THE
Chadwick Lectures

ON

THE PROBLEM OF HYGIENE IN EGYPT.

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LECTURE I.—THE CAUSES OF THE PROBLEM.

MR. PRESIDENT AND GENTLEMEN,—Egypt is the hub of the wheel of Empire. The importance of that ancient land is fully recognised from a military, political, and commercial standpoint. It has bulked largely in the world's history, and recent events have certainly not tended to diminish its status in those directions. It is, however, doubtful if, in this country at least, the significance of Egypt from a hygienic point of view is equally realised. And yet in what may be called "imperial medicine," Egypt must ever play an increasingly important rôle.

EGYPT AS AN INTERNATIONAL FILTER.

She lies at the gateway to the East, the Suez Canal traverses her territory, she acts as a great filter, a filter for disease. This filter, however, differs markedly from others with which we are acquainted, for the filtration it effects is a double one. It protects Europe from such diseases as plague and cholera, ship-borne from India, Mesopotamia, Arabia, and ports on the western Red Sea littoral, and it guards these countries and places from the risk of infection coming from southern Russia, the Levant, and various foci in the Mediterranean. In days to come there will be few more important quarantine stations than Suez, while Port Said and Alexandria keep watch and guard on vessels hailing from north and east and west.

Although a constant vigilance has to be exercised, no great strain is imposed upon those responsible, save at the time of the Mecca pilgrimage, when the migrations of the faithful occasion the utmost alertness. More especially is this the case when the pilgrimage is declared "brut" or infected. The term "brut" is a French word which has various meanings, such as rough, raw, crude, and so forth. It also signifies "void of reason," and seems almost to have been adopted on account of this meaning, for there is nothing about it to denote infection. In all probability it was employed merely as a convenient term, the antithesis of the French "net," and one with which the pilgrimage could be discreetly labelled, even if infection was merely suspected, not absolutely proved. When such a label was affixed the problem became one of much anxiety. Picture to yourselves the conditions of the Hedjaz. Vast throngs of people, often ill-fed and ill-clad, crowded together at such a pestilential port as Jeddah, an assemblage polyglot in the extreme and hailing from every quarter of the Moslem world, a concourse in some respects cleanly in its habits, thanks to the Mohammedan ritual, but ignorant of every law of modern hygiene, a great gathering which, having completed its devotions at the Prophet's shrine, was intent on one thing only—to return home as quickly, cheaply, and easily as possible.

Pilgrims by Road, Rail, and Sea.

While this was true of the majority, it is interesting to note that, owing to the difficulties of travel in the Hedjaz in pre-war days, many pilgrims after travelling by the railway to Medina, actually made for Egypt and then started off for Mecca, a curious roundabout way of attaining their goal, and one which introduced fresh sanitary complications. In any case, the crowded port was followed by crowded steamers whereon the pilgrims were packed almost like tinned sardines, for the voyage is short and the restrictions are none too stringent. Amongst this mass of humanity sweltering in the heat of the Red Sea plague or cholera might make its appearance and begin to claim its victims. The ship is then infected and is a danger to Egypt—a problem to be solved. Yet, again, she may merely hail from an infected port and require watching for a certain period—a different proposition.

But all pilgrims did not reach Egypt by the southern sea route. You are familiar with the Hedjaz railway, which has

played so notable a part in the war. Formerly it played an equally important rôle as regards the Mecca pilgrimage and the trains were, at the time of the Haj, thronged with a multitude travelling, as Clemow has described, in open trucks or luggage vans. Amongst them were Egyptians, who often chose this route for their return journey and eventually reach the sea at Jaffa, Haifa or Beyrout, whence they took ship to Egypt, avoiding to some extent the restrictions placed upon those travelling via the Red Sea. (See map.)

So much for the rôle of Egypt as an international filter. The measures taken to deal with the problem of sea quarantine will be considered in due course, but it must be remembered that the war has introduced a new factor into the sanitary problem arising out of the relation of Egypt to her neighbours. This new factor is the railway linking the Nilotic territories with Palestine. Prior to the war the question of land quarantine was one of little importance. To the west lay Tripoli, separated from the populous lands of the Delta by a great desert, which was seamed only by caravan routes and uninhabited save by wandering Bedouins and where scattered oases afforded water and means of life. In the south Egypt merged with the Sudan, and there was more danger of the latter being infected from Egypt by way of the Nile than there was of Egypt being infected from the Sudan. Eastwards lay the desert of the Sinai Peninsula, an effective barrier between the Suez Canal and Syria.

