

EGYPT :
POLITICAL, FINANCIAL, AND
STRATEGICAL.

*TOGETHER WITH AN ACCOUNT OF ITS
ENGINEERING CAPABILITIES
AND AGRICULTURAL RESOURCES.*

(WITH SIX MAPS AND PLANS)

BY

GRIFFIN W. VYSE,

LATE ON SPECIAL DUTY IN EGYPT AND AFGHANISTAN
FOR HER MAJESTY'S GOVERNMENT

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TO

General Sir Henry Rawlinson,

K.C.B., LL.D., F.R.S., ETC.

WHOSE REPUTATION AS AN ORIENTAL SCHOLAR, DIPLOMATIST,
AND SOLDIER, IS KNOWN AT EVERY
EASTERN COURT, THIS WORK ON EGYPT IS, WITH
HIS PERMISSION, DEDICATED BY HIS GRATEFUL FRIEND,
THE AUTHOR.

P R E F A C E .

THE object of this work is to present in a condensed form an account of Egypt, from pre-historic ages to modern times. Of course, it would be impossible in 300 pages to give a full and complete history of all events. It could hardly be done in that number of volumes. I have, therefore, merely alluded to the most important points in history, and compressed much of the data of later years.

I have principally described the Nile Delta, its lakes, and the present state of Egyptian affairs, as I consider these matters are of far more importance to the public just now.

Egypt has been called "the connecting link between Africa and the civilised world." Unique in its antiquities, remarkable in its physical features, venerable in its history, and important politically and commercially, in its position and resources, "the land of Egypt" offers to the eye of the engineer, the man of science, the statesman and diplomatist, one of the most interesting

portions of the world. The interest arising from all these varied sources has derived an extraordinary increase of intensity from recent political events.

The following works on Egypt have been consulted :—*Ancient Egyptians* ; Sharpe's *Egyptian Mythology* ; Le Père's *Memoir of Egypt*, twenty-four vols. ; *Great Canal at Suez*, by Percy Fitzgerald ; *Observations on Lakes Manzeli and Timsah*, by Lesseps ; Sir J. Hawkshaw's *Report on the Nile Delta*, 1862 ; *Notes*, by J. Hine ; *Notes*, by Chestney ; *Evidence at the Conference on Dredging the Lakes of Africa* ; Fowler's *Reports and Notes* ; *Parliamentary Papers* ; Lessep's *Projects for Egypt* ; *Debates in the House of Commons on Egyptian Affairs* ; Lane's *Egypt* ; Lane-Poole's *Egypt* ; McCoan's work ; Dr. Klunzinger's work ; Dr. G. Schweinfurth's *Egypt* ; E. de Regny-Bey's *Egypt* ; Cave's *Report* ; McEwen's work ; Dicey's *Egypt* ; The *Times* Articles ; Bells' *Geography* ; Dr. Russell's *Egypt* ; Dr. Blackie's *Gazetteer* ; *Statistique de l'Egypt*, 1873 ; Colonel Vyse's work ; Baker's *Notes on the River Nile*, and other articles and works which are duly acknowledged.

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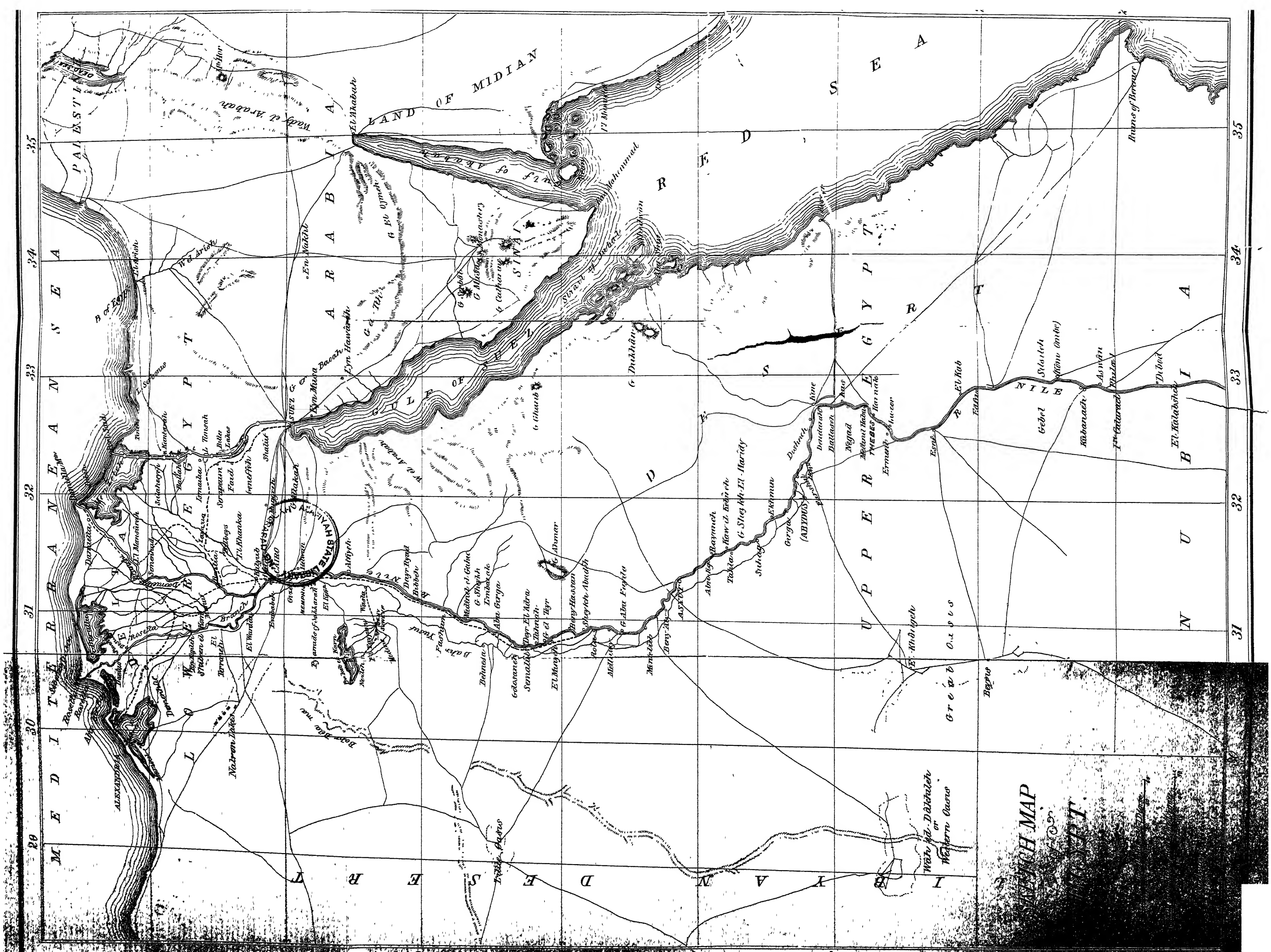
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E G Y P T :

POLITICAL, FINANCIAL, AND STRATEGICAL

CHAPTER I.

THE POLITICAL SITUATION.

THE existing relations between England and Egypt are daily becoming more complicated. The anxieties of the Khedive are incessant, and, just now, serious. The dual control by which the English and French Governments were invested with a sort of joint trusteeship for the European Powers generally was, as the *Times* urged at the time, a derogation from the substantial and potential authority which this country was well understood to possess, and which it was universally believed she would enforce, should her interests appear to be threatened. France has been admitted to a co-partnership on equal terms, and her representatives, with characteristic energy and versatility, are determined, to say the

least, that they shall not occupy the hindmost place. Other Governments, whose interest in Egypt has been recognised, are not likely to let their claims become obsolete. Be that as it may, it is certain that the Foreign Office will have to look closely into the progress of events in Egypt, and take care that our international engagements do not commit us to acquiescence in proceedings injurious to the interests of the Empire. The importance attached to the attitude of the British Government with regard to Egypt is shown by the sensitiveness of the stock markets to every rumour, however wild, affecting the subject. For this and other reasons the course of the Government will be cautious and reticent; but it will be necessary to show, when Parliament meets again, that watchfulness and vigour has not been wanting. The prominence which Egypt is again taking in politics is illustrated by many more signs, which can hardly escape the most short-sighted observers.

France has taken Tunis, and is saying with a most suspicious emphasis, according to a leading paper, that she will never take Tripoli. Having herself done wrong, she has grown suspicious of our Egyptian policy. Her activity has led the

Foreign Office to investigate the Egyptian question in all its relations. For the first time under a Tory Government, blind to a great and golden opportunity, which it missed, England and France were made equal in Egypt. "A partnership was formed, based on the interests of the bondholders, and this partnership still endures. England did not see then what she sees clearly now—that her Imperial interest in Egypt is beyond and above that of all other countries put together. From the date of the opening of the Canal it became clear to all thinking Englishmen that Egypt, or at any rate the two entrances to the Canal, the land along its banks, and the railway to Suez as the alternative route, ought to be under the control of England. The real object of English policy ought to have been to secure an honest Egyptian Government, strong enough to be independent under the friendly control of England. But we have sometimes a loose way of conducting our foreign policy, and we have drifted into an Anglo-French partnership that it would be impolitic now to dissolve." In other words, so long as France is ready to go with us, we shall go with France. But there are signs that France will have some claim for

domination. "It is a noteworthy fact that English houses of business in Egypt are decreasing in number. In the last two years several old English houses have retired from the country, and no new establishments have come to take their place. On the other hand, some of the largest banking establishments are French, and much of the capital now pouring into the country comes from Paris. England must look to her laurels." In fact, Egypt will slip away from English influence, unless care be taken to hold our own. In the recent disputes it is said the hand of France has been much stronger than that of England.

With more European control there might be a larger revenue and less expenditure. The army is not wanted, and might be disbanded. The slave trade might be really suppressed; the position of the fellaheen improved, and educated instead of being left in ignorance. But of course every step in this direction will lead to debate, and may lead to contests; and though we talk about "International Egypt"—and the *Times* talks very wisely about it—the real fact remains. At no very distant day Egypt will become either English or French; and if the

signs are true, the Foreign Office does not intend Egypt to be French. It will be the duty of the Foreign Office to be on the watch. The breach of the negotiations has excited strong feelings among our merchants and manufacturers. The ex-Khedive, Ismail Pasha, was fond of speaking of Egypt as a European Power. He did not like to think Egypt belonged to Africa, and recent political affairs clearly show that before long Egypt will be closely allied to Europe in all transactions, political and commercial. The Commission of Inquiry, which lately made its report to the Foreign Office, was no doubt appointed chiefly with the view of investigating the actual finances of the country; but its leading recommendations cannot be carried into effect without great political changes, so that much more than financial issues are at stake. The system which will be broken up if they are, was introduced by the present ruler of Egypt; and the fitful and feverish bursts of national prosperity which the country has seemed to enjoy, but feebly compensate for what it has had to suffer through the ex-Khedive piling up enormous burdens of public debt, and at the same time taking into his hands, for his own purposes, a

vast proportion of the best land of Egypt, thus making himself, and now the present ruler, absolute proprietor of the soil, as well as arbitrary and despotic Governor. The new Khedive, actuated, perhaps, by his father's spirit, is trying to over-ride all opposition; to be President of his own Council; to settle all vexed political questions himself, in spite of his ministers; and to have the same powers as his father, and founder of the dynasty, held during the worst time of their despotic reigns. The ex-Khedive made promises only to break them. He guaranteed reform laws which he never carried out. The present ruler also pledged his word, and it is true that during the early days of the formation of the Ministry he conformed to laws and regulations, and gave his personal sincerity in carrying out the conclusions arrived at by the Commission of Inquiry; but now he is showing a restless spirit, and trying to introduce a new change of system. While M. de Blignières and his English colleague are willing to accept promises as the harbingers of better times for Egypt in the future, it would be both folly and affectation to forget the past, or be regardless of the very

grave and serious state of things in the present. Egypt just now is terribly oppressed by the heavy burden of debt. It remains to be seen whether the change that has come over the spirit of the Khedivean dream will prove enduring, and how England and France will settle this very delicate political question of direct control in Egypt.

It is greatly to the credit of both Frenchmen and Englishmen concerned in these important State matters in Egypt, that they have worked so very amicably together. It is the Governments at home that are pulling different strings. Lord Granville lately said something about Egyptian affairs, and let drop one hint which represents the tendency of the minds of the Foreign Office, if the worst be forced upon us. Until quite recently we had no idea that the Controllers were not in harmony with their vice-regal master. In fact, the *Times*, which is generally so accurate in such matters, spoke of the friendly relations which existed. Much danger and annoyance to the Controllers' authority have been instigated by the Old Turkish or Pashas' party. They represent the "faction which sprang into galvanised life as the so-called

Party of the People at the close of Ismail's reign." They are, in reality, a wealthy clique of Turkish origin, who oppose every reform and all progress, and hate the Western element, which is gradually raising Egypt out of barbarism into comparative civilisation. As the country advances, says the *Times*, their chance of power fades away, and the bitterness of their opposition increases. The harem influences are said to operate in their favour.

