Mudiria.	Town Visited.	Number of Visits.	Mudiria.	Town Visited.	Number of Visits.
—	Damietta	3	Gharbia	Zifta	1
Daqahlia	Mansûra	1	Giza	Giza	2
Menufia	Menûf...	2	Fayûm	Fayûm	2
	Shebin el Kôm ...	1	Beni Suef... ...	Beni Suef	2
Qaliubia	Qaliûb...	1	Minia	Minia	1
	Benha	2	Assiût	Assiût	1
Sharqia	Zagazig	2	Girga...	Sohag	1
Beheira	Damanhûr	2	Qena	Luxor	1
	Rosetta	1	Aswân	Aswân...	1

A small travelling hospital with beds for in-patients was opened at Badari in December. It is financed by the Assiût Provincial Council and administered by the Ophthalmic Section of the Department of Public Health.

A similar hospital will be opened shortly in Daqahlîa Province.

The Gharbîa Provincial Council also maintains two small travelling hospitals without beds for in-patients. Work has been carried on at Mahalla el Kubra, Zifta, Santa, and Sherbîn.

Such Provincial Councils as maintain ophthalmic hospitals, and it is to be hoped that their number will be largely increased in the future, have the entire financial responsibility for these hospitals. All payments are made and all accounts are kept by the Provincial Council officials. The President of the Council appoints all officials on the recommendation of the Director of Ophthalmic Hospitals, who merely directs the clinical work, sees that the hospital premises and stores are kept in order, and initials all invoices and communications between the Council and the hospital. This system has been found to work extremely satisfactorily and harmoniously.

The present staff of ophthalmic Inspecting Surgeons, consisting of Dr. Mohammed Tahir, Dr. E. V. Oulton, and Dr. R. Granville Waddy, will very shortly be unable to cope with the largely increased work, and further assistance will be required. The staff of surgeons, twenty-three in number, are all Egyptians; they continue to carry on highly satisfactory clinical work under the careful supervision of the Inspectors.

The post-graduate teaching of ophthalmic surgery in Egypt is claimed to be better for future practitioners in this country than that to be obtained in Europe. It therefore appears to be unnecessary for the Government to maintain young Egyptian surgeons in London for the purpose of learning ophthalmic surgery.

III.—CLINICAL.

The number of new cases treated has risen during the last year to 28,029, and the total attendances of out-patients to 341,211. Only such a number of patients are accepted for treatment as can be thoroughly and efficiently examined and as can receive the requisite treatment, including operation when indicated. Besides the patients accepted for treatment, a large number—12,025—were postponed on various occasions because there was no available time to treat them efficiently. Many of these returning to the hospital on days when the pressure was less severe received treatment.

It is usually impossible to accept all the trichiasis cases; 6,942 operations were performed on 13,176 patients who presented themselves suffering from this condition, the operations most frequently performed being a modified Snellen's operation and Van Millingen's grafting of mucous membrane.

It is noteworthy that nearly one-third of all the patients treated were under ten years of age.

243 extractions of senile cataract were performed. Glaucoma simplex is an extremely frequent condition in Egypt; 1,111 cases were seen, of which 282 were in a condition of absolute glaucoma. The operation most frequently performed being trephining of the corneo-sclera combined with iridectomy through the trephine hole. The frequency of corneal ulceration led to the performance of 978 iridectomies for leucoma adherens; some of these operations were performed for actually increased tension, but the majority were for the purpose of prophylaxis against this complication.

Among fundus lesions may be mentioned 159 cases of optic atrophy, 26 cases of optic neuritis, 2 cases of rupture of the choroid, 25 cases of detached retina, and 29 cases of retinitis pigmentosa (*see* Clinical Statistics).

Trachoma is generalized throughout Egypt, affecting more than 90 per cent of the population. The inhabitants of Abu Simbel and Feriq are victims to the disease to the same extent as those of Damietta, though nearly ten degrees of latitude intervene between them, and though the swamps and dampness of the northern town contrast most markedly with the dryness and heat of the southern village. Climatic conditions therefore do not appear to play any decisive part in the incidence of trachoma in Egypt.

The complications of trachoma more severely attack the inhabitants of thickly populated and overcrowded towns and villages than the inhabitants of sparsely populated districts. The neighbourhood of a dusty area, such as the ancient site of an uninhabited town, appears to be especially productive of a severe degree of trachoma.

None of the races which inhabit Egypt, *viz. fellahin*, Arabs, Berberines, Sudanese, Europeans, are immune from the disease, and all suffer equally when exposed to the same conditions of contagion, filth, and overcrowding.

Children are generally infected during the first two years of life. Until recently we had supposed that the infection of the infantile conjunctiva invariably occurred after birth, by the intermediary of fingers or handkerchiefs, from the diseased conjunctiva of mother or nurse. However, recent research seems to show that trachoma of the genital passages of both men and women occurs and that trachoma of the newly born may occur as the result of infection during the process of delivery.

Absence of strict cleanliness is almost universal among the lower classes and facilitates contagion. At no period of life can any one living in Egypt avoid shaking hands with people who have contagious trachoma, in the discharge from which their fingers are often steeped. The constant possibility of contagion is thus easily understood.

In households it is common after ablutions for the same towel to be used for the faces of the whole family. The conjunctival secretion of each one is wiped on it, and there is small chance that any one of the family will long retain a healthy conjunctiva.

Transmission of contagion by flies is probably not the most frequent of the various modes of infection. It cannot be definitely stated not to take place, but there is no scientific evidence of its occurrence, in spite of the efforts which have been made by Morax and by Meyerhof to obtain it.

An attack of acute conjunctivitis frequently precedes infection with trachoma. Hence, in former times it was thought that trachoma itself always began acutely. This, however, is rarely the case. The acute symptoms are usually caused by well known bacterial organisms, of which the most important are the diplo-bacillus of Morax-Axenfeld, the Koch-Weeks bacillus, and the gonococcus.

An acute conjunctivitis is highly contagious on account of the purulent discharge which is spread about by the fingers on clothes and utensils. As the original sufferer in Egypt so frequently has trachoma, this disease is transmitted along with the acute conjunctivitis.

The principles of our treatment of trachoma are based on a classification of the stages of the disease which has been in use at the Egyptian Ophthalmic Hospitals since 1905. It is a development of Raehlmann's classification. It is herewith shortly outlined :—

Trachoma, Stage I.—Seen typically soon after infection has taken place as slight roughnesses, forming grayish islands which are semi-transparent and almost non-vascular.

Trachoma, Stage II.—Is divided up into *a*, *b*, *c*.

Trachoma, Stage IIa.—Numerous grayish follicles protrude above the surface of the conjunctiva which easily rupture on pressure.

Trachoma, Stage IIb.—Here there is a formation of red raspberry-like papillæ or elevations which mask more or less the typical gelatinous follicles. Two sub-varieties may be distinguished, Trachoma II*b′*, which is unmixed trachoma, and Trachoma II*b″* which is trachoma complicated by spring catarrh.

Trachoma, Stage IIc.—Is trachoma complicated by gonococcal conjunctivitis.

Trachoma, Stage III.—In which cicatrization is beginning.

Trachoma, Stage IV.—In which cicatrization is complete.

There are many cases which cannot be stated to belong to a definite stage ; for instance, a case may be between Trachoma II and Trachoma III, or between Trachoma III and Trachoma IV. But this division of the disease into stages has been found to be extremely useful for the purpose of teaching and of treatment.

The treatment may be indicated as follows :—

Trachoma I.—Application to the lids, by a tampon of cotton wool on the end of a glass rod, of silver nitrate 2 per cent; later, astringent drops may be used.

Trachoma IIa.—Mechanical rupture of the follicles by Graddy's forceps and a sharp spoon followed by the application of perchloride of mercury 1 per cent on a tampon of cotton wool.

Trachoma IIb.—Heisrath's combined excision of tarsus and conjunctiva. Trachoma *IIb′* may also be treated like Trachona II*a*.

Trachoma IIc.—Silver nitrate 2 per cent is applied to the conjunctiva.

Trachoma III.—The application of copper sulphate stick.

IV.—SCHOOLS.

Ophthalmic Inspection and Treatment at Primary and Infant Schools (*kuttabs*).

A.—School Treatment.

My report on the ophthalmic treatment of the pupils of Tanta Primary School was forwarded by the Director-General of the Department Public Health to the Minister of Education and is here reproduced :—

" Le traitement ophtalmique à l'Ecole primaire de Tantah a été commencé par le personnel ophtalmique de l'Administration de l'Hygiène Publique en 1907.

" L'évolution des méthodes les plus convenables de traitement et la coopération réelle entre le personnel de l'Ecole et le médecin oculiste local n'a pas été obtenu sans peine. En effet, ça n'a été que pendant le cours de la dernière année que les accommodements peuvent être considérés comme ayant été tout à fait satisfaisants, et même actuellement une amélioration considérable est possible.