Now, as by the stroke of an enchanter's wand, all is changed so far as this eastern frontier is concerned. An iron link has been forged, a link potent for good and evil, and in a few hours the traveller passes from the sands of Egypt to the mountains of Judea. It is conceivable that in the near future yet a third form of quarantine may have to be instituted, as there is every likelihood of Egypt becoming a halting-place for great airships en route from India to Europe.

Interesting as are these questions of aerial, land, and maritime quarantine, it must be understood that the main problem of hygiene in Egypt centres in the internal condition of the country.

MEDIAEVAL SANITARY CONDITIONS.

In the first place, it is necessary to remember that, so far as the great mass of the native population goes, sanitary conditions may be described as mediæval. In the second place, one must not forget that all that really counts in the Egypt of to-day is artificial. The country as we know it is the product of man's activity. Egypt is so very old that it is difficult to get beyond a period when man was not busy modifying it to suit his needs, but doubtless at the beginning the land was one huge desert with fertile strips bordering the Nile, strips dependent on the annual rise and fall of the great river. Then came man and harnessed the water to his uses. While, owing chiefly to the configuration of the land, he has not created any great change in Upper Egypt, he has established the green Delta with which we are now familiar, a Delta which in many respects is a hot-bed of disease. Irrigation, while conferring the greatest benefits on the land of the Pharaohs, while in reality creating modern Egypt, has been by no means an unmixed blessing, for closely associated with it are the two great worm diseases, ankylostomiasis and schistosomiasis (bilharziasis), which have produced such dire effects upon the fellaheen.

Considerations of climate enter little into the problem of hygiene in Egypt, for such influence as the climate exerts is largely of a beneficial nature, though it should be noted that the climatic conditions at certain seasons of the year are singularly favourable to the propagation of flies, and hence to the dissemination of such diseases as enteric fever and dysentery.

The Racial Factor in the Health Problem.

The race, and more especially those fellaheen of whom we have spoken, constitutes a very important factor in the health problem. Who are these brown-faced, blue-garbed sons of the soil? They constitute the immense majority of the population; they form the lowest stratum of the social organisation of the country; they are the descendants of those who, until Great Britain undertook the work of reformation in Egypt, were beaten and robbed, the prey of pashas and of usurers. Physically they are a sturdy race, and, as Lord Cromer has stated, when left to themselves, kindly and even jovial. These characteristics are more marked in the people of the Delta, those of Upper Egypt being somewhat

truculent and less easy to handle. Unhappily, from a hygienic standpoint, the fellaheen are also steeped in ignorance and superstition, void of initiative, with no outlook, with little ambition, content with the daily round of labour in the fields, and in many cases doomed to suffer much misery from preventable disease. As a recent Commission has said, and truly said: "To-day the greater part of Egypt is filthy and no self-respecting populace can be raised in filthy surroundings. As of old, Egypt is plagued by disease, and it is hopeless to expect a disease-ridden people to play their proper part in furthering the welfare of their country. The infant mortality of Egypt is appalling, actually one-third of the children born dying in infancy. The verminous condition of the fellaheen shows no improvement, though lice are now known to be conveyers of typhus and relapsing fevers which account for so many deaths." And, again, when speaking of the necessity for education and for improvement in village sanitation, it is stated that "the healthy fellah is happy and content because he has never

Archaic Methods of Midwifery.

Dr. Elgood has pointed out that there must be at least 4,000,000 women in Egypt of child-bearing age. The general methods of midwifery she describes as archaic and brutal. No one knows how much puerperal fever occurs, but, taking Cairo alone, it is significant how many funeral biers are seen in the streets with silver bridal tresses adorning their head-pieces, the sign that a woman has died during her first year of married life. In any case, there can be no doubt that, apart from other ailments, the majority of lower-class Egyptian women suffer from uterine and ovarian complaints. Gonorrhoea is exceedingly common, syphilis far from rare, while the mental effect produced by the frequent loss of children must tend to depress vitality and induce apathy and despair. The harem system makes the problem of succouring these women difficult, though not hopeless. Naturally enough, they and their husbands object to male assistance, and, even at out-patient clinics, to the presence

known anything better, while the unhealthy fellah is far from being happy and content, though he is, perhaps, the most patient of sufferers."