Various nations have acquired vested interests in Egypt, which would, under certain circumstances, justify diplomatic interference. An international factor was introduced by the foundation of the mixed tribunals in 1875, by Ismail Pasha, in substitution for the consular courts. This, his own creation, destroyed him. The tribunals delivered sentence against him, which he could not execute. Ismail abdicated in favour of his son Tewfik, who, by the Sultan's firman, became Khedive, or King, in his father's place, August 1879, but deprived of some powers enjoyed by his father, viz. raising loans and increasing the army. By the Sultan's decree of August 1879, the Controllers can only be removed by their own governments. They have ample powers to

inquire into either revenue or expenditure, including public debt and general administration; they can attend meetings of Council, and give their opinions, publish reports of all their official doings, and have hitherto worked well together without friction. Mr. Colvin is M. de Blignières deputy, and has had very considerable Indian experience. Through their instrumentality, matters have considerably improved since they came into office; but fresh clouds are gathering, and the Governments at home are jealous of each other's rights, and fears are entertained that the harmony which has hitherto existed between the Great Powers of Europe in matters Egyptian, may at any moment cease. All Europe is alive to the possible future which is opening for Egypt and Africa, and every nation is in movement to profit by the opportunity of claiming its share in a good work, and a new market for its merchants. Great Britain alone, so long in the foremost rank in all that concerned the suppression of the slave trade and the exploration of the continent, hangs back, as if indifferent.* Mr. Dicey is very

* Sir Rutherford Alcock.

decided in his views about England being so apathetic and utterly indifferent, and is one of the great party in London now who strongly urge the Government to lose no time, and advocates our occupying the Delta of Egypt forthwith.

A well-known M.P. writes : " Egypt has earned the right to sever the few remaining fibres of the thread which still binds her to Stamboul, and from Turkish dismemberment she may safely count on emerging from the general wreck, piloted by British friendship, it may be into complete independence, for the fostering and disinterested protection of Great Britain." England cannot feel safe in not taking over the management of affairs. Reflecting minds have not wasted their time in protests against incontestable facts. It is necessary for us to secure, by the strong hand, the safety of the Isthmus transit. We should require to have a sufficient control in Egypt to make ourselves safe in our communications with India. It may be worth while to observe that, as far as the purposes of commerce are concerned, the interest of the Mediterranean countries in the Canal is not relatively greater than our own, and it might be our duty to occupy Egypt for the protection of

India.* We have only to hold out our hand to carry our point; and at this moment we could ~~hand~~ what we could not have done for the last seventy-five years, and that is, take possession of the Delta of Egypt without the risk of war with France.† Russia is most anxious Egypt should fall to the share of England.‡ Turkey already regards the Khedive's country as belonging to Great Britain, and would surrender it for a certain consideration.§ The Canal is valueless unless we have command of the Delta of the Nile.|| If you had security for property, foreign capital could easily be raised for the reclamation of the desert and the development of the resources of the country, and water alone is wanted, as may be seen along the Canal banks, to render it the most fertile of soils.¶ Under British control, Egypt could liquidate her debt in half a century, without laying any greater burden on the taxpayers than they would gladly pay in return for protection to life and security to property.

Never was there a country which, from its

* Gladstone.

† Dicey.

‡ Alcock.

§ Dufferin.

|| 'The Times.'

¶ Fowler.

natural configuration and the character of its inhabitants, could be more easily and economically governed, than Egypt. Questions of hostile nationalities or rival creeds hardly enter into the consideration of an Egyptian ruler. A protectorate thus established would be a positive advantage, not only to ourselves, but to the people of Egypt.* In a subsequent number of the *Nineteenth Century*, Mr. George von Bunsen, member of the German Reichstag, has replied to these elaborate discussions raised by Mr. Dicey, as follows: "Confining myself for the present to a merely German appreciation of the matter, I would emphatically say, that if, under the circumstances, you see your way clear to taking Egypt, without provoking war, Germany will not hinder you; German policy might have reasons for speeding instead of thwarting you." The Khedive is not one of the people, and the Egyptians are not Turks, whom they despise.†

"Egypt, since the late Turkish defeats, is more than ever inclined to separate herself from the Sultan's power, if England will help her. The Khedive is reduced to a vassal of the Sultan,

who in turn is a vassal of the Czar of Russia." "Things can never be better," adds a minister of the Egyptian Government, "for the wretched cultivator until England steps in and interferes"; and, further, "It is a crying shame things are as they are; bribery, corruption, intrigue, debauchery, and oppression, make up the court and surroundings of the Khedive of Egypt." About three years ago we had a golden opportunity of establishing ourselves in the Delta of the Nile, without the loss of a single man. Mr. Dicey thinks that as that opportunity was lost, it will never occur again; but many of his school now think differently, and that another chance will very shortly present itself. May we be prepared this time to act with firmness and boldness. It was Mr. Dicey's opinion that the true interest of England in the Eastern Question, lies in the valley of the Nile, not in the Bosphorus, and that the Isthmus of Suez forms the keystone of our position as an Imperial power. It was this which first turned his attention to Egyptian affairs, and he has certainly treated the subject in a masterly manner, and convinced Liberals and Conservatives alike of the true state of things. The Egyptians themselves do not

regard the Khedive or the Sultan of Turkey as their real rulers. "The land is *ours*," they say, "the taxes are anybody's." It is a conquered country, and they are constantly asking, "When are the English coming to rule us?"

The Pashas, who admired Lord Beaconsfield, hoped he would have taken the initiative and at the time of annexing Cyprus would have annexed Egypt. It is very strange that Lord Beaconsfield was as much liked as Mr. Gladstone is disliked, by the Egyptian Pashas, and they have openly said so to our officials. The English as a rule detest the Turks and their system of government, and yet we have always supported them for our own selfish ends. Turkey is regarded by all thinking Englishmen, who know the East, as a blot on the map of Europe, and yet we invariably accept a Turk's word before a Russian's. The Moslem, opposed to Christian rule and government, signally fails. This, however, has nothing to do with religion; for, creed for creed, the Moslem is, perhaps, better than the Russian; but the latter does advance in civilised notions, the other does not. We have so distrusted Russia, that she in turn distrusts us. Russia, to be an enlightened and free country, must pass

through civil rebellion, as England and America have done. Unfortunately, as history tells us, this is essential, and for Russia it would appear to be inevitable. If there is not a good understanding between the Government and the governed, civil war is the result. When rebels succeed, there is more freedom ; when the Government, then more oppression. From personal knowledge of Russia and the Russians, I should think a terrible internal rebellion is impending. After a wholesome purging, Russia will become a great and progressive country. Her people, although ignorant and priest-ridden, are not an aggressive race ; they are docile, honest, industrious, and domesticated. It is a clique of the Government party in St. Petersburg, who are for ever confiscating and urging the advancement of Russian forces, and the lust of empire-making belongs solely to them.

All intelligent Englishmen, unbiassed by party spirit or religious emotion, and acquainted with the East, agree in the axiom, that Orientals, more especially Mahomedans, cannot by themselves rule supreme, they must be governed ; they are bad masters, but make good servants.* Occasionally, a powerful man like Mahommed

* *Southern Afghanistan*, by Griffin W. Vyse.

Ali, rises in their midst, who can rule Asiatics, and achieve great things; but his civil government was defective,* and such a man, classed with a British statesman, melts into insignificance. He became renowned and famous by copying Europeans, and sinking his own native feelings†; but men of such characters, in Oriental life, cannot be sound, and they sooner or later break through the part they have acted, and show themselves in their true colours. What has history of late years taught us, in spite of our make-believe love of Turkey? That the once great Ottoman Empire is fast crumbling away before the influence of European civilisation. She can no longer hold her own.‡ She is tottering on her last legs, and would have fallen long ere this, if English brains, English arms, and English gold had not come to the rescue. But whatever support we give Turkey, the Sublime Porte is doomed, and Mahomedan rule in Europe is practically at an end.§ Under these circumstances, it is very clear that Great Britain must make herself absolutely secure in her command of the Isthmus of Suez, and hold Egypt much as we do Mysore, Gwalior, or Kashmir. The

* Gordon. † Vivian. ‡ Cave. § Bismarck.

Khedive might have the same power and privileges as the sovereigns of those countries.

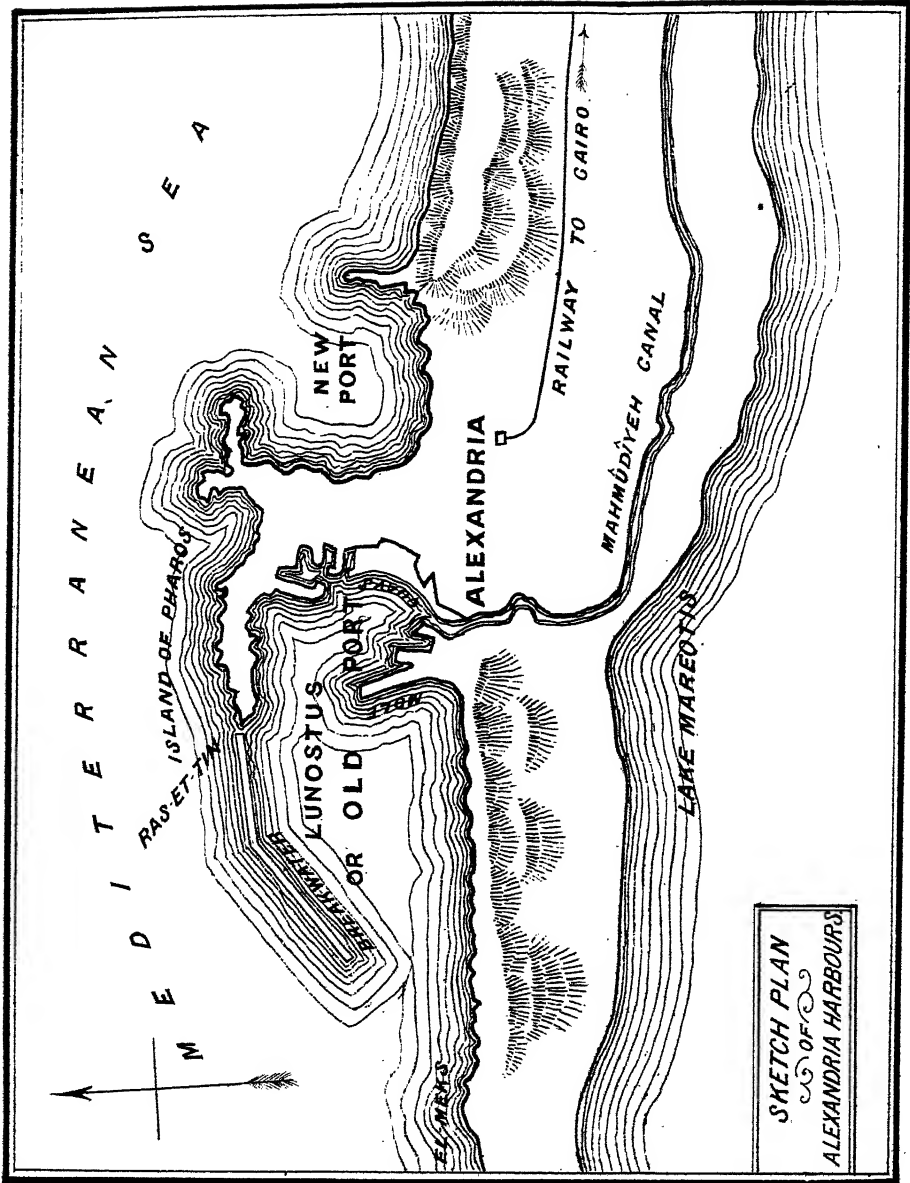
The Suez Canal must be defended at both ends ; but who is to do this ? At present it is partly our own property, sold to us by the Ruler himself. Our route to India lies across the Isthmus, which commands the Canal : we must, for the safety of India, hold the Isthmus. “ Either we must be prepared to see our highway barred or interrupted in the event of war, or we must,” adds Mr. Dicey, “ occupy Lower Egypt. From this dilemma I can see no escape.” We have as much right to rule at Cairo as we have at Calcutta. Experience has taught us that the English, and not the French, are a colonising race ; for in India, France had opportunities equal to our own, which she threw away. The same may be said of her chances in Canada and elsewhere. The French are far better at home than abroad, but together, we often manage to get on very well ; and Egypt, in one sense, has almost ceased to be Oriental, and has become Anglo-French. The European element is daily increasing in wealth and authority, as well as improving in character.

Owing to the ignorance and inertness of the

natives, they must remain more or less in subjection. They have always been in a state of bondage, and for many a day to come Egypt must be a despotic government. Until the great masses of the community are "educated up" to that standard of manly independence, it would be useless to trust them with any power to legislate, or share in framing rules and regulations for a new system of government. Meanwhile, what nation is so well able to rule, guide, and train them as England?

No country is by nature so happily situated for commerce as Egypt, connecting as it does three continents, and all the principal seas of the globe. To avail herself, however, of these advantages, she must again have a government and an administration somewhat like that of the Ptolemies. Alexandria has been called the Liverpool of the Mediterranean, and the latest returns show the development and fluctuations of trade during the past few years. Under the control of Great Britain, how much greater would this development have been?