" Néanmoins, un point a été atteint, quand on pense que les méthodes de traitement adoptées peuvent être considérées comme suffisamment efficaces et les dispositions administratives prises assez satisfaisantes pour permettre d'en recommander l'adoption dans d'autres écoles.

" Dans le cas de toute nouvelle école soumise au traitement, il sera nécessaire que le Ministère de l'Instruction Publique pourvoit à des aménagements et à un matériel convenable, tandis que l'Administration de l'Hygiène Publique fournira de son côté le personnel habile et les médicaments nécessaires.

" *Trachome.* — Le pourcentage des élèves atteints de trachome a été de 95 pour cent; ce chiffre comprend tous les cas dans lesquels il y a une évidence définie de la présence ancienne de la maladie, même si une guérison a été obtenue. Tandis qu'en 1907 la proportion des élèves qui se trouvaient définitivement dans un état contagieux de trachome était de 76 pour cent au moins, à la fin de l'année scolaire 1912 0·27 pour cent seulement restaient dans cet état contagieux à la suite du traitement qu'ils avaient subi.

" Ce résultat est extrêmement intéressant et témoigne de son succès. Comme un des résultats du traitement, il a été constaté, au commencement de cette année scolaire, que 65 pour cent des élèves de l'école atteints de la maladie se trouvaient parmi les nouveaux élèves admis au cours de l'année scolaire.

" Le nombre des élèves se trouvant actuellement sous traitement journalier, pendant l'année, était de 151, dont trente-quatre subirent une petite opération pour trachome. L'opération consistait en un léger raclage de la surface intérieure des paupières avec instrument, à l'effet d'enlever les tissus malades surabondants. 92 pour cent des élèves traités montrèrent une amélioration marquée, qui dans bien des cas demeurera permanente.

" *Acuité visuelle.* — Le nombre d'élèves jouissant d'une bonne vision a été de 18·5 pour cent, ceux avec une vision passable 35 pour cent, et ceux avec une mauvaise vision de 46·5 pour cent. La cause de l'imperfection dans la vision était ordinairement due à l'opacité de la cornée, résultat du trachome ou d'une conjonctivite aiguë, cette dernière y contribuant dans environ 47 pour cent des cas. Dans les cas restants, la cause de l'imperfection de la vision était partagée à peu près par moitié entre l'hypermétropie et la myopie.

" Jusqu'à présent on n'a pas obtenu de preuves que la myopie est causée ou augmentée par les conditions de l'Ecole ou par l'opacité de la cornée. Ceci est

justifié du fait que les classes supérieures de l'Ecole comptent plus d'élèves possédant une vision normale que les classes inférieures ; ainsi, des élèves de la quatrième année 30 pour cent, de la troisième année 36 pour cent, de la deuxième année 18 pour cent, et ceux de la première année 15 pour cent, ont une vision normale, des lunettes simples (jusqu'à six dioptries d'ametropie) étant permises pendant l'examen.

" Les lunettes sont ordonnées toutes les fois qu'il y a un espoir raisonnable qu'elles seront de quelque utilité pour les élèves. Pendant le cours de la dernière année cinquante-quatre élèves ont été jugés devoir porter des lunettes, et une bonne proportion, quarante et un, en ont achetées. A l'époque de l'inspection, cependant, quatorze élèves seulement portaient leurs lunettes.

" Ceci est très déconcertant, car le travail qu'entraîne l'examen nécessaire est considérable. Néanmoins, il est à rappeler que quelques élèves perdent leurs lunettes, et que quelques-uns les cassent et qu'ils sont incapables ou peu désireux de les remplacer. Je pense, toutefois, que des inspections plus fréquentes de la part du personnel ophtalmique que celles effectuées jusqu'à présent, des élèves portant des lunettes dans les salles d'études, produiraient une amélioration à cet état de choses.

" *Complications du Trachome.* — Quatre élèves ont été trouvés souffrant de la croissance des cils dans l'intérieur des paupières. Un avis urgent a été adressé à la famille ou au tuteur de chaque élève, l'informant de la nécessité de procéder à une opération à l'effet de faire reprendre aux cils leur position normale, faute de quoi l'élève se trouverait exposé à un danger continuel de perdre la vue. Des opérations de cette nature peuvent être pratiquées gratuitement à l'Hôpital Ophtalmique le plus proche."

B.—Kuttabs' Inspection.

A complete ophthalmic inspection of the Infant Schools or *kuttabs* which received subventions from the Ministry of Education was made as usual in 1912.

Tanta.—The total number of pupils examined on the days of inspection, March, 21, 22, 23, in the thirty State-aided *kuttabs*, was 2,270. The number of pupils who showed evidence of trachoma was 2,073, or 91 per cent, of whom 38 per cent were in a definitely infective condition. The number of pupils who were blind in one eye was sixty-five ; the number of those blind in both eyes was twenty-one.

While the inspection was carried out for the purpose of inquiring into the ophthalmic condition of the pupils, *kuttabs* which were dirty or overcrowded were noted, as their effect on the eyes of the pupils is injurious. Seven were found to be dirty, one was overcrowded, six were both overcrowded and dirty.

Assiût.—The number of pupils examined in the fifteen State-aided *kuttabs* at Assiût town was 969. The days of inspection were March 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 30, 31, and April 1, 2, 3, and 4.

The number of pupils who showed evidence of trachoma was 947, or 97 per cent, of whom 56 per cent were in a definitely infective condition. The number of pupils who were blind in one eye was thirty-four, none were blind in both eyes.

Three of the *kuttabs* were dirty, two were overcrowded, and three were both dirty and overcrowded.

It should be recognized that the amount of control over these *kuttabs* possessed by the Ministry of Education is but small, as they are in many cases semi-religious foundations and are privately owned and managed.

V.—BLINDNESS IN EGYPT.

During the examination of 43,668 patients in 1912, 8,603 eyes were found to be blind. The causes were as follows :—

Congenital	11
Acquired :—	
Conjunctivitis resulting in :—	
(*a*) Total corneal opacity	2,109
(*b*) Shrunken globe	1,933
(*c*) Secondary glaucoma	1,630
(*d*) Other conditions	635
Fundus. Optic atrophy	151
Retinitis pigmentosa	20
Various	203
Glaucoma absolutum :—	
Monocular	536
Binocular	562
Cataract	486
Injury	47
Operation	25
Infectious disease	4
Iritis endogenous	184
Various	67
Total	8,603

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 trachoma and various forms of acute conjunctivitis are rife, 75 per cent of the blindness resulted from one of these conditions. Trachoma alone is an infrequent cause of blindness ; it is impossible, however, to show this from out-patients statistics since the patients are rarely able to give an accurate history.

The large number of cases blind from secondary glaucoma, 1,630, points to the advisability of performing a prophylactic iridectomy as soon as possible after adhesion of the iris to the cornea has taken place.

Primary glaucoma accounted for more than 12 per cent of the total cases of blindness.

The efficacy of Public Health regulations for vaccination is shown by only four cases of blindness, the result of small pox being seen during 1912.

An enumeration of the number of patients who were found to be blind and a comparison with the total number of patients examined at the hospitals is highly interesting :—

Blindness.

Total Number of Patients Examined.	(a) Monocular.		(b) Binocular.		Total (a) and (b).	
	Number of Cases.	Per Cent.	Number of Cases.	Per Cent.	Number of Cases.	Per Cent.
43,668	4,115	9·42	2,824	6·46	6,939	15·88

It is seen that nearly 16 per cent of the cases examined were blind in one or both eyes, while more than six per cent were totally blind.

A comparison of the number of cases of blindness found during the last seven years is here given :—

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
Total....	206,954	15,801	8·7	11,242	6·5	27,043	15·2

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.—OPHTHALMIC POLICY IN EGYPT.

It is now a settled policy in Egypt to extend ophthalmic relief by means of a permanent hospital in the capital town of each province built and equipped by local effort and maintained by the Department of Public Health from funds granted by the Ministry of Finance. This is to be supplemented in some provinces by a travelling hospital with accommodation for a few in-patients touring round the smaller towns equipped and maintained by the Provincial Council and administered by the Director of Ophthalmic Hospitals, on behalf of the President of the Provincial Council. This system has up to the present been carried on to the complete satisfaction of the Provincial Councils concerned and of the Department.

Ten different provinces will soon be supplied each with a permanent hospital (one province, Gharbîa, even having three such hospitals). The Provincial Council of Qena began in 1911 to put aside L.E. 400 a year towards a hospital, but a long period must elapse before a sufficient sum has been amassed. The Provincial Councils of Gîza and Qaliubîa have hypothecated for other purposes the greater part of their budgetary credits. Aswân has no money available nor is likely to have any money in the future. There is little doubt that the Provinces of Qena and Aswân would be better served by floating hospitals than by built hospitals. The cost of building and equipping a specially designed ophthalmic *dahabîa* would be about L.E. 2,500. The maintenance expenses would be about the same as those of a permanent hospital, L.E. 1,500 a year.