It is, indeed, this quality of patience, an almost bovine patience, which is one of the chief features in the character of the fellaheen, but, so far as disease goes, there is a kind of hopelessness about it which is pathetic. Especially is this true of the women, who, in contrast to the men, wear black garments. Now black is the colour of mourning, and well may it be worn by the women of the fellaheen, for their lot, from a medical and sanitary standpoint, is too often a sad and weary one. I propose to consider the problem of the women first, for in eastern countries questions of health are very intimately bound up with the state of the female population. Happily, the poorer women of Egypt, be they fellaheen or town dwellers, have not lacked champions in the past. Their most energetic and scientific supporter of late years has been Mrs. Elgood, a woman doctor who has laboured incessantly to improve their lot, and who, as medical officer to the Ministry of Education, has also fought the battle of the children.

of male students or of "tamurgis," as the male hospital orderlies are called.

According to Dr. Elgood, the absence in most Government hospitals of a European matron or a woman doctor prevents the lower-class men entrusting their women to the care of such institutions. Another condition which leads to difficulties is the treatment of prostitutes in Government hospitals. So long as this class is admitted to the same building as the honourable women, so long will the latter object to being treated there, even though the prostitutes are housed in special wards.

Lastly, there is the question of hospital fees. Small though these are, they are prohibitive, for many of the working-class Egyptians are miserably poor. There is a rule that the very poor shall not be charged, but nearly all who attend hospital are in this state, for it is the last resort of the destitute. At the present time most of the maternity assistance in Egypt is rendered by dayas or midwives, poorly trained women of a low and dirty class, who are responsible for many of the deaths both of mothers and infants. In addition a certain number of hakimas or, as they

are more usually termed, mumarridas, exist, to whom further reference will be made when we consider the solving of this part of the Egyptian health problem.

Effect of the Mothers' Disabilities on the Child Population.

Healthy children are a nation's greatest asset, but how can the poorer Egyptian children be healthy when their mothers labour under the disabilities we have just considered, and are in addition dirty and ignorant? A third of them die as infants. Those who survive, especially if in the large towns, have a struggle for existence. A great number attain adolescence exhibiting some defect. Many harbour ankylostomes or schistosomes, or both, and suffer grievously in consequence. A large percentage are infected with other helminths, many have damaged eyes, some are cripples, others have splenomegaly, often combined with hepatic cirrhosis. Yet others acquire pellagra. Not a few are disfigured by small-pox, and probably a minority become healthy men and women. Yet there is no instruction in diseases of infants and children at the Kasr-el-Aini School of Medicine, the only institution in Egypt granting diplomas to practise the healing art, and the facilities for the gratuitous treatment of infants and children are woefully inadequate, save possibly where eye diseases are concerned.

How the Fellaheen Live.

We have digressed a little from the subject of the fellaheen, but, returning to them again, let us see how they live and labour and what ideas they possess as regards the cure and prevention of disease. They inhabit villages which, though often picturesque, transgress wellnigh every law of health; congeries of flat-roofed, ill-ventilated, mud dwellings, some of them partly underground, crowded like rabbit warrens, and where the houses are shared alike by man and his domestic animals—donkeys, cattle, buffaloes, sheep, goats, cats, dogs, rabbits, fowls, and pigeons. The roofs are usually piled high with grass or rubbish, and commonly serve as latrines for the women of the household. The lanes or passages between the houses are narrow, often tortuous, and not infrequently blocked by stacks of manure. There are many blind alleys. There is no sweep of purifying air. No sanitary conveniences of any kind exist, but rats swarm, and at certain periods there is a plague of flies. Hard by there is often a birka or pool which may serve as a mosquito nursery, and the water of which, frequently used for drinking purposes, is generally grossly polluted. It may harbour the infected snail hosts of the schistosomes and be a danger to those bathing in it. The usual source of water-supply is a canal into which all manner of filth finds its way and in which buffaloes love to soak themselves.