Kleber, who saw something of the future, wrote: "I know all the importance of the possession of Egypt. I said in Europe that Egypt



SKETCH PLAN
 OF
 ALEXANDRIA HARBOURS

is for France the *point d'appui* from which she may move the commerce of the four quarters of the globe." Bonaparte's quick instinct comprehended the situation. He wished to restore the ancient road to India, and to deprive the British of their trade and colonies in the East. Louis XIV., the Duke de Choiseul, also desired Egypt. Bonaparte wrote to the Directory: "By seizing and holding Egypt, I retain and command the destinies of the civilised world." In his memoirs which he wrote when at St. Helena, he says: "Always launching out in idea into the consequences which might have issued from this expedition, had it been brought to a successful issue, I was agreeably surprised to perceive that France would have found in it incalculable advantages. England was persuaded of this, and posterity will be of the same opinion as England." "The possession of Egypt," writes Leibnitz, who seems to have foreseen Napoleon, "will open a prompt communication with the richest countries of the East. It will unite the commerce of the Indies to that of France, and pave the way for great captains to march to conquests worthy of Alexander. Egypt once conquered, nothing would be easier than to take possession of the

entire coast of the Indian Sea and the islands which border it. The interior of Asia, destitute both of commerce and wealth, would range itself at once beneath your dominion. The success of this enterprise will for ever secure the possession of the Indies, the commerce of Asia, and the dominion of the universe." Fontenelle wrote: "Egypt is for either France or Great Britain. As European civilisation progresses, she will be unable to remain independent. France would make something grand of the country, its situation, and its capabilities." It is known that the French of to-day are of one opinion about the political and strategical importance of occupying the Delta of Egypt, and they think as Fontenelle, Kleber, and Napoleon did, moreover, they are prepared for considerable risks to secure their object.

The recent mutiny of the Egyptian army, headed by the colonels commanding the regiments, and the senior military officials, is typical of the gross mal-administration which exists generally. The Khedive was powerless to act, and it is thought, in certain circles, that he permitted or even encouraged the colonels in their mutinous conduct. The French press at one

time tried to throw the blame on the English administrators; but what transpired was done during the temporary absence of the Anglo-French controllers. The result of this *émeute* has been the formation of a new ministry, and the riotous officers have signed a pledge for their future better behaviour. But something more than this should be done to render such seditious acts impossible for the future, and England in conjunction with France will insist that the Turkish authority shall be defined, that the Egyptian army be greatly reduced, and the disaffected officers dismissed. If the Khedive has had anything to do with promoting this seditious commotion, it is very clear that he is wholly unfit to govern, and should be compelled to abdicate.

CHAPTER II.

PHYSICAL DESCRIPTION OF EGYPT, ETC.

EGYPT *geographically* extends from 31° N. lat. to 2° N. lat., and from 24° E. long. to 47° E. long. Egypt proper is about the size of Belgium, and her possessions extend over an area the size of Russia in Europe. The revenue is obtained from Egypt proper. The rest of the vast empire is, the *Times* states, a burden to the country. Only recently, in certain supplementary estimates, the Soudan appeared as a drain on Cairo to the extent of £100,000. These provinces are not, therefore, of any benefit to Egypt.

The *physical* qualities of Egypt are not less remarkable than its stupendous works of art and its early civilisation. It presents itself to the eye of the traveller as an immense valley about

1,000 miles in length, and hemmed in on either side by a ridge of hills and a vast ocean of desert. Viewed as an alluvial basin, it owes its existence entirely to the Nile, which flows through it from south to north, conveying to the people the main source of their agricultural wealth, salubrity to their climate, and beauty to their landscape.

The learning of geographers has long been employed in the intricate field of etymology to discover the origin of the term by which Egypt is known among the moderns. In the sacred Hebrew writings it is called *Mizraim*, the plural of the Oriental noun *Mizr*, which the Arabs call it now, and this name being in the dual number seems to refer to the division of the country into *Upper* and *Lower Egypt*, which were always considered under the native dynasties as distinct kingdoms, symbolised by different crowns. The ancient name *Khemi* (Cham or Ham) signified *black*, and was suggested by either the colour of the people or the dark colour of the Nile sedimentary soil. Bruce's assertion that *g-ypt* signifies in Ethiopic the land of canals, is now denied. The Geez language is too modern a source to allow us to hope it could furnish any elucidation of Egyptian archæology.

The Nile is everywhere an agreeable object, not so much owing to the majesty of the stream, or the variety of its scenery, as to the strong contrast between the freshness, verdure, and animation of the river's banks, and the desolation which reigns beyond them. The scenery of the river is, in the south part of Upper Egypt, wild, bold, and romantic; but as we descend, it grows more tame and monotonous, till at length every lively and picturesque feature is lost in the uniform dead level of the Delta.

GEOLOGY.

The ridges of rocks along the coast line of the Mediterranean Sea, between Damietta and Alexandria, and bordering on Lake Bourlos, belong entirely to themselves, and are in no way associated with the formation of the alluvial deposits of the Nile.* It is reasonable to suppose that these broken ridges of rock-formation were at one time completely isolated, and juttred out of the Mediterranean Sea as small rocky islands, when the mouths of the Nile were far nearer to where Cairo now stands.

* See Chapter on "Lakes" for *formation and extent of alluvial deposit.*

While the country outside the river valley and the Delta is thus diversified, three distinct geological regions occur between Philœ and the Mediterranean. The most southern of these is *granite*, which extends from the sacred island through the cataract to Assouan, and affords also syenite, and some other crystalline primitive rocks, remarkable for their durability and capability of polish. From these rocks were quarried the colossal statues, pillars, and other monoliths which figure prominently among the monumental wonders of Egypt. The *granite* breaks this and overspreads both rocks. In Lower Nubia the summits of the granitic rocks rise nearly 2,000 feet above the sea. The scenery is rude, bold, and wild, to Assouan, where the cataracts are formed by the cliffs and broken masses of granite which lie in the bed of the river. Blackened by the sun, these rocks have been mistaken for *basalt*. Some volcanic rocks have been found with the granite. Next to this comes the *sandstone* region, extending from Assouan to Esneh, and yielding a stone which, though soft and easily worked, is also very durable, as may be seen from the still magnificent sphinx avenues and palace temples of Thebes, which are built

chiefly of this stone. From Esneh northwards the formation is *limestone*, the chief material of the Pyramids, which below Cairo disappears in the deep alluvium of the Delta, to crop up again in a ridge on the coast, extending from Alexandria to near Abouki. The soil both of the Delta and the entire Nile valley is the direct creation of the river, whose mud deposit has, in the course of unmeasured ages, reclaimed the valley from the desert, and the Delta from the sea; and as the operation still goes on, the result is the elevation of both the river-bed and the land on either side as far as the annual overflow extends. The increase of soil is estimated to proceed in Upper Egypt at the rate of about five inches in a century; but in the Delta, where the flooded area is greater, it takes place more slowly. Below Esneh the limestone predominates, though sandstone hills still occasionally interrupt the calcareous range. The limestone region is more tame and monotonous in outline than those of the sandstone and granite, and frequently assumes the form of table-lands. Thus the Pyramids of Gizeh, built altogether of limestone, stand on an elevated plain of the same material. It is generally grey, containing fish-

shells and corals. In the east desert, specimens have been found of handsome marble. In the parallel of Mineyeh were discovered the grand ruins of the ancient Alabastropolis, which once derived wealth from its quarries of alabaster. In the south desert, towards the limits of the granite, we come upon the ancient mines or quarries of jasper, porphyry, and vera antique. The emerald mines of Zebarrah lay near the Red Sea, parallel with Syene. In the calcareous region, diluvial heaps of oyster and other shells frequently occur at considerable elevations, and a few miles east of Cairo, in the Gebel Mokattem, an extensive tract is strewed over with the silicified trunks of trees. The phenomenon of a petrified forest presents itself again in the desert of the Natron Lakes, west of the Nile, and also far south in Nubia. The scientific staff which accompanied the French expedition of 1798, and collected the materials for the magnificent *Description de l'Egypte*, since published by the French Government, made numerous experiments to ascertain the depth of the alluvial matters thus deposited. By sinking pits at various intervals, both on the banks of the river and on the outer edge of the stratum, they found (1)

that the surface of the soil declines from the margin of the stream towards the foot of the hills; (2) that the thickness of the deposit averages ten feet near the river, and decreases gradually as it recedes; and (3) that beneath the mud there is a bed of sand analogous to the substance brought down by the river when in flood. An analysis of the soil thus formed gives nearly one-half argillaceous earth, with about one-quarter of carbonate of lime, the remainder consisting of water, oxide of iron, and carbonate of magnesia. On the very river-banks the slime is mixed with much sand, which it loses in proportion as it is carried further from the river until at a certain distance it becomes nearly pure marl, which, besides being employed largely in the manufacture of bricks, pottery ware and pipes, serves as a sufficient manure for the adjoining land beyond the actual limit of the annual flood.

The knowledge of the physical geographical resources and climate of Egypt, which has been so largely increased in the last twenty years has revealed the vast capabilities both of the soil and the people, and the grand future of the country.

SLOPE.

The average slope of the country from Debod in Upper Egypt, to the sea, according to the French work published by that Government, is 0·000144 metre per metre, from Debod to Cairo 0·000172 metre per metre, and from Cairo to the sea 0·00023 metre per metre.

AREA.

The French survey of 1798 computed the total surface of Egypt proper to be 20,000 square leagues, or 115,200 square miles, but of this only 9,582 square miles (including the Nile bed and the islands within it, together representing 294,217 acres) were then watered by the river. Since then, however, improved irrigation has extended the cultivable face of the country below Assouan to 11,351 square miles, equal to 7,264,640 acres, of which 4,625,000 are now actually under tillage. No similar survey has been made of Nubia and the Soudan, but their total cultivable surface may be roughly estimated at about 150,000 square miles, or, in round numbers, from the Mediterranean to the latitude of Faza-glow, more than 160,000 square miles of arable land, abundantly peopled, and needing only

good government and industrial development to be welded into a homogeneous and powerful state.

POPULATION.

The population of Egypt has been variously computed, at from 1,500,000, by Sir Gardiner Wilkinson, to 5,250,000. By Mr. Lane's reckoning, fifty years ago the population was estimated at 2,000,000, and according to Clot Bey in 1840 between 3,000,000 and 4,000,000. The census taken in Saïd Pasha's reign in 1859 gives 5,125,000. Estimating the whole now at 6,000,000, we have nearly 500 inhabitants to the square mile of its cultivable area, or, in other words, in ratio of population to arable surface. Egypt ranks before Belgium as the most densely-peopled state of Europe. Of the population estimated at about 6,000,000, fully 4,600,000 are Fellaheen; 540,000 Copts and whites; the Europeans about 170,000, half being Greeks, French, and Italians; 182,000 Bedouins; Turks 100,000; Negroes, 80,000; Abyssinians 50,000; Jews 50,000; Armenians 42,000. The population of Cairo is 427,000, and of Alexandria, 287,000; which includes foreigners from every nation in the world.

CLIMATE.

In the Isthmus of Suez, the climate has been sensibly modified by the opening of the Canal and the extension of cultivation along the banks, the summer being cooler and the winter warmer than ten years ago. During the first years of the work on the Canal, before the water was admitted, the mercury twice fell below zero. The improvement in the temperature of the Isthmus is attributed to the infiltration of water into less elevated parts of the desert, but it is also, no doubt, largely owing to the vegetation which has sprung up along the Canal, and the belt of reclaimed land which is now irrigated by the fresh-water canal. From an analysis of Niebuhe's observations from November 1761 to August 1762, he gives an average rate of maximum 88° Fahrenheit, and the minimum average as 56° Fahrenheit.

A similar analysis, kept at Cairo in centigrade degrees, given by Clot Bey in 1799, shows an average, taken during the cold season, with a minimum, in January, of 13°, and as a maximum, in July, of 30°. Nearly forty years later, M. Destronches gave annual means for five years

from 1835-39 (inclusive), in centigrade degrees and obtained a mean for the whole of $22^{\circ} 4$ c. equal to 70° Fahrenheit, which corresponds with the register kept at the Consulate at Cairo 1878-79-80, or a mean temperature throughout of 71° Fahrenheit.

At Alexandria, 1880, the register at the Consulate gives $69\frac{1}{2}^{\circ}$ for the year. The climate is thus shown to be about 12° below our English summer heat.* In the Delta, it rains frequently particularly along the coast, but the Meteorological observations are meagre and highly unsatisfactory. They are generally kept by men who neither know nor care about the very valuable results which might be obtained for meteorological science. In many cases, I noticed that the Government rain-gauges were out of order, also the barometers and other instruments kept for noting the wind currents, velocity, &c. At Alexandria, the record shows for the three

* The thermometer rose in 1881 to 110° in the shade, in Upper Egypt, and 100° in Cairo. In the sun the thermometer stood at 156° and 161° respectively. This season was the hottest ever known. The damp atmosphere of Alexandria, although cooler, is not considered so healthy as the hot dry air of Nubia, which is generally 30° to 50° higher than that recorded at Alexandria.

years of 1847, 1848, 1849, that 7·5 inches of rain fell, against 8·92 inches for 1867. In 1868, the high record of 13·18 inches is shown for that year; but this is probably inaccurate. During 1869, 6·22 inches; for 1870, 2·86 inches; for 1871, 6·61 inches; and for 1872, 11·14 inches, which may be regarded as a very high return, as compared with other years. At Cairo it rains about 0·6 inches per year. In 1880, the number of rainy days in Cairo was nine, during which it actually rained only nine hours and eight minutes. Although many canals have been dug since Mahommed Ali's time, they do not appear to have increased the rainfall. This is partly due—it may be said wholly due—to the fact that no steps have been taken to plant *large* trees. The sycamore and acacia are very scanty, and are, at the best of times, scrubby, and of no great size. If the *banian*, *bhor*, *pipul*, *tali*, and other of the *large* Indian trees, which have been tried in Egypt with such marked success, were planted all along the main canals, roads, and in the towns, it would have the desired effect of attracting the heavy belts of clouds which so often pass over the Delta without breaking, and cause them

to open and fall, and so cool the hot, dry atmosphere,* of Lower Egypt, and decrease the temperature to that of similar regions of the earth, lying within the same parallels of latitude as Cairo.