While the policy enunciated above is feasible and will probably be carried out during the next twenty years, it should be borne in mind that there is sufficient

clinical material in every small town in Egypt to occupy the whole time of an ophthalmic surgeon.

Cheaper methods of ophthalmic relief than by permanent or travelling hospitals have been considered and have been rejected.

The eye diseases met with in Egypt are such that more than half the patients seen require operation. To carry out operations satisfactorily conditions of asepsis must be obtained by the provision of a satisfactory operating room and of trained assistants (*tamurgis*).

For certain classes of operation it is necessary to keep the patient under observation and in a recumbent attitude; for this purpose beds for in-patients are required. The application of drugs to the eyes without operative procedure of any kind is of little or no value in this country. Simple dispensary treatment is therefore of no avail, and it is believed that the types of hospitals described above are the cheapest form of ophthalmic relief that can be recommended.

Ophthalmic treatment should be extended to the primary school of every town in which there is a Government ophthalmic hospital. This advantage can be given to the schools of Assiût, Mansûra, Beni Suef, Zagazig, Sohag, Shebîn el Kôm, Damanhûr, and Minia, from the beginning of 1914.

The work can be carried out by the junior surgeon of each hospital without extra pay; the value of the drugs used is negligible and can be defrayed with the ordinary expenses of the ophthalmic hospital. The work should be put in the charge of a new Ophthalmic Inspecting Surgeon. Proposals have already been made on this subject and have been approved by the Ministry of Education.

VII.—TABLES AND 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 Ophthalmic 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.	6	10	100 — 150
	Small camps without beds.	10	Strictly limited.	—	10	100 — 150

TABLE II.—**Financial Provisions for 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.	1,000	Government.	1,500
	Without beds.	Provincial Council.	1,500 to 2,000	Provincial Council.	600	Provincial Council.	750
Travelling	Large camps with beds.	—	—	Cassel Fund.	850	Cassel Fund.	1,500
	Small camps with beds.	—	—	Provincial Council.	720	Provincial Council.	900
	Small camps without beds.	—	—	Provincial Council.	500	Provincial Council.	700

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

	PROVIDED BY	MAINTAINED BY	DATE OPENED.
PERMANENT :—			
Tanta	Government grant.	Government grant.	1908
Assiût	Public subscription and Government grant.	Government grant.	1910
Mansûra...	Gift by Badrawi Pasha.	Government grant.	1912
Beni Suef	Public subscription.	Government grant.	1912
Zagazig	Provincial Council.	Government grant.	1913
Mahalla el Kubra...	Provincial Council.	Provincial Council.	1913
Kafr el Zayat ...	Provincial Council.	Provincial Council.	1913
Sohag	Public subscription.	Government grant.	1913
TRAVELLING :—			
No. 1 Camp	Sir Ernest Cassel.	Sir Ernest Cassel.	1904
No. 2 Camp	Sir Ernest Cassel.	Sir Ernest Cassel.	1905
Gharbia No. 1 ...	Provincial Council.	Provincial Council.	1911
Gharbia No. 2 ...	Provincial Council.	Provincial Council.	1913
Assiût No. 1	Provincial Council.	Provincial Council.	1912
Daqahlia No. 1 ...	Provincial Council.	Provincial Council.	1913

TABLE IV.—Permanent and Travelling Ophthalmic Hospitals.

	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912
HOSPITALS IN EXISTENCE:—									
1.—Travelling	1	2	2	2	2	2	2	3	4
2.—Permanent	—	—	—	—	1	1	1	2	4
New patients treated	2,954	4,210	7,327	7,446	7,794	12,092	14,342	20,488	28,029
Total attendance of out-patients ...	15,039	50,680	94,204	146,830	132,278	177,761	190,247	236,411	341,211
Operations performed	1,282	2,480	5,846	6,794	6,426	9,930	11,486	14,322	21,315
In-patients	49	140	202	184	208	390	443	678	909
DETAILS:—									
Patients examined					19,614	22,373	25,514	31,274	43,668
Patients regularly treated					7,794	12,092	14,342	20,488	28,029
Incurable cases					4,550	2,302	1,776	2,620	7,200
Blind in one eye					1,189	2,116	2,438	3,196	4,115
Blind in both eyes					852	1,385	3,010	2,811	2,824
Trichiasis cases examined					8,159	10,060	7,507	7,871	13,176
Trichiasis cases operated on and cured...					2,262	3,128	2,022	3,933	6,942
NEW PATIENTS TREATED PER AGE:—									
Under 1 year					247	516	457	761	1,495
From 1 to 5 years...					585	1,645	1,497	1,903	3,317
„ 6 to 10 „					902	1,442	4,469	2,101	3,210
„ 11 to 15 „					849	1,294	1,475	2,051	3,056
„ 16 to 20 „					829	1,156	1,499	2,067	2,588
„ 21 to 40 „					2,584	3,775	4,845	6,116	8,167
41 and over...					1,798	2,206	3,100	5,589	6,196

Table V.—List of Diseases.

(Numbers Indicate Patients Seen or Treated.)

Ametropia :—	
Hypermetropia	144
Myopia	317
Astigmatism	189
Presbyopia	14
Conjunctiva :—	
Conjunctivitis simple	838
Conjunctivitis Muco-purulent or Purulent	2,360
Conjunctivitis Gonorrheal (microscopical diagnosis)	34
Other varieties	17
Trachoma I	1,182
Trachoma II	4,602
Trachoma III	15,259
Trachoma IV	2,571
Spring Catarrh	1
Post-trachomatous Degeneration	3,622
Phlyctenule	771
Pterygium	527
Pinguecula	38
Xerosis	98
Symblepharon	47
Dermoid	8
Other conditions :—	
Argyrosis	15
Colloid Degeneration	7
Hypertrophied Caruncle	16
Injuries (foreign bodies, burn, etc.)	8
Eyelids :—	
Pediculus Ciliaris	61
Trichiasis and Entropion	7,901
Distichiasis	41
Ectropion	153
Lagophthalmos	831
Blepharitis	2,348
Hordeolum	127
Wart	23
Meibomian Cyst	121
Chalazion	29
Eczema	18
Rodent Ulcer	4
Dermoid	5
Ptosis	28
Erysipelas	2
Herpes	3
Chancre	—
Epithelioma (Rodent Ulcer)	—
Other tumours	3
Lacrymal Apparatus :—	
Lacrimal Fistula	23
Stenosis of the Duct	5
Dacryocystitis, acute	6
Dacryocystitis, chronic	186
Cornea :—	
Tumour	1
Ulceration, simple	1,630
Ulceration, hyopyon	125
Ulceration, perforation	297
Ulceration, special forms	140
Pannus	12,198
Keratitis, interstitial	28
Keratitis, trachomatous	14
Nebula or Leucoma	15,874
Adherent Leucoma	3,405
Totally opaque Cornea	1,844
Staphyloma	778
Xerosis of Cornea	132
Abscess of Cornea	12
Conical Cornea	233
Injuries (burn, foreign bodies, etc.)	41
Iris :—	
Anterior Synechia	60
Posterior Synechia	180
Inflammation	216
Iris Bombé	9
Irido-dialysis	14
Congenital Coloboma	6
Aniridia	1
Sclerotic :—	
Ciliary Staphyloma	219
Episcleritis	1
Injuries	2
Choroid :—	
Coloboma	2
Rupture	2
Disseminated Choroiditis	7
Choroido-Retinitis	36
Atrophy of Choroid	13
Tumours	2
Albinismus	1
Retina :—	
Retinitis, Albuminuric and Diabetic	8
Retinitis, Syphilitic	2
Retinitis, Pigmentosa	29
Detachment of Retina	25
Embolism and Thrombosis of Retinal Vessels	—
Glioma	—
Other conditions	4
Optic Nerve :—	
Neuritis	26
Atrophy	159
Other conditions	1

List of Diseases *(continued)*.