The larger villages, if judged by the number of their inhabitants, might well be regarded as considerable towns, and may contain better-class houses in which the wealthier landowners live. Most of the fellaheen, however, are small proprietors subsisting on the produce of their fields. Apart from the presence of disease and deformities, their lot under British rule is by no means a hard one, and certainly compares favourably with that of the poor of the congested towns, into which the rural population tends to flock, thereby creating one of the most serious of the sanitary problems that have to be faced. There is no room for the newcomers, adequate building schemes to cope with the difficulty are non-existent, and the result is overcrowding with all its attendant ills, evils accentuated in a land where the lower orders are infested by vermin, and where the plague-carrying rat flea abounds.

One has no wish to paint too gloomy a picture of Egyptian life. There is much in it that is cheerful and attractive, at least in the country districts. The ravages of disease are not very apparent to the casual observer. It is true he cannot fail to be struck by the number of blind persons or unfortunates with defective vision; he may notice that deformities are common, and occasionally be shocked by the sight of a wretched leper, but otherwise he would probably regard the populace as strong and well-liking. It is not until one studies statistics, visits the dispensaries and hospitals, becomes familiar with the asylums and homes for incurables, inspects the slums of the great cities, and is brought into contact with epidemics that one appreciates how great a burden of suffering and inefficiency is borne by the populace of Egypt, and how much of this burden is preventable. Take the work of the fellaheen, work with the primitive plough and the fass (hoe or spade) in the irrigated

fields, work which entails walking or standing ankle- and knee-deep in the alluvial mud. Owing solely to the pollution of the soil with human excrement, there is an ever-present risk of infection with the larvæ of ankylostomes, resulting in that hookworm disease of which, thanks to the Rockefeller Institute and its campaign, we have heard so much of late years.

Abysmal Ignorance and its Results.

Again, either in the course of his work or when bathing or washing or drinking, the fellah is often brought into contact with water which, owing to pollution with urine or fæces, is charged with the cercariæ of one or other of the human schistosomes, and in many cases he falls a victim to schistosomiasis. Both schistosomiasis and ankylostomiasis are serious diseases which can be prevented by suitable hygienic measures, and the same is true of many others. It is easy to proclaim this fact, but to tackle preventable diseases properly it is highly desirable to enlist the sympathy and support of the populace who suffer from its effects. Such is no easy task even amongst an educated community. The native Egyptian, however, is still plunged in abysmal ignorance as regards the nature and cure of disease. Lord Cromer in his book, "Modern Egypt," quoting from an interesting paper written by the late Dr. Sandwith in 1884, cites several instances of strange superstitions which showed that the medical knowledge amongst the poorer classes was not materially in advance of that current in the days of the Pharaohs. Here is one not quoted, but culled from the same authority. Numerous alleged cures exist for ophthalmia, "such as wearing a red bead or gold ornament on the forehead or rowing across the Nile at Cairo to deposit a lump of mud on the further shore. During the process of some of these cures it is considered most important that the eyes should not be washed for 40 days, and it is not uncommon to see children with both eyes completely covered with a dry scab which the parents refuse to have removed, although pus may be streaming down the child's cheeks."

It is to be feared that in the thirty odd years which have elapsed since Dr. Sandwith collected these curious beliefs there has been no very great change, though, doubtless, there has been some lessening in this ignorance and credulity, for the leaven of education has been at work, new ideas are abroad, and the doctor is more trusted than he used to be.

THE CONDITIONS IN URBAN AREAS.

Hitherto we have been considering chiefly the rural districts and the fellaheen. Let us take a look at the urban populations and at the conditions which exist in such great cities as Cairo and Alexandria. I cannot do better than quote Lord Cromer's vivid description of the first ten people a visitor to Cairo may happen to meet in the streets of "that maze of old ruin and modern café, that dying Mecca and still-born Rue de Rivoli," as it was christened by Sir William Butler.