There is a strong, steady wind, and also the *khamasin*, which blows during the time when the Nile is at its lowest, and when water is so much wanted, and the *shadoofs* and *sakkrs* are in such constant use. This wind might be used to some purpose by working wind-mills for raising water for agricultural purposes, and for the use of cattle, from the "low" Nile and other canals. These wind-mills have been tried with the very best results in Australia, and are the mainstay of the large vineyards, farms, and cattle-runs in that great country.

The Nile valley is subject to alternating periods of winds, with the rise and fall of the river. From June to February, cool northerly winds prevail; from February to June, the wind is generally southerly, occasionally rising to a hurricane (*samoon*), and saturating the air with sand. During March and April, for three days at a

* Without forests nature's laws are frustrated. Rain will not fall in Egypt unless there are ample forests to perform the laws which govern attraction.

time, the *khamasin* blows. It precedes the fifty days of Pentecost, and is a terrible scourge to the Egyptian climate. This hot, stifling air, is charged with minute particles of dust and sand, and suffocates man and beast. It penetrates every crevice, and it is impossible to keep it out. The absorption of the vast deserts which surround the Nile valley, gives the most equable and driest climate in the world. Egypt, on the whole, is certainly a healthy country. Great tracts of desert lie within the rainless region, and some natives have never seen a shower of rain. The "monsoon," or equinoctial currents of rain, however, occasionally reach the Equatorial provinces in the vicinity of Victoria Nyanza, but these rains are not so regular as in India.*

SEASONS.

In Egypt, there is practically no winter. The distinction of seasons depends directly on the Nile, and the state of the rise and fall of the river, and are the inundation, spring, and harvest. At the beginning of June, the hot winds being over, and most of the crops cut, the country begins to resemble the adjacent desert, and the

* See *Southern Afghanistan*, page 23, by G. W. Vyse.

parched ground cracks and opens in all directions; but in the third week of the month, the river is observed to rise. Some writers divide the year into "two distinct seasons," while other authorities speak of "the four seasons." I think *three* is more correct.

BOTANY.

The wild plants are few, and these being natives of the desert, have no interesting character. Desert plants are chiefly dicotyledonous annuals, characterised by a hairy or thorny exterior, long roots, and leaves of a pale green colour and dry texture. The most common wild shrub is the acacia seyal, which is almost leafless, and armed with long thorns; its crooked stem usually collects round it a heap of fine sand. The palm-tree is rarely seen in a perfectly wild state, yet forests of the date-palm, of great antiquity, exist on the east borders of the Delta, and on the site of Memphis. This tree attains a height of sixty or eighty feet, and is prolific only when attended to. The dates, of inferior quality, serve for distillation. The dôm-palm (*Cucifera thebaica*), singular in its bifurcated forms, arrives at perfection in Upper Egypt, and yields a fruit the size of an orange, but much less esteemed than the date.

The sycamore is the largest and most umbrageous of Egyptian trees, often thirty feet in circumference, but of moderate height; it bears a kind of fig on its trunk and larger branches. The oranges, figs, grapes, pomegranates, lemons, water-melons, apricots, peaches, plums, bananas, or plantains (the fruit of Paradise), and tamarinds, are excellent and very plentiful. The European fruits do not succeed, and are tasteless. The chief timber-trees are the acacia lelebkh, the cypress, and the Aleppo pine. The sant, or acacia nilotica, valuable for its hard wood, and gum arabic, increases in size as we ascend the hill. Mahomed Ali planted 16,000,000 trees, of kinds; Ibrahim, 7,000,000; Ismail, 20,000,000; and the present Khedive has also planted a great many.

There is a great absence of vegetation in the Nile valley. Except palms, clusters of trees are almost unknown. Of late years a number have been planted in Cairo and other great towns, with marked success. The date-palm is the commonest and by far the most beautiful of Egyptian trees. Its fruit has every tint and shade of colour possible, during the process of ripening. Tamarisk and weeping willows

grow along the Canal banks. The myrtle, elm, and cypress are rare, but the mulberry is common to Lower Egypt. In the gardens, roses prevail ; oleanders, carnations, geraniums, the hinné plant, for reddening the finger-tips, the violet, chrysanthemum, various kinds of beautiful creepers, &c., are most common. The Egyptians are very fond of all flowers.

ZOOLOGY.

The wild animals of Egypt are even still more scanty than its flora. The absence of jungle probably accounts for the insignificance of the fauna. The wolf, hyena, jackal, and fox, habitual inhabitants of the desert, occasionally visit the Nile valley, and haunt old tombs and ruins ; the hare, rabbit, lynx, jerboa, or kangaroo rat, burrow in the sands, and frequent in great numbers the plains of Gizeh round the Pyramids ; the ichneumon, or mongoose, which lives chiefly on eggs, and preys on those of the crocodile, and which also kills and eats snakes, is still very numerous. The crocodile very rarely descends the Nile below Jirjeh, and the hippopotamus has long since retired to Upper Nubia, and never visits the waters of Egypt, except when forcibly

borne down by the flood, as happened a few years ago, when one of these animals rose into view before Damietta. A peculiarity of Egypt, handed down from ancient times, is the practice of hatching eggs by the artificial heat of ovens; the poultry reared in this way are wholly without the instincts which relate to the care of offspring. The artificial method of hatching, therefore, when once resorted to, soon becomes necessary, and the natural system of incubation is totally superseded. One hundred million of eggs are submitted annually to the vivifying ovens in Egypt, of which number one-fifth fail. Wild swine are still numerous in the marshes and thickets bordering the Delta, but they are only eaten by the Copts and Europeans. Weazels, rats, and mice, are numerous in the towns, and bats and owls infest the Pyramids, tombs, ruins of temples, and mummy pits.

The chief object of the chase is the antelope, of which there are many varieties, the most graceful being the gazelle, often made a house pet. The wild ass, "the king of game" according to the Persians, is occasionally found in certain parts of Upper Egypt. The wild cat is nearly extinct; and the crocodile is following the

example of the hippopotamus, and retreating to tropical regions, out of the way of European guns. The beasts of burden most in use are the camel and the ass, the former always one-humped. The "Ship of the Desert," like the horse (the Egyptian breed of which is very indifferent), and the dark-coated, mild-eyed buffalo (originally brought from India, which is gaining ground as a field labourer), were unknown to the Ancients. The short-horned, humped-backed cattle, which were famous in the Bible days, are now reserved for agricultural purposes, and are only killed by the Copts and Europeans. Butchers' meat, throughout Egypt is either the flesh of the sheep or goat; the former, particularly the black species, are very numerous. Goats are plentiful, and wild goats abound on the mountain ranges, in the eastern quarter. Dogs are considered, by all true followers of the Prophet, like pigs, unclean animals. They own no masters, and are precisely the same as the common *pariah* of Hindústán. They bark and howl at night, but scarcely ever bite. I have generally noticed that the indigenous dog and horse of a country have many of the characteristics of the native. In England, the heavy-draught

horse (or "English elephant") and bull-dog have much of the nature of the typical Englishman, and I think it so in France, Austria, Russia, Egypt, India, &c. Mr. Lane Poole, who is generally so very reliable in all his data, says that in Upper Egypt the dog forms an efficient body guard, but in this I disagree with him. The cats are a plague in Egypt. In olden times they were regarded as sacred animals, and never destroyed. The domestic pigs are scavengers, and their flesh is never eaten but by poor Copts, or Europeans who are unacquainted with the East. Mahomet very properly considered them unclean and unfit for food. "The Prophet," knowing the character of Asiatics, forbade the drinking of wine, for Orientals cannot be moderate, and if they taste wine or spirit, they inevitably drink themselves to death in a short time.

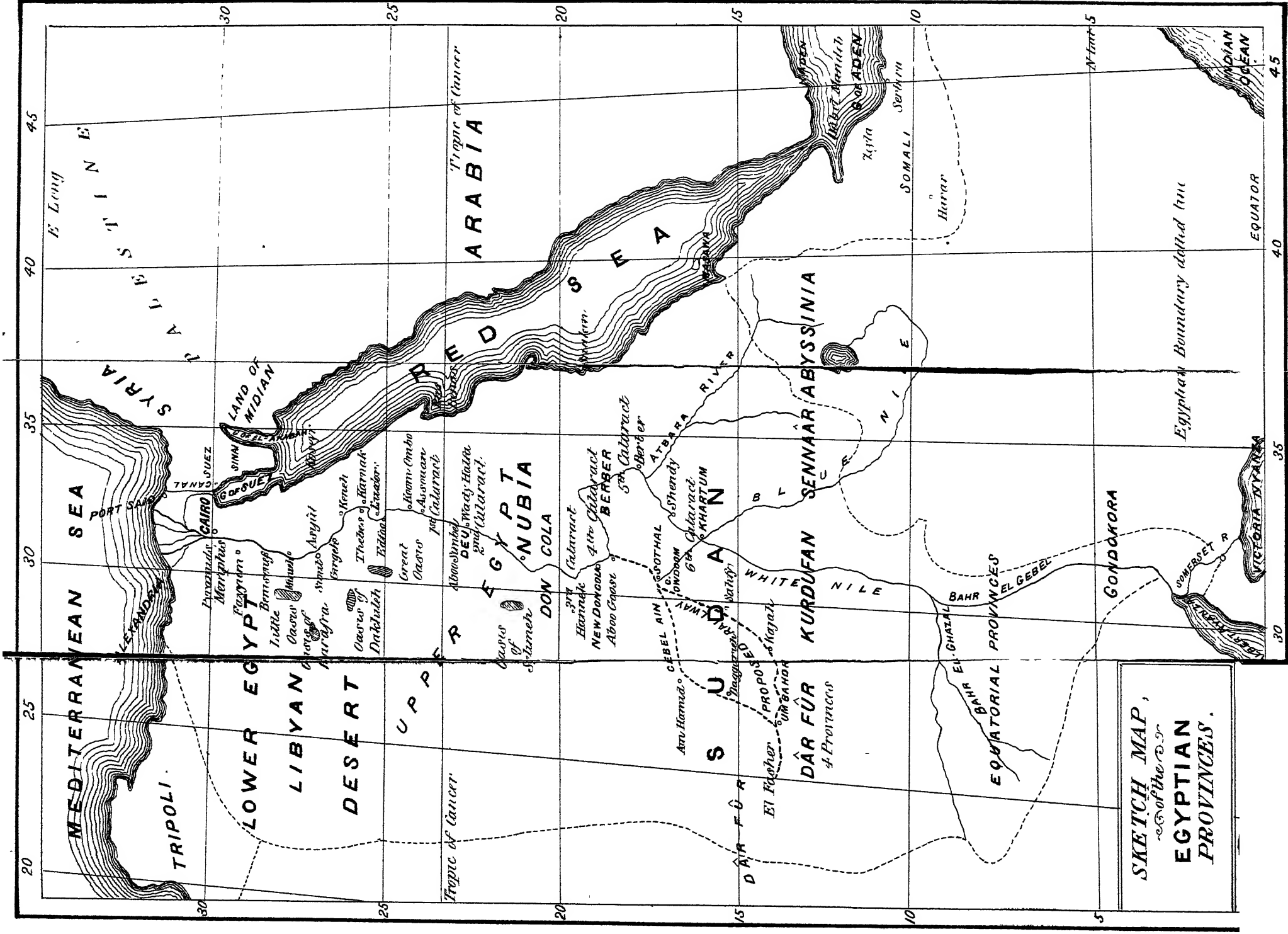
Animals when they die are generally exposed, and birds of prey are numerous. Several species of the vulture, eagles great and small, falcons, hawks, and the Eastern kite, subsist on the carrion, and the crow is also very common, and a useful scavenger.

Swallows, larks, wagtails, and sparrows, are numerous; king-fishers, of many kinds, are found

along the Nile river and the canals and marshes. Bee-eaters and goat-suckers are plentiful; also many sorts of fly-catchers and other small birds.

The pigeon was once the royal bird, and there are many breeds. Fowls are small, and resemble the Indian *mûrgi* in size and taste. There are fine breeds of turkeys, ducks, and geese, but not very plentiful. The guinea-fowl is admirably suited to the country, and has lately been introduced. Quail and snipe are very plentiful, and cheap (about a penny each); they migrate in great numbers to the Nile valley. Partridges, bitterns, and bustards, are also to be had at certain seasons of the year, and afford good sport. Sand-grouse are numerous, on the fringe of the desert, where the Arabs hunt the ostrich. The principal water-fowl are, wild duck (about eighteen different kinds), geese (three sorts), the ibis, plover, egret snipe (full, jack, painted and golden), flamingo, pelican, cormorant, heron, paddy-bird, curlew, &c. The shooting during the cold weather months is good and plentiful.