Lens :—

Cataract, senile	1,140
Cataract, soft	80
Cataract, traumatic	24
Cataract, lamellar	12
Cataract, anterior polar	221
Cataract, posterior polar	9
Cataract, dislocated, traumatic	52
Cataract, dislocated, operative	14
Cataract, dislocated, congenital	1
Aphakia	108

Vitreous :—

Opacities	43
Foreign bodies	1
Synchysis Scintillans	1

Muscles :—

Strabismus, alternating	60
Strabismus, convergent	674
Strabismus, divergent	786
Nystagmus	411
Paralyses	4

Glaucoma :—

Primary, acute	3
Primary, sub-acute	10

Glaucoma *(continued)*:—

Primary, chronic	829
Secondary	1,947
Absolute Glaucoma	282

Globe :—

Shrunken Globe	1,789
Buphthalmos	32
Exophthalmic Goitre	1
Panophthalmitis	47
Microphthalmos	14

Orbit :—

Tumours	13
Cellulitis	4
Periostitis	—
Injuries	—
Cyst, frontal	—
Cyst, ethmoidal	—
Contracted socket	1

Blind :—

In one eye	4,115
In both eyes *	2,824

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

TABLE V.—**List of Operations.**

Eyelids :—	
For Trichiasis and Entropion :—	
Snellen's	5,036
Anagnostakis'	70
Snellen-Anagnostakis'	331
Canthoplasty	91
Grafting mucous membrane	1,152
Electrolysis	280
Excision of lash	—
Other operations	70
For Ectropion :—	
Plastic	6
MacCallan's	6
Kenneth Scott's	—
Kuhnt's	5
Other operations	6
For Symblepharon	16
For Hordeolum and Chalazion	271
Cyst removed	15
Wart excised	8
Conjunctiva :—	
For Trachoma :—	
Expression	642
Scraping	6,224
Combined excision of Heisrath	80
Post-trachomatous Degeneration	4,335
Other operations	131
Pterygium	148
Iris :—	
Iridectomy for adherent leucoma	978
Iridectomy, Visual	75
Iridectomy for Glaucoma	60
Iridectomy, preliminary, for Cataract	5
Division of Synechia	1
Lacrimal Sac :—	
Excision	18
Various	45
Lens :—	
For Senile Cataract :—	
Extraction with Iridectomy	234
Extraction, after previous Iridectomy	9
For membrane after extraction : Discission	169
For Soft Cataract :—	
Extraction	—
Discission	19
Curette Evacuation	57
For membrane after extraction : Discission	12
Paracentesis	15
Capsulotomy	2
Capsule extraction	3
Globe :—	
Trephining of Corneo-Sclera and Iridectomy	152
Excision	240
Evisceration	52
Orbit :—	
Exenteration	2
For tumour	5
For Dermoid	4
For Cellulitis	2
For Cyst, frontal	—
For Cyst, ethmoidal	—
Cornea :—	
Foreign body removed	39
Saemisch's Section	24
Tenotomy and advancement	2
Other major operations	74

Table VI.—Tanta Government School.

Statistics, 1911–1912.

(*a*) Number of pupils inspected in November...	384
(*b*) Number of pupils discharged since November	18
(*c*) Number of pupils inspected in November now attending (*a*—*b*)	366
(*d*) Number of pupils entered school since November...	10
(*e*) Number of pupils (total) now attending (*c*+*d*)	376
Percentage infected with trachoma	95·3

(1) *Condition of Conjunctivitis.*

	Previous to Commencement of Treatment at School 1907.		1911, Before Treatment.		1912, After Treatment.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Health	21	4·30	17	4·42	17	4·64
Conjunctivitis	—	—	—	—	—	—
Trachoma I	78	16·00	4	1·04	—	—
„ II	211	43·50	43	11·19	1	0·27
„ III	165	34·00	272	70·83	227	62·02
„ IV	10	2·00	30	7·81	121	33·06

(2) *Results of Treatment.*

Applied for treatment	151
Underwent	151
Untreated	215
Guardians advised to allow performance of minor operation at Ophthalmic Hospital ...	34
Guardians consented to allow performance of minor operation at Ophthalmic Hospital	34

Condition Improved.

Pupils treated : 140, or 92·71 per cent of those treated.
Pupils untreated : 40, or 18·60 per cent of those untreated.

(3) *Vision in its Relation to the Stages of Trachoma.*

	Total.
A.—Pupils with normal vision, *i.e.* 6/6 in each eye, correction of ametropia up to + or —6 D allowed	69
B.—Pupils with fair vision, *i.e.* 6/9 or 6/12 in each eye, correction up to + or —6 D allowed	127
C.—Pupils with bad vision, 6/18 or inferior degree in one eye or both eyes	170
(*a*) Attaining 6/6, 6/9, or 6/12 in each eye after correction of ametropia greater than ± 6 D	3
(*b*) Attaining 6/6 in one and less than 6/12 in the other after correction of ametropia not greater than ±3 D	6
(*c*) Attaining 6/6 in one and less than 6/12 in the other after correction of any amount of ametropia, *i.e.* greater than 3 D	1
(*d*) Other inferior degree of vision	160

TABLE VI.—**Tanta Government School** *(continued).*

(4) *Ordering of Spectacles.*

Number of pupils ordered spectacles satisfactorily*	76
Number of pupils ordered spectacles satisfactorily this year...	54
Number of pupils purchased spectacles ordered this year...	41
Number of pupils wearing spectacles ordered on date of inspection	14

(5) *Medical Commission.*

Pupils who could pass visual standard exacted, unaided	121
Pupils who could pass visual standard exacted, with spectacles	67
Pupils who could not pass visual standard	178

(6) *Trachoma in its Relation to School Years. October 1911.*

	Healthy.	Trachoma.				Conjunctivitis.
		i	ii	iii	iv	
Year I:—						
Class *a*	—	—	5	21	1	
„ *b*	2	1	6	20	—	
„ *c*	3	1	18	13	—	
„ *d*	—	—	—	—	—	
Total... ...	5	2	29	54	1	
Year II:—						
Class *a*	2	—	6	25	1	
„ *b*	—	—	2	25	4	
„ *c*	2	—	1	21	2	
„ *d*	—	—	—	—	—	
Total... ...	4	—	9	71	7	
Year III:—						
Class *a*	3	1	—	31	2	
„ *b*	1	—	2	29	3	
„ *c*	—	—	1	31	—	
„ *d*	—	—	—	—	—	
Total... ...	4	1	3	91	5	
Year IV:—						
Class *a*	3	—	2	18	1	
„ *b*	—	—	—	19	7	
„ *c*	1	1	—	19	9	
„ *d*	—	—	—	—	—	
Total... ...	4	1	2	56	17	

(7) *Percentage of Trachoma in School Years Previous to Commencement of Treatment. October 1911.*

	Healthy.	Trachoma.			
		i	ii	iii	iv
Year 1	5·49	2·19	31·86	50·34	1·09
„ 2	4·39	—	9·89	78·02	7·69
„ 3	3·84	0·96	2·88	87·50	4·80
„ 4	5·00	1·25	2·50	70·00	21·25

* Total number during last four years and now attending school: twenty-two pupils were ordered glasses satisfactorily in last year refraction; twelve of these purchased the glasses ordered, only three of them were wearing them on the date of inspection.

TABLE VI.—**Tanta Government School** (*continued*).

(8) *Vision in Relation to School Years.*

Class A.—Normal vision in each eye 6/6 correction of ametropia up to ±6 D allowed.

YEAR.	NUMBER.
I	10
II	13
III	25
IV	21

Class B.—Fair vision 6/9 or 6/12 in each eye. Correction of ametropia up ±6 D allowed.

YEAR.	NUMBER.
I	23
II	40
III	34
IV	30

Class C.—Bad vision 6/18 or inferior degree in one or both eyes, *i.e.* after correction of ametropia greater than ±6 D.

I.—Vision = 6/6, 6/9, or 6/12 in each.

YEAR.	NUMBER.
I	—
II	—
III	3
IV	—

II.—Vision = 6/6 in one and less than 6/12 in the other after correction or not more than ±3 D of ametropia.

YEAR.	NUMBER.
I	1
II	2
III	3
IV	—

III.—Vision = 6/6 in one eye and less than 6/12 in the other with correction greater than 3 D.

YEAR.	NUMBER.
I	—
II	1
III	—
IV	—

IV.—Other inferior degrees of vision.

YEAR.	NUMBER.
I	54
II	42
III	40
IV	24

TABLE VI.—**Tanta Government School** (*continued*).

(9) *Causes of Subnormal Vision.*

I.—Where more than one of the following causes is present in the same or in both eyes only one is given, order of importance 1, 3, 2.

	TOTAL.	PER CENT OF THOSE WITH SUBNORMAL VISION.	PER CENT OF TOTAL PUPILS EXAMINED.
1.—Corneal opacity or Anophalmia	178	59·93	48·63
2.—Ametropia :—			
(*a*) Hypermet. (including hypermetropic astigmatism)	48	16·16	13·11
(*b*) Myopia (including myopic and mixed astigmatism)	51	0·33	13·93
3.—Other cases :—			
(*a*) Iris, ciliary body and vitreous disease of	1	0·33	0·27
(*b*) Lens opacity of	1	0·33	0·27
(*c*) Fundus, disease of	2	0·66	0·54
(*d*) Central nervous system disease of ...	—	—	—
4.—Congenital	1	0·33	0·27

(i) Both corneae clear 194
(ii) One cornea clear, the other showing opacity 64
(iii) Opacity of both corneae 108

(10) *Blindness.*

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

Number blind in one eye 6
Per cent examined who are blind in one eye ... ... —

Individual Causes of Blindness.

TICKET NUMBER.	CAUSE.
778	R. Adherent leuc.
750	R. Optic atrophy.
760	L. Leucoma.
785	L. Persistent pupillary membrane.
427	L. Staphyloma.
409	L. Choroidal atrophy.

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

Trichiasis 4
Blind eye 1

The recommendations were carried out in three cases.

I.N. 2325-1913-400 ex.

Travelling Hospital, Fayûm.