"The first passer-by is manifestly an Egyptian fellah who has come into the city to sell his garden produce. The headgear, dress, and aquiline nose of the second render it easy to recognise a Bedouin who is, perhaps, come to Cairo to buy ammunition for his flint-lock gun, but who is ill at ease amidst urban surroundings, and will hasten to return to the more congenial air of the desert. The small, thick-lipped man with dreamy eyes, who has a far-away look of one of the bas-reliefs on an ancient Egyptian tomb, but who Champollion and other savants tell us is not the lineal descendant of the ancient Egyptians, is presumably a Coptic clerk in some Government office. The face, which peers somewhat loweringly over a heavy moustache from the window of a passing brougham, is probably that of some Turco-Egyptian Pasha. The man with a bold, handsome, cruel face, who swaggers by in long boots and baggy trousers, must surely be a Circassian. The Syrian money-lender, who comes next, will get out of his way, albeit he may be about to sell up the Circassian's property the next day to recover a loan of which the capital and interest at any ordinary rate have been already paid twenty times over. The green turban, dignified mien, and slow gait of the seventh passer-by denote some pious Sheik perhaps on his way to the famous University of El-Azhar. The eighth must be a Jew, who has just returned from a tour in Asia Minor with a stock of embroideries, which he is about to sell to the winter tourists. The ninth would seem to be some Levantine nondescript, whose ethnological status defies diagnosis; and the tenth, though not easily distinguishable from the latter class, is in reality one of the petty traders of whom Greece is so prolific, and who are to be found dotted all over the Ottoman dominions. Nor is the list yet exhausted. Armenians, Tunisians, Algerians, Soudanese, Maltese, half-breeds of every description, and pure-blooded Europeans pass by in procession, and all go to swell the mass, if not of Egyptians, at all events of dwellers in Egypt."

Naturally this mixture of races adds to the difficulties of the sanitarian, which have been further enhanced by the existence of the capitulations. These were at first really

concessions or privileges granted by Turkey to foreigners resident in Egypt, but under the lax rule of the Khedives the privileges grew into abuses, multiplied in various directions, and became a curse to the country and a great bar to sanitary reform, because many of those who offended against the public health could not be brought to book. Happily, the capitulations are now on their last legs, but they have wrought untold harm for many years. This is why in Cairo so many of the so-called *établissements insalubres*, really offensive trades, thoroughly deserve their title; this is one reason why it has been so difficult to deal with the mosquito pest; this has been one of the causes which have wellnigh broken the heart of the energetic medical officer of health in his struggle to abate nuisances and secure convictions.

But the capitulations are by no means the sole reason why Cairo has a high death-rate and in many parts is insanitary in the extreme. In 1911 in a well-known medical work there appeared the following criticism which gave rise to much heart-burning in certain quarters. After commenting on the cesspools, the mosquitoes, the sewage-sodden soil, and the vermin of the Egyptian capital, the writer goes on to say:—

"The human mortality is enormous, especially the infantile mortality. The figures supplied by the Public Health Department are unreliable (as I know, for I have assisted to compile some of them). The actual population is unknown, many deaths are probably never reported, and sickness is not usually notified. All deaths are supposed to be registered, the diagnosis usually being made by a brief inspection of the dead body. Doctors will not notify disease because they say that it ruins their practice. Landlords prefer to knock holes in the sides of their cesspools and allow the sewage to flood their cellars and basements rather than go to the expense of having them pumped out. The water-supply is not the best obtainable, the streets are not properly cleaned, and enormous heaps of dung and rubbish have been allowed to accumulate for years past on the outskirts of the city. Many of the streets are not metalled; which perhaps is a good thing, for the rough surface acts as a sponge for the stale urine which would otherwise collect in puddles. Dung and street refuse are used as fuel generally; and large collections of this rubbish are kept for this purpose on the roofs of the 'Turkish baths.' Nearly all the dogs have been destroyed owing to outbreaks of rabies, and many cats have taken their place as natural scavengers. Hordes of flies, which breed in the dung and rubbish, abound everywhere, and are nearly as great a nuisance as the mosquitoes. Without exaggeration, Cairo may be described as a city which is hardly fit for habitation, and at present it must rank with Moscow, Peking and Hankow as being one of the most insanitary spots in the world.

Happily there has been in some directions a considerable change or the better since the above appeared.

Insanitary Old Cairo.