In addition to the fast-retreating crocodile, the reptiles consist mainly in some smaller saurians (including the chameleon), serpents



SKETCH MAP,
of the
EGYPTIAN
PROVINCES.

(cobra, cerastes, and *kerite*), and sixteen harmless kinds of snakes.

The fish of the Nile are very numerous, but tasteless. Scorpions, large and small spiders, the common fly (four kinds), and one of the curses of the country, the mosquito (three kinds), are most numerous. In addition to which, every variety of vermin abounds. Locusts are occasionally visitors, and they devour every green thing wherever they settle. They chiefly visit Nubia. Moths, butterflies, grasshoppers, flying ants, are numerous. Bees are kept, but the honey is poor. Silkworms are bred principally in Lower Egypt, but the silk is indifferent, and the silkworm is not healthy; the hot winds destroy about one-fifth of the number produced.

DIVISIONS.

Egypt embraces two widely different regions, known as Upper and Lower Egypt. The narrow valley of the river runs through the former, and the broad plains of the Delta form the latter; they were formerly separate kingdoms, shown in hieroglyphics by different crowns. Whenever they were united under one rule, the Pharaoh bore the title of, "The Lord or King

of the Two Worlds." The lower part of the valley, which includes the Fayoum and the plains watered by the Bahr Yusuf, differs widely again from the narrower portion higher up, hence the division into Upper, Middle, and Lower Egypt. In Arabic, Saïd or Marés (in Coptic, the south), Wustani and Er-Rif. The whole country was subdivided, from the earliest ages, into districts, or, as the Greeks termed them, "Nomes," thirty-six in number, plus eight more of later date, including the territory adjacent to the Delta, but beyond its proper limits. Upper Egypt, or the Saïd, was named by classic writers Thebais; and Middle Egypt, the Heptanomis. These ancient territorial divisions being founded on nature, have never fallen into disuse, though disguised under new names. Of late years, during the present dynasty, a great change, by grouping and sub-division, was effected. The ex-Khedive divided the whole country into seven Mûderlyks, or provinces, superintended by a Mûdyr. Each Mûderlyk being subdivided into departments, and these again into cantons, each having its own ruler. Under the Anglo-French control, all these have been further improved, for the sake of better administration.

MOUNTAINS.

The Nile valley, throughout its whole extent, from the island of Philœ, at the south extremity, to near Cairo, is hemmed in on both sides by chains of hills; those on the east approach closely to the river, while the Libyan chain skirts to the north-west the plains of the Natron Lakes. The desert between the Nile and the Red Sea, is intersected by several chains of mountains, which increase in elevation towards the east, so that the ridges near the Red Sea attain the height of 7,300 feet. West of the Nile, the land sinks, so that the Libyan chain separates the river from a wide valley, which is not above the sea-level, and which in bygone ages received the waters of the Nile, and conducted them to the sea; while the rocky channel through Lower Nubia was as yet but imperfectly open. The appearance and physical character of this region is well described by the name, "Bahr-bela-ma," or "river without water," now bestowed on a portion of it.

VALLEYS, ETC.

The openings, or lateral valleys, confining the Nile, are comparatively few, and little frequented.

On the east side, are the "Valley of the Wanderings," from Cairo to the Gulf of Suez, and that through which the road passes from Koptos or Koseyr, on the shores of Red Sea. In early ages, the trade was more important than now in the east desert. West of the Nile, a deep sinuosity in the Libyan range, forms the fertile valley of Fayoum (in Coptic, "Ph-iom," the sea or lake). In the north-west, is the lake Birket-el-kerun, which is below the level of river. The east part of Fayoum, was the ancient site of Lake Mœris. From this valley a road leads west, through hills to the oasis of Dakhileh. Roads from Jirgeh or Girgeh and Esneh, to the great oasis, are much used, and several other smaller valleys of less note offer communications with fertile spots, which characterise the depressed region west of Nile.

LITERATURE.

The monuments furnish a very ample literary store. Inscriptions can now be read, and the Coptic affords a key to the structure of the ancient language. The monuments of Egypt will enable us to retrace with certainty the earliest dates of civilisation. Hieroglyphical*

* The term *hieroglyphic*, literally denotes sacred sculpture, used by the Greeks to denote figures and inscriptions

writing continued in use down to the third century of our time. Besides the hieroglyphical or monumental graven characters, the Egyptians used also the hieratic, which were in fact only the former reduced and adapted to the pen. The demotic was of later date, derived from hieratic, but with more simple and cursive style. In some cases, monuments were inscribed in two or more styles; in later years, the Greek version was occasionally added. To this circumstance we chiefly owe the discovery of the hieroglyphic alphabet. Among the trophies brought by the British army from Egypt, was the famous Rosetta Stone, now in the British Museum. This is a large black slab, covered with inscriptions, in three different

engraven on temples, sepulchres, &c. The Coptic is supposed by some to have been the ancient language. In the Memphite dialect, there is a version of the scriptures, and a few religious works, but it is no longer spoken. The Patriarch of Alexandria is the supposed successor of the Apostle Mark. The prevailing language is Arabic. Astrology, magic, and sorcery, are still in high estimation. Poetry is much cultivated. Men of letters at Cairo profess great veneration for this art, and cultivate a taste for Asiatic classics. All this, however, is confined to a small class of the people. Some Bedoun Arabs are keen poets, and an effusion of one of them, on Bonaparte's exploits, is preserved in the Institute, Cairo.

characters, the last is Greek, and tells us that in the 9th year of Ptolemy Epiphanes (196 B.C.), priests decreed honours to that king, and ordered that they should be engraved on stone, "in sacred (hieroglyphic), demotic, and Greek characters." Dr. Young examined it and detected the names of Ptolemy and Cleopatra. This was the key and cue of a great link, and resulted in a complete Egyptian grammar and dictionary of hieroglyphics, discoveries developed, and philosophical research dispersed the obscurity which hung over the language. Knowledge of monuments, histories of pre-historic ages, records of victories, the overthrow of dynasties, can now be deciphered, and the whole is unravelled and fully explained.

INDUSTRY, ETC.

Elsewhere I have stated that rather more than four millions and a half of the population are *fellaheen*, or agriculturists. Egypt is essentially adapted by nature for cultivators of the soil. The Egyptians still adhere to their ancient custom of uniting the followers of each business or profession into a guild or corporation, governed by their chief or sheikh, who acts as their representative. They

are exceedingly numerous, as might be expected among a people whose social organisation reaches to a remote antiquity. Of all trades, few can claim especial mention on the score of importance or singularity. The Egyptians make excellent morocco leather, from goat-skin dressed and dyed in a particular manner. The pottery of Egypt is also worthy of praise. The bardâks, or water-jars, of which the best are made at Keneh, are impregnated with a fine and lasting perfume, and are in various degrees and forms permeable to water; some serve as filters, others exude the purified fluid, and keep it cool by evaporation. These jars are tied together in numbers, mouths downwards, thus forming long rafts, and are sent to Cairo by river. Cotton-mills on a large scale, sugar, linen, iron, silk, and other manufactories, have been introduced of late years. The former industries of Egypt are in a decayed condition; and the things in which they used to excel are forgotten. The fine masonry of the olden times would be thrown away on the architectural tastes of to-day, and the rich coloured glass, rare pottery ware, mosaic work, carpeting, tapestry, and carving, are all products of extinct arts.

The same fate has befallen the painters, turners, and workers in engraving.

The *commerce* of Egypt was considerable, but it has fallen off of late years. Eight years ago, the exports were estimated at £16,000,000; in 1878, they had fallen to half that amount; the same year, 114 million pounds of raw cotton were exported to England, at a cost of three millions and a half sterling. In 1875, however, these figures were much higher. The imports are valued at five millions and a half sterling, and consist chiefly in manufactured goods, coal, oil, hardware, and machinery. Quite 50 per cent. of the whole trade of Egypt is with England.*

The history of Egypt presents nothing more wonderful than the magnitude and durability of the public works which were accomplished by her ancient inhabitants. Prodigal of labour and expense, her architects appear to have planned their structures for the admiration of the most distant posterity, and with the view

* The official statement for 1880-81 is as follows:—Public revenue, £7,705,460; expenditure, £7,487,363; total debt, £97,953,041; imports from England, £2,208,105; exports to England, £8,890,052. Some of these figures, however, have been questioned by the Anglo-French Controllers.

of rendering the fame of their mechanical powers coeval with the existence of the globe itself. It has been suspected that the omnipotent spirit of religion mingled with the aspirations of a more earthly ambition in suggesting the intricacies of the Labyrinth,* and in realising the vast conception of the tomb pyramids. The preservation of the body in an entire and uncorrupted state during several thousands of years, is understood to have been connected with the mythological tenet, that the spirit by which it was originally occupied would return to animate its members, and to render them once more the instruments of a moral probation, amid the ordinary pursuits of the human

* Herodotus informs us that Lake Mœris was 450 miles in circumference. That it stretched from north to south, and was 300 feet deep. It was entirely the product of human industry, as a proof of which, he states that in the centre were seen two pyramids, each 200 cubits above and as many beneath the water, and that upon the summit of both was a colossal statue in a sitting posture. The height of these pyramids was 600 feet. The waters of the lake were not supplied by springs, but by an artificial channel from the Nile. It had a subterraneous passage westward for spill water into the Libyan desert. This work took 150,000 men fifty-six years to complete, and a million of men died during its construction.

race. The remains of a prince could hardly have been regarded as deserving of the care which was employed to save them from dissolution, had not the national faith pointed to a renewal of existence in the lapse of ages, when the organs would again become necessary. Egypt was, therefore, indebted to the religious speculations of her ancient sages, for those sublime works of industry and architecture which still distinguish her above all other nations of the primitive world ; but her arts are dead and lost. *

CHAPTER III.

MODERN EGYPTIANS.

THE great majority of the inhabitants of Egypt are of the peasant class (or fellahs), and are undoubtedly the descendants of the Ancient Egyptians. They have embraced the Mahomedan religion, but are not fanatical, like the Arabs, who regard the Egyptians with contempt. The Copts are native Christians. Though comparatively few, they hold a better position in society, by means of their education and talents, than the others, and fill posts of clerks and accountants. They are thus widely separated by their faith and social lot from the fellaheen, though of kindred race with them. With these aboriginal Egyptians are mingled, in various proportions, Turks, Arabs (chiefly Bedouins),

Armenians, Greeks, Berbers, Negroes, Jews, and Franks. The Turks form a privileged class, or "upper ten," and are the aristocracy of the land, and hold all principal offices under the Government and Controllers. The Arab tribes of Egypt—the Bedouins—have been assigned lands, and supply the country with sheep, donkeys, camels, goats, and horses. Their haunts are on the borders of El-Fayoum, and they muster a great section of the race. The Armenians are generally bankers, jewellers, and tobacco-dealers. The Greeks are all traders. The Berbers from Lower Nubia, below the second cataract, do heavy porters' work, while the Negroes are preferred as domestic servants. The Mamelukes are Circassian slaves, taken young and brought up as Mahommedans.

The Government of Egypt being practically up to this time in the hands of Turks, is an unqualified despotism. Under the first Viceroy and founder of the present dynasty, Mahommed Ali, it became more enlightened and liberal, but its fundamental principles remained unchanged. In 1808 he abolished the right of private individuals to hold landed estates, and became proprietor of the whole kingdom. He then

subdivided the country, and made the village-chiefs, magistrates, tax-collectors, and Government overseers. Mahommed Ali took into his own hands all the agriculture, as well as all the manufactures, of the kingdom, and he aimed at developing the resources of Egypt; but he never dreamt of turning to account the mainspring of national prosperity, the untiring energy with which every man labours to promote his own welfare. To foster such a spirit is to make a nation prosperous and happy. Mahommed Ali sought his own wealth, and not that of his people. All he did was for his own glorification. He abdicated in 1848, and died mad in 1851. He was succeeded by his son Ibrahim, the conqueror of Syria, who died two months afterwards. Ibrahim was succeeded by his nephew Abbas, son of Tûsûn. This miserable voluptuary and bigoted ignorant Moslim neglected the affairs of Government, and lived only for his own gratification. All Mahommed Ali's works were suspended, and his sudden death in 1854 was welcomed by the people. His successor, Saïd Pasha, fourth son of Mahommed Ali, endeavoured to pursue his policy and carry out his aims, but, weak in mind and body, he was unable to hold his own, and

he will be chiefly remembered for the abolition of the grinding Government monopolies and the succession of the Suez Canal.