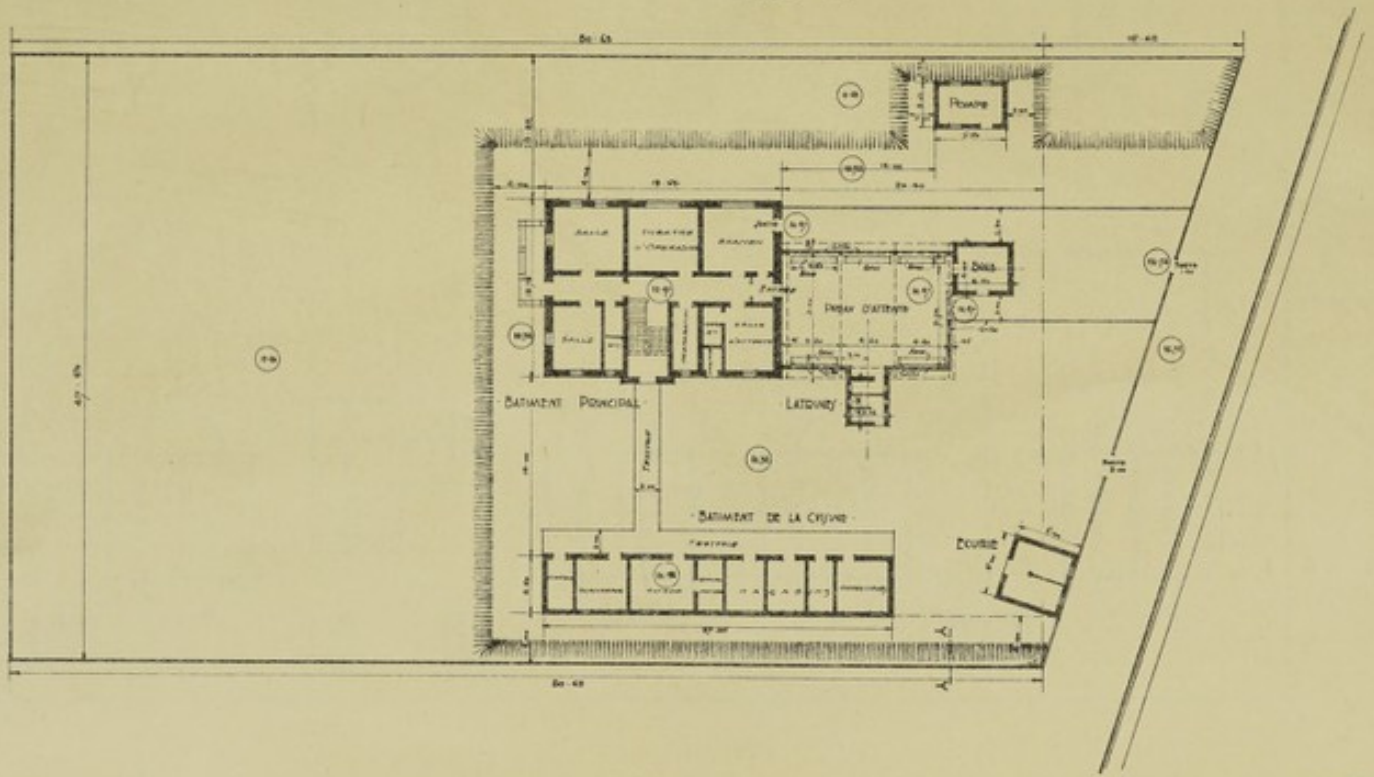
Travelling Hospital, Gîza.

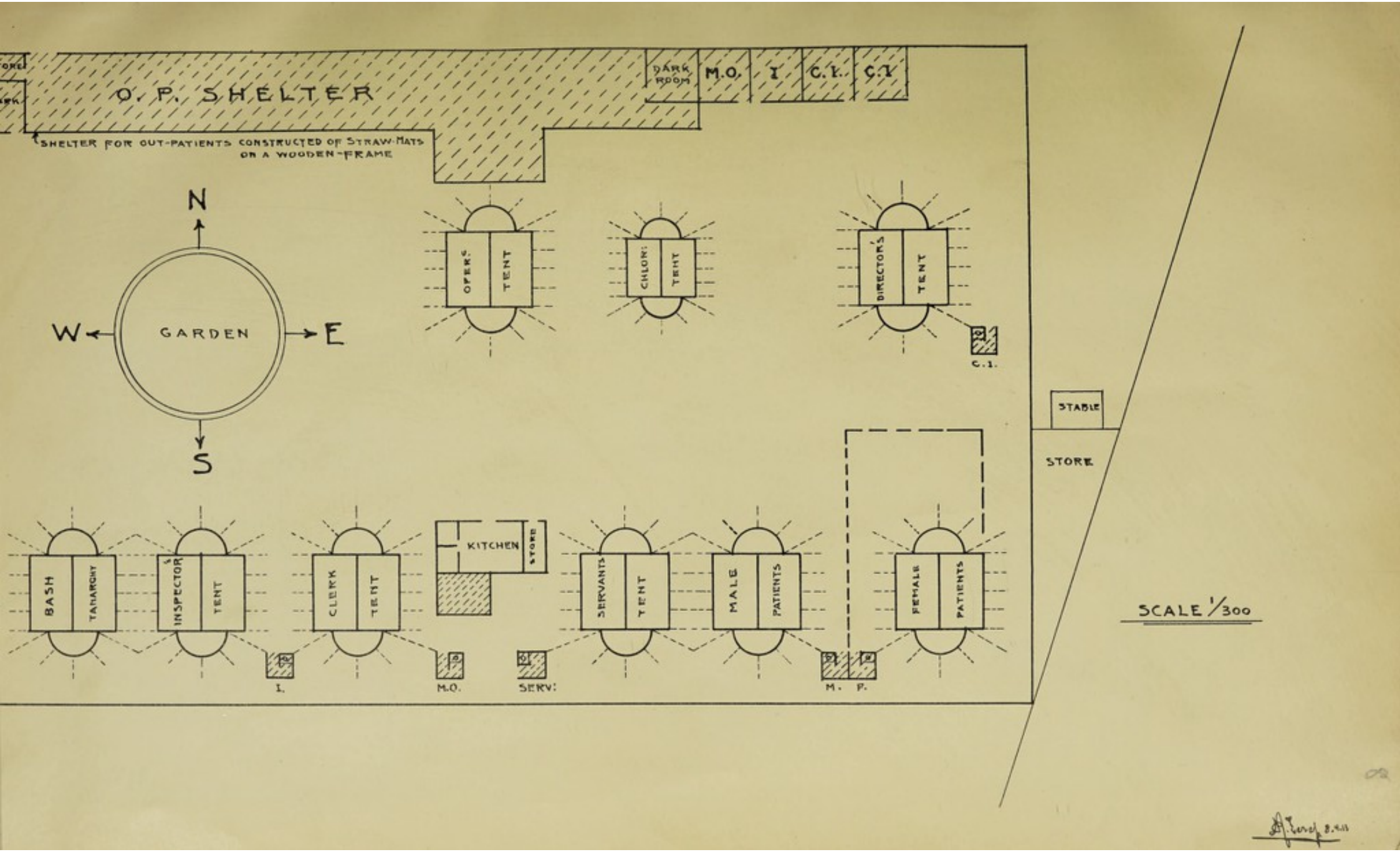
HOPITAL OPHTALMIQUE SAHEBINE-EL-KOM :

· PLAN DE L'EMPLACEMENT ·

· ECHELLE : 1/500 ·

COUPE Y-Y

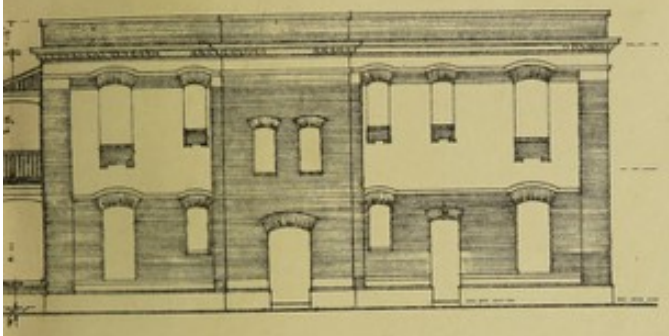



O. P. SHELTER
DARK ROOM
M.O.
I
C. I.
C. I
SHELTER FOR OUT-PATIENTS CONSTRUCTED OF STRAW-MATS ON A WOODEN-FRAME
N
W
GARDEN
E
S
OPERS. TENT
CHLOR: TENT
DIRECTOR'S TENT
C. I.
STABLE
STORE
BASH TANARGHY
INSPECTOR'S TENT
CLERK TENT
KITCHEN
STORE
SERVANTS TENT
MALE PATIENTS
FEMALE PATIENTS
I.
M.O.
SERV:
M. P.
SCALE 1/300

: Hopital Opmtalmique a Shebine-el-Kom.

: Plans Facades et Coupe.