I myself recall an incident which opened my eyes as to the insanitary state of affairs permitted to exist in a city the European part of which almost merits the old title of Cairo the Magnificent, so far as spacious streets and fine buildings are concerned. A certain Sewage Transport Company approached me with a view to obtaining a concession for dealing with the conservancy of Khartoum. I met the company's representatives in a very ramshackle and decayed building in Old Cairo. As is usual in Egypt, coffee was served, and on finishing my cup I discovered amongst the syrup at the bottom of it a dead fly. I fear this prejudiced the company's application from the outset; but in any case it could never have been entertained, for the ideas advanced were, to say the least, unprogressive, and the methods of working in Cairo were disgraceful. Pail contents were collected in those insanitary juggernauts called Crowley carts, which jolted and splashed along the unpaved, badly kept roads, to the joy of thousands of flies which bore them company. The cart contents were dumped into shallow open depressions in the soil no great distance from the city confines, and were there mixed with material dug from the neighbouring gebels, which is said to have fertilising properties. The nauseous mixture, after drying in some measure, was spread out on the top of these same gebels for further desiccation. Naturally it pulverised and naturally the south wind wafted it down upon the city. Is it possible to imagine a more filthy and insanitary procedure? Is it strange that sore throats are frequent in this city of dust and smells? These methods are still in vogue, for the great drainage scheme has not yet touched Old Cairo, and though there is better supervision the conditions remain very unsatisfactory. One has only to read the report of the Sanitary Commissioner sent out by THE LANCET in 1908 to realise how necessary it was, and still is, to cleanse the Auegan stable. He paints a lurid picture of the rubbish heaps to the north of the city, and though things have improved in some measure, a good deal yet remains to be

done. Elsewhere, amongst the tangle of narrow streets in the Bulaq, Saidia Zeinab, and Bab-el-Sharia quarters all manner of insanitary conditions continue to flourish. The meat market is very far from ideal, the tripe market an abomination. Many of the cowsheds and dairies are filthy in the extreme. The roofs of the houses are used as latrines, the condition of the wells in their basements is enough to suggest cholera. Filth and flies, overcrowding, vermin, infected food and drink, stagnant air, disease and destitution, all are there. Is it any wonder the Sphinx sits yonder in the desert and gazes with stony and sardonic smile over a city with a death-rate of nearly 40 per 1000 per annum?

The Same Evils in Modern Alexandria.

But you will say, after all Cairo is a great and ancient native city, an eastern city, and we know what happens to the man who tries to hustle the East. Let us then take train to Alexandria, which is largely a European city, a proud and prosperous city with a municipality and, *mirabile dictu*, wellnigh as fine a slaughter-house as is to be found anywhere in Europe. Here, however, are the same evils—slum quarters or *echèches* of the worst description, centres of typhus and relapsing fever, often cheek by jowl with better-class dwellings, often close to areas inhabited by well-to-do Europeans. The conditions at the hammams, or Turkish baths, are scandalous, for at these places the town refuse, often ill-smelling and foul, is used as fuel, and, being stored anyhow and everywhere, is most offensive and dangerous. It breeds flies galore, it affords a happy hunting-ground for lean donkeys, greedy goats, and mangy cats. The creatures who handle it look like soot-besmirched myrmidons of Satan, and, strange to say, in the furnaces which it feeds beans are baked in earthenware jars from which they are sold in the neighbouring streets.

Until the sanitary authorities of the Expeditionary Force took stringent action most of the aerated water factories, the bakeries, pâtisseries, ice-cream shops, and the kitchens of the restaurants were sources of danger to the community, and in certain instances disgusting as well as dangerous. The markets leave much to be desired, the municipal arrangements for refuse destruction are totally inadequate, the methods of disposal of latrine-bucket contents and sewage sludge at Mex and Gabriel offensive and noxious, the Infectious Diseases Hospital a disgrace to a city like Alexandria, and the municipal bacteriological laboratory a place in which it is a crying shame to ask any scientist to work—at least during the hot, moist summer.

It is the same more or less in all the towns of Egypt. Here and there, as at Suez and Port Said, good work by energetic officials has remedied matters in some degree, but not so very long ago I encountered amongst the mounds of rubbish awaiting incineration at Port Said the most remarkable and nauseating odour it has ever been my ill fortune to experience, and I may say I am somewhat blasé as regards insanitary effluvia. It had a peculiar sweet flavour which defies description and demanded instant flight, so that I am still wondering what could possibly have produced it.