The reign of Ismail, son of Ibrahim, who succeeded his uncle in 1863, promised well for Egypt. An able, energetic, liberal-minded man, who appreciated Western civilisation, and was fired with ambition, it was expected he would excel his grandfather, Mahommed Ali, and had he died ten years after he became Viceroy, it is probable history would have made him out a great and wise ruler. He removed the old treaty restrictions, and obtained by Imperial firman from the Porte in 1866 the title of Khedive or "King," and the right of succession from father to eldest son, instead of as before, to the eldest male of the family; and in 1872 another firman granted him sovereign powers. He then introduced reform after reform, re-organised the whole administrative system, remodelled the State Departments, and carried out many useful public works, such as railways, canals, harbours, telegraphs, lighthouses, &c. He introduced law reform, and tried to suppress the slave trade in the Soudan; but he lacked money, and borrowed, begged, and stole wherever he could, the fellahen being the greatest

sufferers. In ten years he raised the National Debt from $3\frac{1}{4}$ to 80 millions. All are acquainted with Ismail Pasha's ruinous engagements, and his abdication, or rather dismissal, in June 1879. His son Mahommed Tewfik (born 1853) was appointed Khedive, by the Sultan's firmans of 1866 and 1872,* and I have shown elsewhere how the Dual Protectorate was established and maintained, and how the Controllers receive and carry out their orders.

The Khedive is the nominal head of the Government, and is assisted by a Council of State composed of high officials, and the Ministers of Finance, Foreign Affairs, War, Commerce, Interior, Public Works, Instruction, &c. The provincial administration is divided among the Mudir or Governors of the fourteen provinces—of which seven are in the Delta—under whom Mâmours, Nazirs, and Sheikhs-el-beled govern departments, districts, and villages, whilst eight cities have their own governors.

It appears that a truly Oriental system has been adopted, and which was carried to its

* Mahommed Tewfik Pasha married, January 20th 1873, Emîna, daughter of Prince El Hami Pasha. His son, Abbas Bey Pasha, born July 14th 1874, is heir-apparent to the Khedival throne.

extreme by the late Moufettish, of selling all posts in the Irrigation and other departments of the Public Works to those who paid highest for them, or who could command the most indirect influence, without even a pretence of reference to the fitness of the nominee. This has resulted in the most shameful abuses. The nominal salaries of the whole staff, from the chief engineer to the lowest official, are absurdly low, but the understanding is clear—and it need hardly be said, is acted upon—to say nothing of direct peculation of the State revenue, a fraudulent form of perquisite called “extra money” (known in India amongst natives as *dustori*), and the time-honoured *backsheesh*, go to make up the poor official’s pay.

The Sheikh-el-beled, or village headsman, though virtually elected by his fellows, is formally appointed by the Government, to which he is personally accountable for taxes, &c. He is the village magistrate and constable in one; the fellah seldom, if ever, appeals against his decisions to the communal council, so that as he apportions a tax, regulates the distribution of water from the neighbouring canals (his own land faring best in this respect), and selects men for

forced labour or the conscription, his fiat is uncomplainingly obeyed. His superior, the Nazir, acts as inspector over a number of villages, and reports to the Mâmour of his department, who (until the recent reform, appointing a Controller-General of receipts) received the taxes from the Saraffs, or tax-collectors. The Mâmour still ensures the repair of the canals, sees that the men requisitioned by the Government are duly supplied, and is answerable for the whole to the Mudîr.

The Council of Agriculture consists of a President and Superintending Engineer, named by Government, and of as many members as there are cantons in the province, chosen from among the village notables by the communal councils. Their functions are to examine all plans submitted for the repair of public works, or the execution of new ones, and, if approved, to assess on the various districts their shares in the necessary money and labour costs, and also to supervise and promote the improvement of agriculture within the area of their respective jurisdiction.

Labourers for hire are difficult to obtain. The contractor or landowner defrauds the labourers, and great misery and oppression take place ; in

fact, as often as not, they are dismissed without payment.

The almost untold millions squandered by Egyptian rulers on works of vanity and on useless expeditions for centuries past, have been extracted out of the apparently impoverished and half-starved population, and each year renews the ever-recurring miracle, to the astonishment of mankind. Is it not time this tragi-comedy, which has in it far less of laughter than of tears, should be brought to a conclusion, and the curtain be allowed to fall on a redeemed and regenerated race, even though residing still in the old "house of bondage"?

The late Consul-General writes about the late Khedive: "Proprietor in his own name and that of his family of one-fifth of the best land in Egypt, the sweat and blood of the fellahs have fertilised it, and even great public works have been made and used solely to increase the wealth and pamper the luxury of the Khedive and his household until even the much-enduring fellah now murmurs in revolt, and curses his task-master. What Egypt needs is separation from Turkey, assigning the tribute to the creditors to whom it has been pledged, until that liability is

liquidated, the privilege of regulating her own internal affairs, and pursuing the march of progress under the direction of her own most enlightened sons, aided by foreign counsel. The Khedive might still act as titular head of the State, but as a Constitutional ruler, shorn of absolute power. The substitution of legality for the arbitrary rule of one man ; publicity, instead of secrecy now adopted ; reduction of royal expenditures ; a more just system of taxation, supervised by honest officials ; abolition of forced loans ; the elevation of the fellaheen to a standard of equality ; abolition of forced labour ; abolition of slavery ; and complete freedom to the condition of women."

Speaking of Egypt and Indian taxation, a writer of great repute says : " Government makes a great fuss about saving life in seasons of famine, but it could not give a more apt illustration of the line *propter vitam vivendi perdere causas*, than by levying new and most objectionable taxes to pay for public works, which in their turn will create a necessity for a further increase of taxation, all in order to make the work of saving life at exceptional times less difficult. *The country can do very well without either unproduc-*

tive railways or canals. What is wanted is to make the people richer, so that when a famine occurs they may have money wherewith to buy food, but these works now suggested will only make them poorer. Mr. Bright may make mistakes of detail which experts in Indian Administration can easily correct. But the political instinct is sound, which urges the authorities to inveigh against the Egyptian Government for its exclusiveness, extravagance, and incapacity. Its insane jealousy of independent enterprise, which virtually debars English capitalists from acquiring land and developing new industries in Egypt, is practically as well as materially one of the chief evils which affect the country. The costliness of the Administration is proverbial. Every new work it takes in hand is made an excuse for the creation of new appointments, and we are credibly informed that one reason why the water in the canals is not more freely used for purposes of irrigation is the hedging round of all such works with a thick fence of officials, so that the wretched peasant has so many forms to sign, and so many underlings to fee, before he can get what he wants, that he goes away in despair, and does without the water."

Egypt may be said to be in a transition state, and she suffers from the defects of the system out of which she is passing, as well as from those of the system into which she is attempting to enter. She suffers from the ignorance, dishonesty, waste and extravagance of the East, such as have brought her Suzerain to the verge of ruin, and at the same time from the vast expense caused by hasty and inconsiderate endeavours, to adopt the civilisation of the West. Immense sums are expended on unproductive works, after the manner of the East, and on productive works carried out in the wrong way or too soon. The public servant in Egypt, like the Roman Pro-Consul, too often tries to make as much as he can out of his office whilst it lasts, and the scandal takes place, of the retirement in a few years, with a large fortune, of men on comparatively small salaries, and who have plundered the treasury on one hand, and the peasant on the other. From the Pashas downwards, every office is a tenancy at will, and experience shows that while dishonesty goes wholly unpunished, independence of thought and action, resolution to do one's duty, and to resist the peculation and neglect which pervade every department,

give rise to intrigues which sooner or later bring about the downfall of honest officials ; consequently, those who begin with a desire to do their duty, give way before the obstructiveness which paralyses every effect. An official of high rank said, the great want in Egypt is a body of high-class Englishmen, not those who compete with each other to make money, and put pressure upon the Khedive ; *but men like our Indian officials, who have done so much to raise the tone of the native races*. The principal source of the revenue, and the wealth of Egypt, is the land. Agriculture here is almost independent of seasons, but it is dependent upon irrigation ; where this is wanting the land quickly relapses into desert. Where this is supplied, whole tracts are brought into cultivation ; it is necessary, therefore, that irrigation should be carried on, completely and economically and that drainage should accompany it for the purpose of washing the salt out of the sub-soil.

According to Mr. McCoan, great oppression was no doubt practised by the late Minister of Finance, not merely in the collection of the legitimate taxes, but in the exaction of large extra payments that never reached the Treasury ;

but he does not think under the reformed *régime* now in operation that this is possible. The fellah will cheat the tax collector if he can ; for as it was in the days of Pharoah so is it still, the Egyptian ryot will swear by all the gods that he has not a piastre, if he can evade payment. But the fault is not so much his ; he is often cheated out of his wage by the head Sheikh, or lumbardar, and the petty functionaries above him. All writers on Egyptian affairs agree that the officials, high or low, and all classes of the community, possess to the fullest extent the usual Eastern defects, apathy, dishonesty, disregard of truth, and general disposition to do as little work as possible for the largest sum of speculative gain. Arab, Turk, or Copt, are all alike ; if there be a difference, it is in favour of the Moslem rather than the so-called Christian. As a whole, however, the officialism of Cairo compares favourably with that of Stamboul. In the provinces, the influence of the Khedive is less felt, and the Mudir may with impunity commit abuses that never reach Cairo, and certainly never reach the all-feared Effendina or "Great Lord," the native designation of the Khedive, who would never show justice or mercy to such

offenders. When the Moukabala law shall, a few years hence, have reduced both land-tax and tithe by one-half, the cultivator will, it is hoped, be more lightly taxed. If to this relief were added a settlement of the tax for a term of years, as has been done for our Indian ryots, the two measures together would form such a boon as agriculture in Egypt has not enjoyed since the days of the Pharoahs. The *corvée*, or forced labour system has flourished in Egypt during the present dynasty with a severity unknown since the days when the Pyramids were built.

The typical Egyptian of to-day is sleepy and apathetic ; he has lost the skill of his ancestors who planned and built the wondrous works of Egypt. The passion for land, however, is universal, and all he cares for apparently are his mud hut and field. The word *fellah* means labourer, or cleaver of the earth, or *coolie* of Hindustan. As a race, they are graceful, well built, with spare lithe frames, hard and wiry, and possess great powers of endurance. The *fellah* has a good, oval face, sharp features, large brilliant eyes, which he generally keeps half shut on account of the glare. The mouth and chin are well formed ; and fine, white, even

teeth, set off a pleasant good-natured face. He shaves his head like most Moslems, but never his beard. His dress is very scanty ; in the cold weather he wears a bluish smock or *choger*, and drawers, if he can afford them. On his head is the common fez, round which is a turban ; the poorest only wear the *tarbûsh*. The women are singularly graceful ; slender, upright, and beautifully formed ; they carry themselves well, and have all the charm and fascination of well-bred women. The veil does not conceal their beautiful eyes, which Eastern poets rave about. The Egyptian woman, like most of her sex, is fond of bangles and rings, which she wears in her ears, nose, &c. She spoils her skin by tattooing her chin, arms, hands, &c. Her only garment is a blue cotton shirt, smaller than the man's smock, with a head-veil hanging over her head behind, which she draws over her face at sight of man. The children are always dirty. The houses are one-storeyed, made of Nile mud, about twelve feet by nine feet, and seven feet in height, without windows, and holes for light. These huts are in clusters, and are not built in order. Like all Asiatics, the Egyptians do not understand regu-

larity, and straight lines. The poorer classes live almost entirely on vegetables. On occasion of a feast or marriage ceremony, goats, sheep, fowls, and pigeons are eaten; but fruits, vegetables, and unleavened bread, with milk, form the chief food of the majority. The modern Egyptian is not a bigoted or fanatical Mahomedan, although he observes all religious rites, and is obedient to the priests. He is a domesticated individual, fond of his wife and family, and hates soldiering, or serving out of his village. Like most Orientals, he is obedient to the ruler, and is not very particular about always speaking the truth. The men and women, as a race, are very moral, law-abiding, and easily governed. Squabbles and fights are almost unknown amongst them. The *fellaheen* classes are so poor that polygamy is uncommon, and although according to the Koran women are regarded as inferior creatures, without souls,* and are not expected to be religious, the men and women live

* Most religions have omitted to provide a hereafter for women. Men only are mentioned, women are ignored. Practically, "women" are included with "men." In theory and fact this assumption is untenable.

happily together—the women taking a very fair share of their duties, and the husbands seeking their advice. The fellah never tastes spirituous liquors, and is very seldom brutal; he is always merry, fond of chatting, joking, singing, and smoking. He is healthy, efficient as a cultivator, takes things very easily, is never in a hurry on his own account, has no complaints. Like all Eastern labourers, he is very ignorant, can neither read nor write, is remarkably obstinate, and essentially conservative, and thoroughly believes in his own way of doing things, but tolerant of other people's notions and customs. Asiatic-like, he is invariably polite and indulges in flattery. He appreciates fun, understands good government, and is no fool; he has been robbed for so many ages, that it is said he tries a little thieving on his own account. The victim of rapacious greed, he has become avaricious himself. He has heard so many lies from his rulers, that he has found it useful to lie to them in return. The townspeople have many of the traits of the labourers, but are more polished, plausible, and sharper in money matters. Those who can afford it, have more than one wife, and a man's prosperity is gauged by

the number of his wives. The Egyptian is not lustful like the Arab ; and the list of murders and violent crimes bear favourable comparison with our English criminal statistics. The women are regarded as more moral and virtuous than European women. They are often seen in the Cairo streets riding ponies, asses, and mules ; they sit in the saddle like men. The women of the better classes and aristocracy, drive in broughams with glass sides. Like the ladies of the Pashas' harims, they wear very little veil ; are as fair as the English, and ape the French airs, dress, and manners. Native gentlemen and officers wear the Turkish dress. All Government officials, the Khedive, and Pashas, have adopted the European coat, trousers, boots, vest, collar, gloves, and neck-tie, but all wear the fez

As to-day is, so will it be to-morrow, and the most momentous events passing in the great world make no impression whatever on the people. It is only the few head officials directly connected with the Khedive, or important native bankers and merchants, who receive newspapers, and fewer understand them. There is no proper free press, and public opinion in Egypt is a make-believe. Caravans of slaves are still brought

from the heart of Africa, and sold for the harîms of Egypt. The traffic having been prohibited, it has become a smuggling trade. It has only been stopped in theory, not in practice. The Moslem system of early marriage and divorce is highly pernicious. Parents arrange marriages. Girls are married at 13 and 14, and the wife and husband do not meet until after the wedding. Egyptian wives are treated better, however, than most Moslem women; children are obedient to their parents, but in spite of the schools and colleges instituted by Mahomed Ali, the education is very limited, and the ignorance of all classes is lamentable. Some good work has been done by the English schools under Miss Whately and other philanthropic English ladies, and many of the silly religious festivals connected with local Egyptian customs, have fortunately been removed by order of the Khedive, at the instance of the Anglo-French Administrators: the barbarous custom of the *doseh* amongst them. The dress of the Copt closely resembles the Mushin Egyptians', only in darker colours.