: Echelle · 1/100 :



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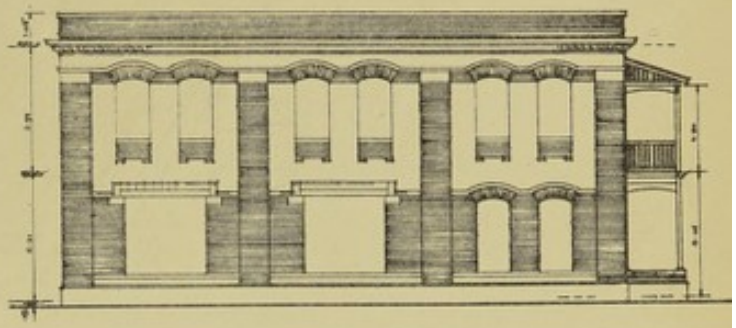
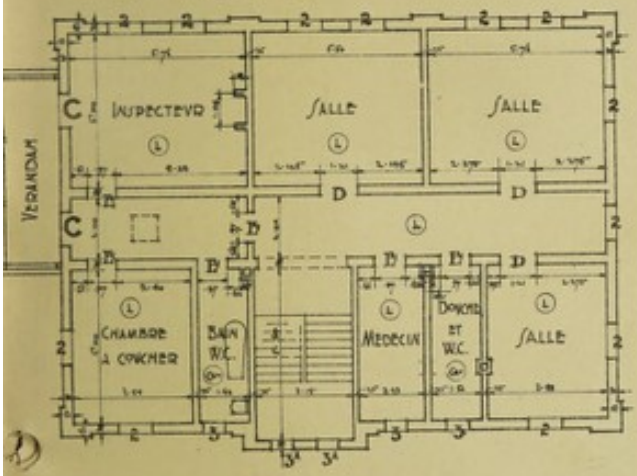


: Facade Nord :

(L) · Callender's Jointless Flooring ·

(Ce) · Carreaux de Ciment ·

(Br) · Briques sur Champ ·



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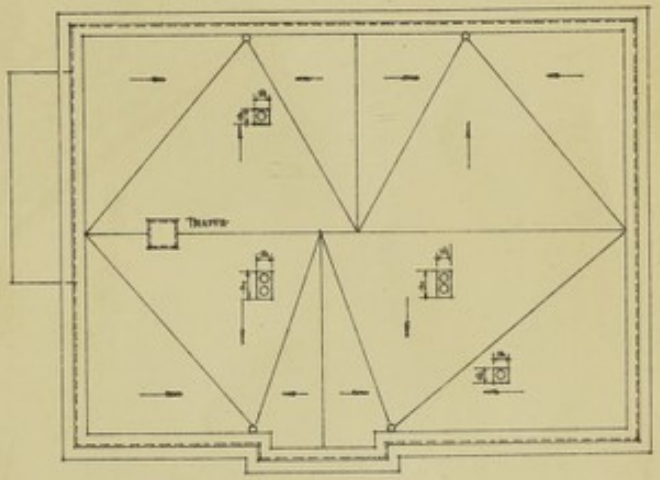
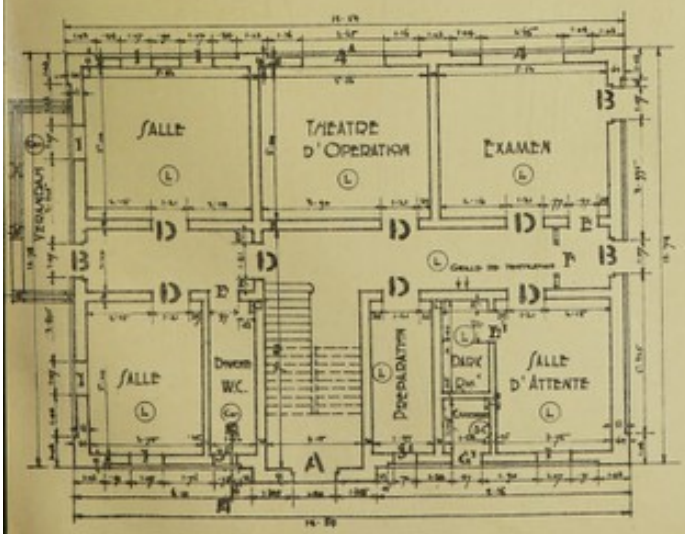
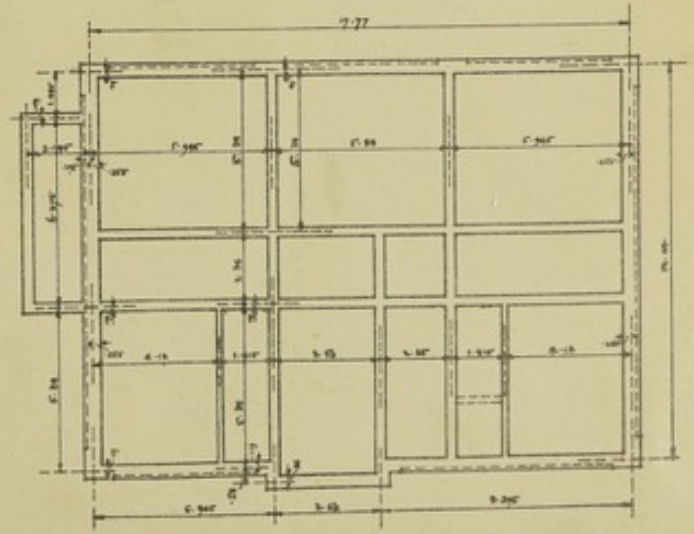


: Terrasse :



: Rez de Chaussee :

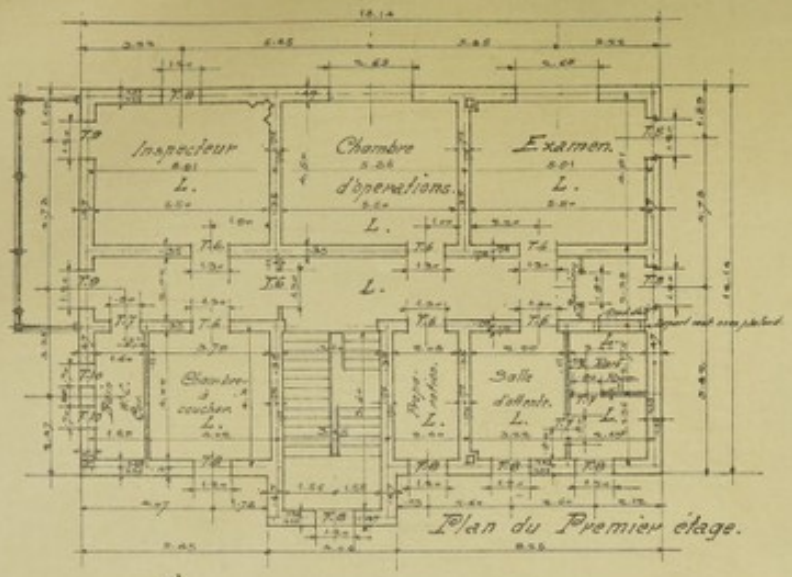


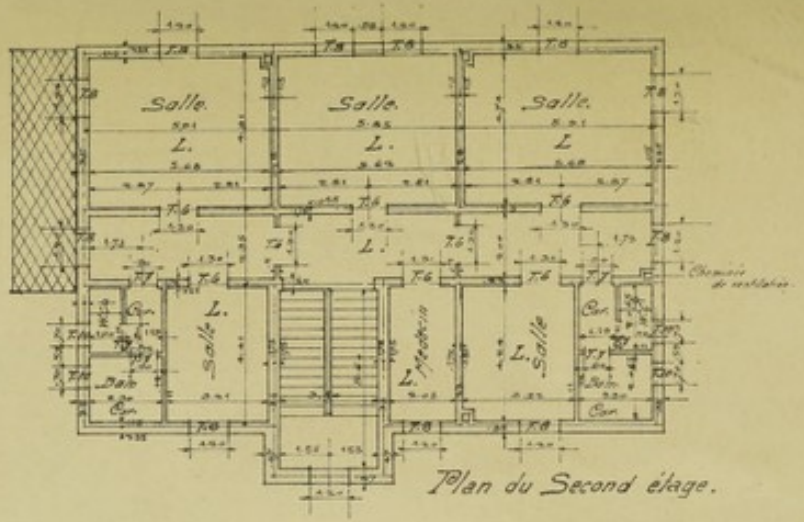
: Plan des Fondations :