THE PRINCIPAL INFECTIVE DISEASES.

Now, what are the principal diseases which form the natural corollary to this state of affairs in the Egypt of to-day—the Egypt, remember, over which this country has cast her mantle of protection, which has a rightful claim upon us for assistance and advice in safeguarding the health of her people, which, if her sanitary salvation is to be secured, must be guided wisely and well along the paths of hygiene?

I have already spoken of the two great worm diseases, reference has been made to the frequency of other helminthic disorders, typhus and relapsing fever have been mentioned, allusion has been made to enteric fever, dysentery, plague, cholera, small-pox, pellagra, leprosy, splenomegaly, idiopathic hepatic cirrhosis, and ophthalmia. There has been some reference to venereal complaints, to deformities, and to gynaecological disorders, but we are by no means at the end of the list. Before proceeding, however, a few words may be said about one or two of those just cited. Dysentery amongst the native Egyptians, when not a symptom of rectal bilharziasis, is chiefly of the amoebic type. Whether bacillary or amoebic, it is a filth disease the cause of which, like those of enteric, may be summarised as careless contact cases, carriers—chiefly cooks—drains, dairies, dirty drinking-water, the dust of dried dejecta, and the repulsive regurgitation, dangerous droppings and filthy feet of faecal-feeding

flies fouling food. Plague, at least in its bubonic form, is due to vermin, cholera in the main to polluted drinking water, and the way in which cholera is held in check is a fine tribute to the work of the Department of Epidemic Services. Small-pox has few terrors for the vaccinated, and yet it is sad to see its ravages in Egypt. Pellagra is still a puzzle, but is possibly a combination of a food deficiency disease and an auto-intoxication from the bowel. Anyhow, it helps to fill the asylums and causes considerable misery and distress. Leprosy, another enigma, so far as its method of spread is concerned, is certainly associated with dirt and destitution, and is by no means a stranger to some parts of Egypt. Yet nothing is done for it, and the leper is free to infect the healthy.

Splenomegaly, often accompanied by cirrhosis of the liver, may be due to various causes, all of which are not yet fully understood, but some of which are assuredly of an insanitary nature; while ophthalmia, in all its various and disfiguring forms, is too often directly traceable to lack of the elements of hygiene and to the ubiquitous fly. Is it not a terrible thought that at the time of the last Census it was found that more than half a million persons in Egypt were blind in one or both eyes! All this is a sorry tale, whether or not we believe man is made in God's image, but there is more to tell. Dengue fever, now definitely known to be mosquito-borne, occurs every now and then in Cairo and elsewhere, malaria still lingers near Ismailia, and is by no means infrequent along the Suez Canal. It is prevalent and severe in the Kharga oasis and lurks in the Delta to an extent which is only now becoming appreciated. Filariasis, another mosquito-carried disease, possesses foci in the land. An unknown fever resembling both typhus and typhoid but of a relapsing type made its appearance in Cairo in 1914 and accounted for many deaths, undulant fever (a preventable malady) occurs, sand-fly fever claims its victims here and there, diphtheria is not uncommon, rabies is present to a disquieting extent, while skin infections, and more especially boils, show that the plagues of Egypt, if they once ended with the death of the first-born, have assuredly assumed a new lease of life.

CARCINOMA OF THE RECTUM:

THE CHOICE OF OPERATION.

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It is my purpose in this article to discuss the relative merits of, and the indications for, the various operations which have been devised for carcinoma of the rectum.

It must be regarded as a lamentable fact that only a small percentage of cases of rectal carcinoma are capable of radical extirpation when first seen by the surgeon. I have asked a number of surgeons to give me their estimate of the percentage of operable cases; the lowest figure was 20 per cent. and the highest 40 per cent. My own experience is that it is about half-way between these figures, rather under 30 per cent. The figures vary in the two sexes. Taking a rough estimate, out of every 100 cases in the female 40 are operable, out of every 100 in the male only 20, giving a figure of 30 per cent. for the two sexes.

Early Stages of the Disease.

Carcinoma of the rectum probably starts either as a small ulcer or as a small polypoid growth. But how rarely does one come across a case in such an early stage. One would think that either of these would cause sufficient discomfort to arrest the patient's attention and cause him to seek advice. But experience shows that this is not the case, and the majority of patients, even intelligent and educated ones, present at the first examination a large ulcerating process extending more or less completely round the bowel.