It will take several generations to make the Egyptian a free-spirited, manly, independent man; but if it can be done, it will be by first

reforming his so-called superiors and teaching him that Turkish misrule is not the only possible form of government. Under the new system of administration, it is hoped that some substantial reforms will be made which will benefit the Egyptian, who for eight thousand years has been a bondsman and slave.

CHAPTER IV.

THE RIVER NILE, ITS IRRIGATION AND INUNDATION.

EGYPT is essentially an agricultural country; since the days when Joseph was Pharoah's chief counsellor, and Egypt was the inexhaustible granary of the world—her strength, substance, and existence has depended on her agriculture.

A glance at the map of Egypt will show that the only lands capable of being brought under cultivation are those which lie adjacent to, or border on, the river Nile, the waters of which are charged with the finest impalpable mud, which makes the richest manure, and produces the best results to the cultivators, who obtain two and three crops annually from their lands. This sediment is thickest towards the end of the 'summer, when the Nile is in flood, and clearer

during the winter and spring, when the river is at its lowest. The lands which receive this rich deposit from the Nile waters, obtain it either by annual submersion during the inundation season, by lift or other artificial means, or by canals and watercourses, supplied and regulated from a higher level, so that the irrigated lands in this latter way receive the water by natural flow or gravitation.

At Cairo the Nile is somewhat confined between two ranges of low hills. Saïdieh is twelve miles below Cairo, at the junction of the two branches of the Nile—the eastern arm being called the Damietta branch, and the western arm the Rosetta branch. Saïdieh is called by the Egyptians the “Head of the Delta.” This is the site of the gigantic hydraulic engineering work known as the *Grand Barrage*, the object of which was to hold up the waters of the Nile during the eight months of ebb, so as to maintain them at the level of the soil, and supply Lower Egypt during that period with the same amount of water as at the time of the annual inundation. It was calculated that the enormous expense of the work itself, and of the new system of canalisation, which must be its necessary complement,

would be compensated for by the great increase of cultivable land in the Delta, and by doing away with the thousands of "sakkis" and "shadoofs," thus setting free for more useful agricultural purposes the men and animals employed in working them. Unfortunately practical difficulties have prevented the realisation of this magnificent scheme.* The estimate framed by Mr. John Fowler for remodelling the *Barrage* is £1,000,000 sterling, and is so far beyond the present finances of Egypt that some time must elapse before this great work, which is of such financial and political importance, can be carried out.†

More important than land tenure, rent, or labour is the vital condition of the *water supply*, on which not merely the profit, but the very life of Egyptian husbandry depends. Of this the one source is the Nile, whose yearly flood, caught

* Sir Gardner Wilkinson.

† The extent of land at present under cultivation is nearly 6,000,000 acres, of which about 1,000,000 acres are devoted to the culture of cotton and the rest to rice, sugar, beans, barley, maize, and clover (*bersuni*). The grain culture in Egypt is so large as to suffice not only to feed its own population, but to export largely to other countries, and if properly worked, Egypt's rich soil could well supply the whole of Europe with grain.

and circulated through a thousand channels, fertilises every tilled acre of Egyptian soil between the tropics and the Mediterranean. The annual rise of the river is almost tidal in its periodicity, commencing generally in the last days of June, and attaining its greatest height in the third or fourth week of September, when the gradual fall begins, which continues till the summer solstice again comes round. The rise and fall of the river are registered by the nilometer at the southern end of a little island of Rhoda, opposite Old Cairo. This consists of a square well, communicating at bottom with the river, in the centre of which is a graduated pillar divided into sixteen cubits (of two inches and a half each), equal to twenty-four Cairene cubits of fourteen inches and a quarter, and sub-divided into twenty-four digits each. Since this famous measure was erected, A.D. 861, the bed of the river has considerably risen, and the flood at its height now tops the column by nearly one and two-third cubits. From soon after the commencement of the inundation till it has attained its greatest height, the gradual increase, as registered by the pillar, is proclaimed daily by special criers throughout Cairo. The ceremony

of the *khaleeg*, or cutting of the great canal which here taps the river, takes place when the rise has attained sixteen cubits of the nilometer, and forms one of the chief Egyptian festivals of the year. The annual phenomenon of the rising of the Nile, it need hardly now be said, is attributable to the equatorial rains, occasional variations in the commencement and duration of which are followed by corresponding irregularities in the rise and fall of the river, but the dates mentioned are those about which, over a long average of years, these latter generally occur. As soon as the first signs of the commencing swell are noted at Khartoum, the news is flashed down to Cairo, and thence preparations are at once made to protect the embankments which now fence in the stream wherever needed along its whole course from Assouan to the sea. The rise varies from a minimum of about nineteen feet to a maximum of twenty-nine feet, the former height making a low or "bad" Nile, and the latter a dangerously high one, as most of the arable land on either side lies much below that level. The rise of 1874 attained this perilous elevation, and but for the great energy of the authorities, personally directed on the spot

by the Khedive, the banks below Cairo would have given way, and the whole of the Delta have been ruinously flooded. From twenty-three feet to twenty-four feet make a "good" Nile, and this has been the average rise of seven out of the past ten years.*

With regard to the experiments undertaken by Mr. B. Baker, I cannot do better than give his valuable notes *in extenso*.

The following may be considered as supplementary to, and where conflicting as in substitution of, the article on the same subject in Mr. Beardmore's *Manual of Hydrology*. It is based chiefly upon Egyptian Government documents, the returns of Mr. Fowler's assistant engineers in Egypt, and Mr. B. Baker's own observations.

The height of low Nile above the mean sea-level at Alexandria has been ascertained by levelling at the following places:—

	Height in Feet.	Distance in Miles.
Rosetta Mouth	—*	—
Kafr-el-Zaiat	4·3	36
Grand Barrage	33·5	110
Cairo	39·5	126

* McCoan.

† The maximum known variation in the sea-level is from — 1·57 feet to + 2·32 feet.

	Height in Feet.	Distance in Miles.
Benisouef	75	200
Minieh	107	285
Siout	146	380
“First Cataract” (below)	303	714
” ” (above)	319	716
Wady Halfa	392	964
Hannek	659	1,205
Guerendid	745	1,418
Oum Deras	907	1,468
El Kab	935	1,490
Junction of the Atbara	1,148	1,671
Shendy	1,165	1,756
Khartoum, junction with the Blue Nile	1,212	1,870

At high Nile the surface slope of the river averages about five inches per mile, except at the cataracts or rapids. The Grand Barrage is situated at the apex of the Delta, where the river diverges into two branches. For a distance of thirty miles below the barrage, the surface slope of the western, or Rosetta branch, is five inches and a half per mile; and of the eastern, or Damietta branch, four inches and a quarter. The latter branch is thirteen miles longer than the former, and, as will be shown hereafter, by far the larger volume of water is conveyed down the shorter branch.

The "first cataract" of the Nile is situated at Assouan. Between Assouan and Wady Halfa the river is navigable, but there are fourteen more or less serious obstructions, such as rocks in the channel and shifting sands. Between Wady Halfa and Oum Deras there are eighteen cataracts; beyond that to El Kab a continuous series of rapids, and from thence to Shendy three more cataracts, after which the Nile becomes navigable as far as Khartoum.

In the portions of the river where equilibrium is established between the velocity of the current and the stability of bed, the sectional areas, both at low and high Nile, are remarkably constant at widely distant points. Thus near Kohé, about 1,200 miles up the river, the area at low Nile is 14,000 square feet, and at high Nile 71,000 square feet; whilst at Queremât, about fifty-six miles above Cairo, the respective areas are 13,000 and 74,000 square feet; and at the barrage, sixteen miles below Cairo, 12,500 and 72,000 square feet.

By far the most characteristic feature and interesting fact connected with the Nile is the singular uniformity in the date of commencement and the extent of its annual rise. The whole

agricultural arrangements of the country hinge upon this, and the productions of the soil are so dependent upon the last few feet rise of the Nile, that with a rise of but seventeen feet six inches, famine is inevitable, and even of nineteen feet six inches but too probable, whilst between twenty feet and twenty-three feet the supply of water is barely sufficient, though at twenty-six feet it is excessive. Beyond the latter height famine again threatens, because the salts in the soil are carried to the surface by the upward filtration of the river water, and the land becomes utterly unfit for cultivation until the salts have been washed away by a succeeding inundation. It must be observed that the surface of the land adjoining the river banks is about seventeen feet above low water, and that it falls away from the river at the rate of about five inches per mile. Hence, with a twenty-eight feet rise, such as occurred in 1874, the head for filtration is at least eleven feet; and although the river banks may be kept sound by the labour of a hundred thousand men, the water readily finds its way through the porous soil, and floods the land with a noxious solution of calcareous and magnesian salts and alkaline chlorides.

The height of the Nile has been recorded at Rhoda from time immemorial ; but unfortunately the coudees of the nilometer are not all of the same length, so the returns have often misled European engineers. The last few feet rise of the flood are obviously of far greater importance than the first, and this fact finds expression at Rhoda by the coudees gradually becoming shorter. As the height of the high Nile is not infrequently given in the *Times*, as in the Egyptian newspapers, in coudees, or pics, and kerats (of which there are twenty-four to the coudee), it may be useful to state that the following equation expresses approximately the corresponding height in feet above low water :—

Height in feet = 1.52. (Height in coudees — 7 coudees 11 kerats).

The Egyptian Government engineers have translated into French the Arabic measurements of the high Niles occurring between 1825 and 1874, and the following are the results in feet :—

1825-34	19 0	23 0	22 0	21 0	25 0	21 8	22 2	21 4	18 8	23 8
1835-44	19 4	20 4	19 0	21 0	22 0	25 2	25 0	25 2	22 0	21 6
1845-54	20 8	24 8	23 3	25 3	25 3	21 2	25 5	20 8	25 5	24 8
1855-64	20 3	25 5	21 3	21 0	20 8	25 2	26 2	23 2	26 6	19 6
1865-74	23 1	27 4	21 2	19 3	27 6	26 1	24 2	25 2	20 6	28 0

The earliest day on which the Nile commenced to rise in any of the preceding years was on the 10th of June 1852, and the latest on the 10th of July 1859. The earliest high Nile occurred on the 27th of August 1868, and the latest on the 20th of October 1872.

For some years past the daily height of the Nile has been recorded at the barrage, on a nilometer graduated to mètres—a much more convenient unit than the varying coudee. Mr. Baker has plotted diagrams of the heights for a series of years, and selects those for the years 1868, 1869, and 1870, as the most characteristic and interesting. To fully appreciate the identity of the phenomena exhibited each year—the first rapid rise, the slight halt, the final rise, and the relatively slow ebb to low Nile level, it is necessary to plot the diagrams on a large scale, and the original readings are therefore given to enable this to be done. As the unit of measurement and the calendar are immaterial, Mr. Baker, to avoid errors in reduction, retains the metric measures and the Coptic calendar, remarking merely that the Coptic year consists of twelve months of thirty days, and a complementary month of five days, and that the first day of the year 1585 corresponds to the 11th September 1868.

Coptic Year 1587.