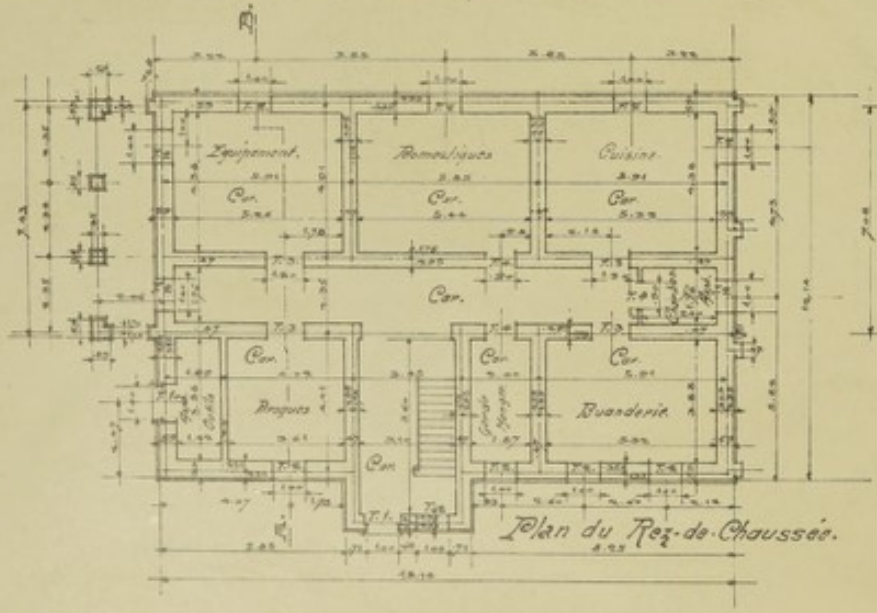
· Voir Feuille 5 ·

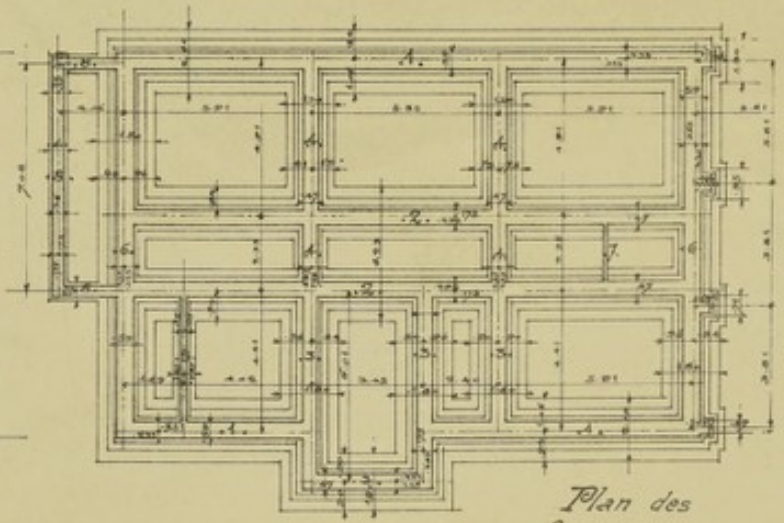
Hopital Ophtalmique de Sohag.

Plans.—







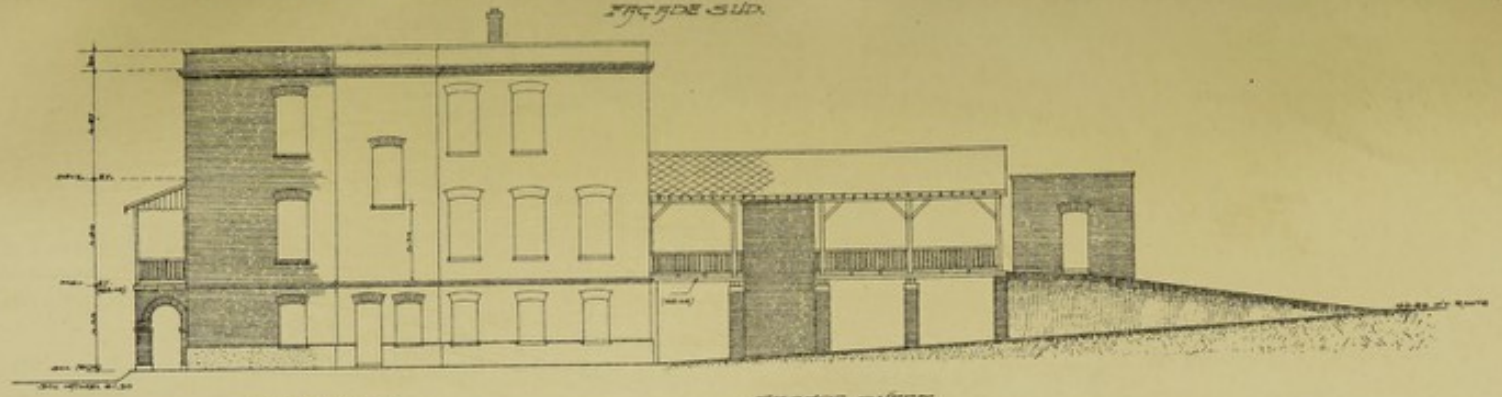


HOPITAL OPHTALMIQUE DE [illegible]HAS.

FAÇADES ET COUPE.

ECHELLE 1:100.

FAÇADE SUD.



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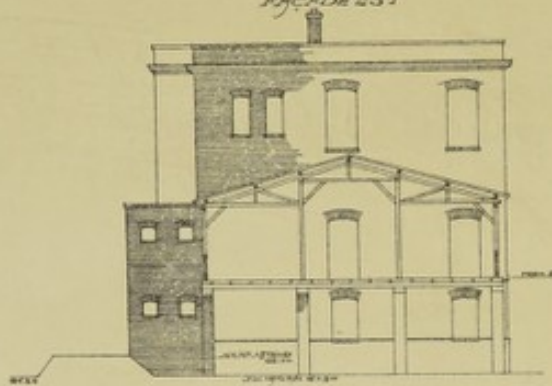

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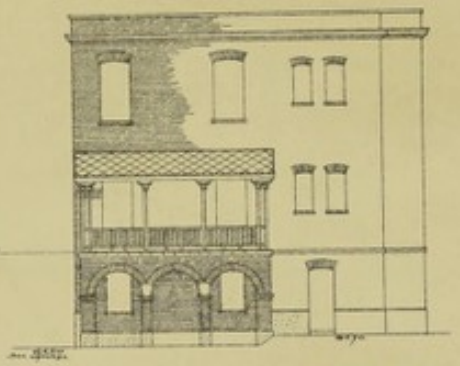

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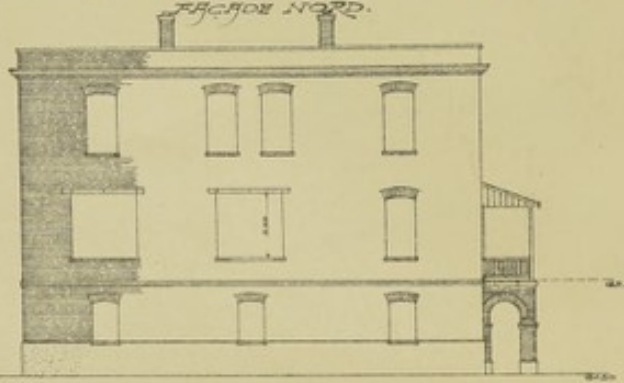
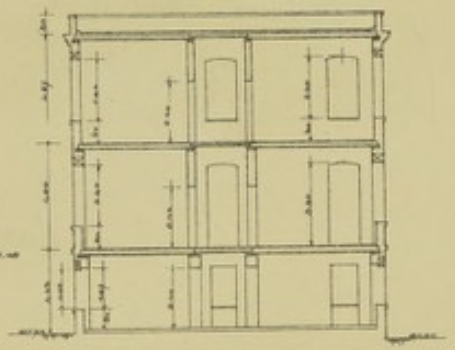


COUPE A.B.