The really early cases are so rare that it is easy to remember them.

A lady, aged 37, consulted me in 1912 on account of a single attack of hæmorrhage from the rectum—bright red, not profuse. She had no other signs or symptoms. She did not look ill, and rectal examination was negative. The sigmoidoscope revealed a stalked polypus about the size of a Barcelona nut in the sigmoid colon. I opened the abdomen and excised the polypus with its base and a wide area of the bowel wall surrounding it, and closed the opening with Lambert sutures. She made an uneventful recovery.

Microscopical examination revealed, to my surprise, a typical columnar-celled carcinoma. She has exhibited no signs of recurrence. The case demonstrates the value of sigmoidoscopic examination, if such demonstration is still needed.

But this type of case is the exception. The one we have to deal with most often is that in which a large mass is palpable within reach of the examining finger. The question to be decided is, Is it capable of radical extirpation? I hold very strongly the view that the question cannot be adequately decided unless and until the patient is examined under an anæsthetic. It is sufficient at the first examination to know that there is a carcinoma. Digital manipulation of the growth nearly always causes great pain.

Examination under an anæsthetic will reveal a number of helpful points: (1) the extent of the growth in both directions—i.e., whether it completely encircles the bowel and (if the examining finger can be introduced through the lumen of the growth) how far it extends upwards; (2) the nature of the growth—i.e., whether it is a soft friable fungating mass (as it most often is) or whether it is a hard fibrous ring; (3) the mobility of the growth—i.e., whether it is fixed behind to the sacrum or it front to the bladder in the male or to the posterior vaginal wall in the female; (4) deep palpation of the relaxed abdominal wall may enable the surgeon to feel enlargement of the lumbar glands or of the liver.

Colostomy.

If such examination reveals the case to be a hopelessly inoperable one a colostomy should be done, and done at once. I remember being taught as a student that the patient should be put on a suitable diet calculated to leave as small a faecal residue as possible and kept under observation; and that a colostomy should only be performed as soon as symptoms of obstruction supervened. This teaching, I believe, to be wholly and utterly wrong, for the following reasons: (1) the patient will get progressively weaker as time goes on and less able to withstand the shock of an abdominal operation; (2) if the surgeon is to wait until symptoms of obstruction supervene there will necessarily be some hypertrophy and dilatation of the descending colon and the operation may be rendered technically difficult; (3) it is probable that deflection of the intestinal contents from passing over the surface of the growth may retard its progress; and (4) last, but not least, the patient is already suffering from some degree of chronic intestinal stasis, and an immediate colostomy will relieve him from the multitude of disorders associated with that condition. In fact, the improvement which often follows colostomy is quite remarkable.

The colostomy should be a hypogastric one, the incision being a vertical one through the centre of the left rectus abdominis muscle just below the umbilicus and a loop of the descending colon brought out and fixed in position by passing a stout glass rod through its mesentery. Hypogastric colostomy has several advantages over inguinal colostomy done through a muscle-splitting incision in the left iliac fossa. The opening is in the centre of the abdomen in a position where the patient can attend to it with the greatest ease and comfort, and the cup remains in position whatever attitude the patient may adopt, whereas in the inguinal colostomy the cup is apt to ride up on the anterior superior iliac spine when the patient sits down and allow an escape of faecal matter. Further, the rectus abdominis develops in the course of time a certain degree of sphincteric power, which the muscles in the left iliac fossa rarely, if ever, do.

Some surgeons perform a transverse colostomy. I do not advise it because the great omentum may make the operation difficult, and my experience is that the spur is rarely as good and there is a tendency to spontaneous closure.

There is a popular idea that to have a colostomy is the worst fate in the world, rendering the owner intolerable to himself and to others, and that it is better to die of the cancer. This is a fallacy which should be combated. Life with a colostomy is not, of course, ideal, but it is far from intolerable; and I know of one medical man who has had a colostomy done for diverticulitis, and now that the diverticulitis is cured refuses to have the colostomy closed and conducts a large practice in comfort.

When is a Radical Operation Justifiable?

The contraindications may be considered under two headings.