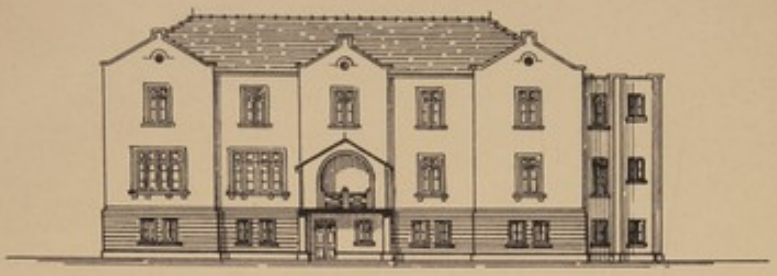


L'ARCHITECTE EN CHEF

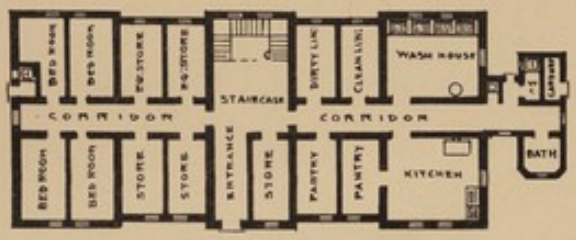
L Cain. le 7/4/193

— MANSOURAH OPHTHALMIC HOSPITAL —

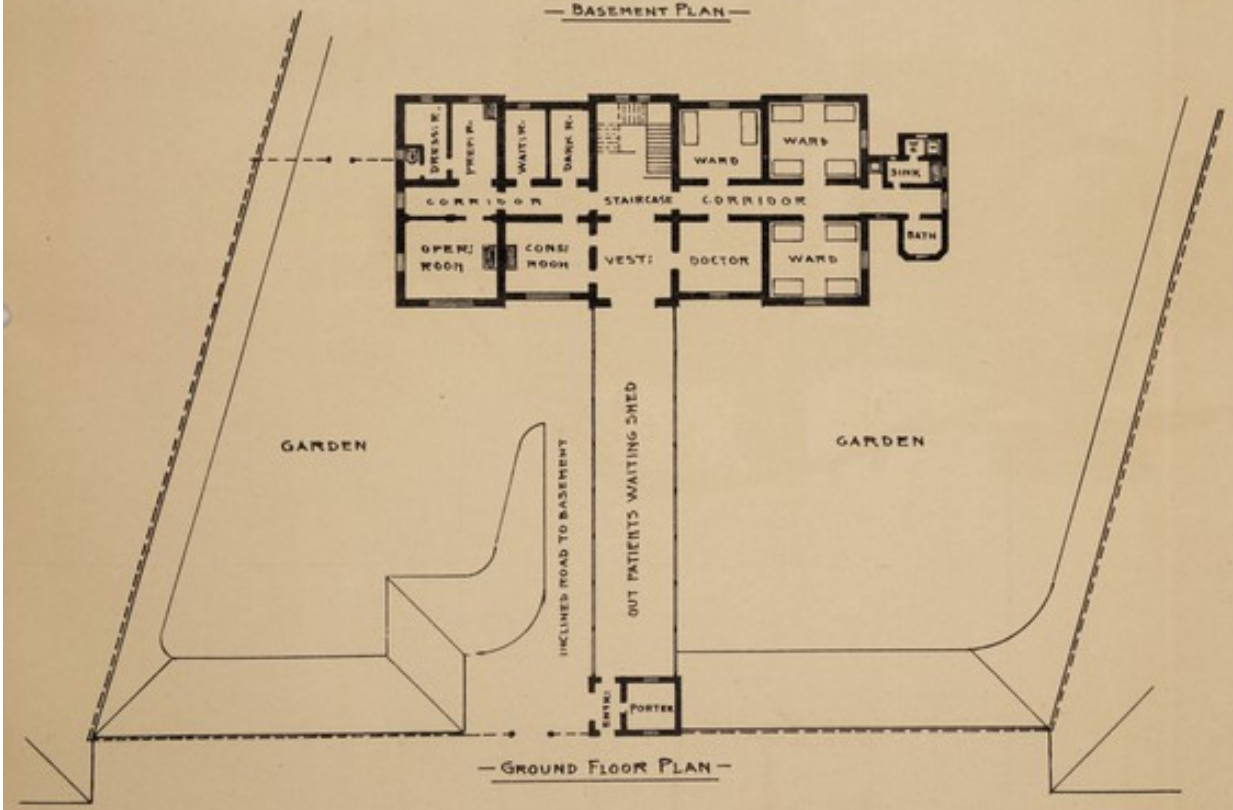
SCALE 1/400



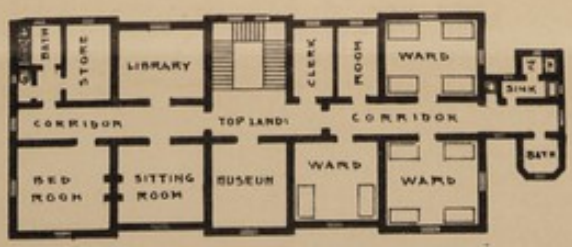
— FRONT ELEVATION —



— BASEMENT PLAN —



— GROUND FLOOR PLAN —

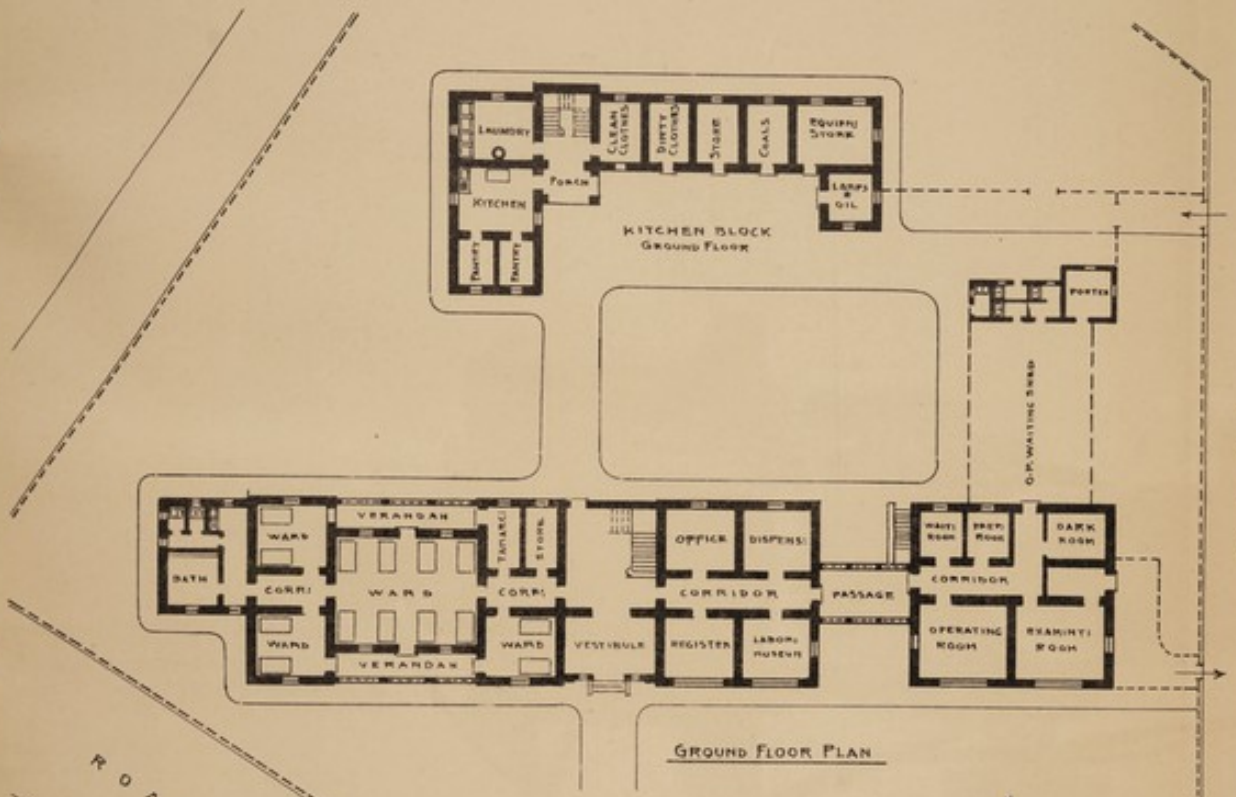


— FIRST FLOOR PLAN —

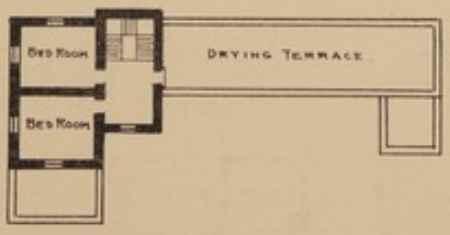
— ASSIOUT OPHTHALMIC HOSPITAL —

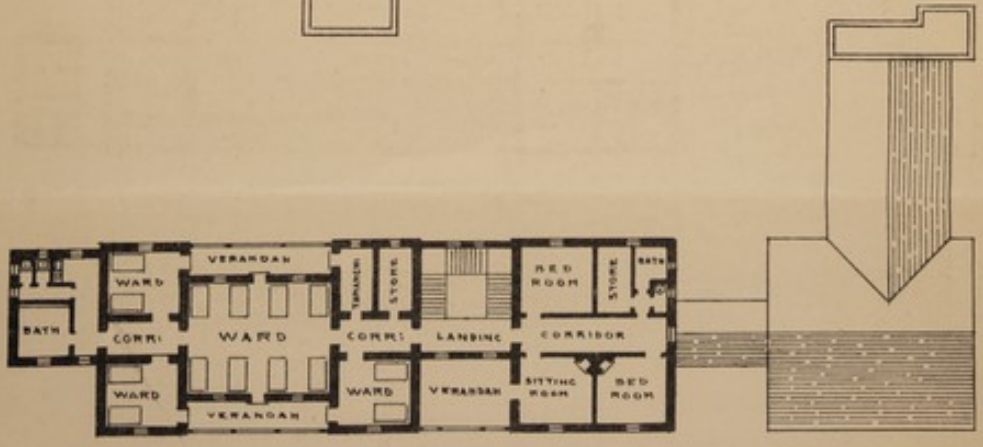
SCALE 1/400

FRONT ELEVATION



GROUND FLOOR PLAN





FIRST FLOOR PLAN