Months	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29
Tout	6 88	6 95	7 10	7 25	7 25	7 31	7 32	7 30	7 25	7 23	7 23	7 25	7 25	7 30	7 37
Baba	7 45	7 53	7 55	7 48	7 43	7 40	7 41	7 42	7 39	7 27	7 17	7 09	7 00	6 85	6 85
Hatour	6 70	6 55	6 30	6 13	6 05	5 95	5 75	5 75	5 55	5 40	5 38	5 25	5 25	5 15	5 12
Kyak	5 10	5 05	4 85	4 62	4 50	4 40	4 34	4 30	4 25	4 22	4 15	4 08	4 04	4 00	3 95
Touba	3 82	3 79	3 78	3 76	3 74	3 70	3 66	3 64	3 60	3 58	3 55	3 54	3 50	3 43	3 40
Emshir	3 35	3 34	3 32	3 29	3 26	3 20	3 16	3 14	3 12	3 09	3 05	3 00	2 95	2 91	2 88
Barmahat	2 84	2 82	2 79	2 76	2 73	2 65	2 57	2 53	2 48	2 40	2 39	2 33	2 28	2 25	2 23
Barmouda	2 23	2 21	2 21	2 19	2 18	2 16	2 14	2 13	2 10	2 07	2 05	2 02	2 00	1 97	1 95
Bashams	1 90	1 83	1 80	1 70	1 65	1 58	1 57	1 54	1 45	1 32	1 25	1 15	1 10	1 00	0 73

The barrage, where the preceding observations were taken, is about sixteen miles below Rhoda, so a difference may be expected and will be found in the readings of the two nilometers.

The average heights of high Nile at Rhoda and at the barrage during a series of years are given below:—

Rhoda,* 6·97 mètres=22·86 feet (average of 48 years, 1824-72).

Barrage,† 6·87 mètres=22·54 feet (average of 16 years, 1846-61)

Barrage,‡ 6·91 mètres=22·66 feet (average of 10 years, 1864-73.)

The average heights in mètres at five-day intervals for the years 1846-61 have been tabulated by Lombardini as given on page 86.

* *Statistique de l'Egypte*. Cairo.

† Lombardina. *Saggio idrologico sul Nilo*. Milan, 1865.

‡ Baker's returns.

—	5	10	15	20	25	28-31
January . . .	2 79	2 68	2 58	2 48	2 39	2 26
February . . .	2 18	2 07	1 96	1 83	1 72	1 65
March . . .	1 54	1 45	1 35	1 26	1 18	1 08
April . . .	0 99	0 94	0 87	0 81	0 74	0 69
May . . .	0 64	0 62	0 58	0 53	0 51	0 47
June . . .	0 44	0 48	0 48	0 48	0 66	0 76
July . . .	0 90	1 05	1 27	1 44	2 16	3 22
August . . .	4 15	4 87	5 57	5 76	5 87	5 97
September . . .	6 09	6 13	6 18	6 17	6 19	6 48
October . . .	6 60	6 55	6 51	6 37	6 21	6 22
November . . .	5 73	4 97	4 66	4 09	4 00	3 80
December . . .	3 61	3 42	3 25	3 19	2 97	2 90

It will be understood that the above are the average heights in a series of years, and not the heights in an average year. If it had been the latter the maximum height would have been 6·87 instead of 6·60, and the minimum 0·30 instead of 0·44, the difference being due to the overlapping of the dates of maximum and minimum heights in different years.

The system of irrigation practised in Upper Egypt appreciably affects the readings on the nilometers at Rhoda and at the barrage. When the Nile has attained a height of about three or four mètres, a large volume of water flows down the numerous canals having their beds at that height above low water; and when a still greater height is attained, banks are cut, and the filling

of the great basins of inundation causes the level of the water in the river to remain almost stationary for some days. In the same way, the drainage of these basins, after the water has stood on the land a sufficient period to deposit the fertilising matters in suspension, causes an abnormal rise in the river.

Four measurements of the ordinary low Nile discharge at the barrage by Mr. Fowler's engineers, and by General Stone's Egyptian staff, gave the following results:—

Cubic mètres per second

Low Nile discharge=355, 397; 415, 460; mean=406
cubic mètres; or say, 14,000 *cubic feet per second*.

Three measurements at Cairo by Linant Bey indicate the following discharges for high Niles, ranging from seven to eight mètres in height above zero:—

Cubic mètres per second

High Nile discharge=8,166; 9,460; 9,740; mean=9,122
cubic mètres; or say, 320,000 *cubic feet per second*.

It has been shown that the maximum height of the Nile averages less than seven mètres, so the average maximum discharge will also be less than the above. Mr. Baker, after consideration of all the data, estimates the latter at 8,400 cubic mètres, or say 296,000 cubic feet

per second; and having reference to the preceding measurements at high and low Nile, and to measurements at intermediate levels by General Stone's staff and himself, he has deduced the following formula for the discharge of the Nile in cubic mètres per second, for any height h , in mètres above zero on the nilometer. As the Nile at low water is a series of pools at places, the local level of low water may vary with the same discharge, so the height h should be taken from the average readings on several nilometers.

$$Q=200 (h+1)^{1.8} + 150.$$

Applying this equation to the mean heights already given, the following will be the average discharge in cubic mètres per second throughout a series of years, at five-day intervals:—

Cubic Metres per Second.

—	5	10	15	20	25	28-31	Remarks.	
January .	2,351	2,237	2,136	2,037	1,950	1,828	Minimum.	
February	1,755	1,656	1,560	1,451	1,361	1,306		
March .	1,221	1,153	1,081	1,018	963	897		
April .	840	809	767	732	692	664		
May .	637	627	606	580	570	550		
June .	536	554	554	554	648	704		
July .	785	878	1,024	1,146	1,736	2,820		
August .	3,972	4,986	6,074	6,386	6,570	6,740		
September	6,946	7,014	7,102	7,084	7,118	7,632		Maximum.
October .	7,850	7,760	7,686	7,436	7,154	7,172		
November .	6,336	5,136	4,680	3,892	3,774	3,516		
December .	3,280	2,952	2,856	2,786	2,452	2,548		

For an average year the minimum discharge will be 400 cubic mètres, and the maximum 8,400 cubic mètres, the difference, as already explained, being due to the varying dates of the maximum and minimum discharge in different years.

From the above tabular statement, and from the analyses of Nile water by Dr. Letheby and Professor Wanklyn, Mr. Baker estimates the discharge per month of water and solids to average as follows:—

—	Water in Millions of Cube Mètres	Solids in Sus- pension in Tons Weight	Solids in Solu- tion in Tons Weight
January . . .	5,616	942,000	815,000
February . . .	3,715	468,000	546,000
March	2,851	152,000	510,000
April	1,944	129,000	353,000
May	1,598	76,500	326,000
June	1,555	107,500	315,000
July	3,744	668,000	610,000
August	15,508	23,100,000	2,570,000
September . .	18,532	10,100,000	3,600,000
October	20,045	7,600,000	3,200,000
November . . .	11,793	4,050,000	1,765,000
December . . .	7,517	2,180,000	1,025,000

In an average year, therefore, the Nile conveys to the sea 49,573,000 tons of solids in suspen-

sion ; 15,635,000 tons of solids in solution, and 94,418,000,000 cubic mètres, or, say, tons of water. Lombardini estimated the latter at 107,828,558,000 cubic mètres, but his data were imperfect.

The solids in the preceding estimate are of course assumed to be chemically dry, or the weight would be much greater. Thus, at the Cairo waterworks, it is found that at high Nile the solid matters deposited on the filters in the form of sludge are practically 800 parts per 100,000 of water, though Dr. Letheby's analysis indicates a maximum of 150 parts of chemically dry solids.

Large though these volumes be they would be exceeded if the measurements were taken higher up the river. Linant Bey measured the flow at Khartoum, where the White and Blue Nile join, and found the minimum and maximum flow for the year to be 297 cubic mètres, and 6,044 cubic mètres, in the instance of the former ; and 159 cubic mètres, and 6,247 cubic mètres, in that of the latter. He measured also a high Nile discharge of 12,700 cubic mètres at Gibil Cilcilly, near the first Cataract.* No doubt

* *Travaux exécuté en Egypt.* Paris, 1873.

twenty or thirty per cent. of the volume of the Nile is lost between Khartoum and the barrage by evaporation and absorption.

It was stated at the commencement that by far the larger volume of water is conveyed to the sea by the Rosetta branch. This was not always so, but is a consequence of the construction of the barrage, and of the neglect of ordinary precautions in training the river immediately above that work. Unless matters are managed better in the future the river will take charge of affairs itself, and sweep the Rosetta half of the barrage down stream.

The Rosetta barrage is 1,525 feet in total length, and includes sixty-one arches of 16 feet 4 inches span each. The Damietta barrage is 1,787 feet long, and has ten more arches in the water-way. At low Nile, in 1874, about 200 cubic mètres per second flowed through the former, and 181 cubic mètres through the latter span. A few days later the volumes had increased to 305 and 268 cubic mètres, and the differences then rapidly grew wider.

In September 1877 Mr. Baker measured the flow down the two branches of the river, and the canals having their headworks at the barrage, as follows.

	Cubic Mètres.	Mean Velocity of Current
Rosetta branch . .	3,220	3·28 miles an hour.
Damietta . . .	1,830	1·56 „ „
Menoufich canal .	230	
Behera „ .	140	
Total . . .	<u>5,420</u>	cubic metres per second.

The high Nile of 1877 was one of the lowest and most disastrous for many years. At the time of the above measurement the nilometer above the barrage indicated a height of 5·25 mètres, and that below, 5·10 mètres. By the formula $Q = 200 (h + 1)^{1·8} + 150$, the volume corresponding to the former height is 5,564 cubic mètres, and to the latter 5,332, the mean being 5,448, or practically the same as the measured amount.

The preceding figures, significant though they are, do not indicate the worst feature about the barrage works, namely, that the 1,830 cubic mètres do not approach the Damietta barrage fair and square, but are directed to it at great velocity through a narrow and deep channel at right angles to the axis of the river, and in line, therefore, with the already unstable foundations of the barrage. Thousands of tons of stone have been thrown into the cross channel, but the depth

is still about 54 feet below low water, or 36 feet below the foundations of the barrage. Borings to a depth of 100 feet show that the soil is light stuff which melts almost like sugar when in contact with water; so the present critical state of affairs requires no further demonstration.

The analysis of Nile water made for Mr. Fowler by Dr. Letheby is appended. (See page 95.)

The late Dr. Letheby remarks with reference to the preceding analysis:—

The amounts of solid matter dissolved in the water range from 13·614 to 20·471 parts per 100,000 of water. The former proportion was found in the December sample, and the latter in the sample taken in the month of May. It appears also that the quantity of dissolved matters gradually rises from December to June, after which, with the exception of the month of September, it as gradually falls.

Looking at the individual constituents of the water, it will be remarked that the nitrogenous matters, as indicated by the amounts of actual and organic ammonia, as well as by the proportions of organic matter, are considerable; for in the former case the total quantity of ammonia (actual and organic) is from 0·0114 to 0·0271

part per 100,000 of water, and in the latter the organic matter is from 0·929 to 3·129 parts per 100,000 of water. These proportions are largely in excess of the quantities ordinarily found in the rivers of Europe.

The salts of lime and magnesia which are present in sulphates and carbonates are not excessive, and therefore the water is well suited for domestic purposes.

The proportions of soda in the form of chloride are also small; but those of potash, in the state of carbonate and silicate, are rather large. This is especially the case in the samples of water taken in June, September, and October, when the soluble constituents of the water have the highest fertilising power.

It is, however, in the suspended matters that we are to look for the chief fertilising ingredients of Nile water; and these are most abundant in the samples collected in August and September. In the former case they amount to 149·157 parts per 100,000 of water, and in the latter to 54·257 parts. After this, the proportions gradually fall to 4·772 parts, which was the quantity found in the water taken in the month of May of the present year.

RESULTS OF ANALYSIS OF SAMPLES OF NILE WATER TAKEN DURING TWELVE CONSECUTIVE MONTHS.

Constituents per 100,000 parts.	1875.											
	June 8	July 10	Aug 12	Sept 20	Oct 12	Nov 12	Dec 12	Jan. 23	Feb 12	March	April	May 13
Actual or saline ammo- nia	0 0057	0 0129	0 0013	0 0100	0 0071	0 0064	0 0019	0 0087	0 0018	0 0036	0 0035	0 0014
Ammonia from organic matter	0 0114	0 0100	0 0071	0 0171	0 0113	0 0111	0 0108	0 0113	0 0166	0 0086	0 0107	0 0118
Dissolved matters	Lime	4 167	3 992	4 422	4 260	2 309	4 304	4 168	4 057	4 631	4 763	5 178
	Magnesia	1 623	1 513	1 030	0 617	0 483	1 132	0 926	0 871	0 977	0 823	1 029
	Soda	1 201	0 744	0 587	0 301	0 501	0 318	0 369	0 317	0 307	0 591	0 830
	Potassa	2 475	1 062	1 501	1 120	2 318	1 329	1 002	0 831	0 931	0 728	0 609
	Chlorine	1 643	0 851	0 628	0 209	0 491	0 207	0 276	0 212	0 251	0 613	0 916
	Sulphuric acid	2 808	2 838	1 837	1 996	1 908	1 911	1 764	1 960	1 813	2 263	2 009
	Phosphoric acid	trace	trace	trace	trace	trace	trace	trace	trace	trace	trace	trace
	Nitric acid	trace	trace	trace	trace	trace	trace	trace	trace	trace	trace	trace
	Silica, &c	0 701	0 713	1 129	1 257	1 843	0 986	0 811	0 857	0 729	1 271	0 711
	Organic matter	1 500	1 057	1 186	1 929	2 414	1 343	0 929	1 286	1 586	2 086	2 586
Carbonic acid and loss	1 182	3 616	4 281	4 754	3 557	3 127	3 270	3 451	4 120	4 651	4 936	
Total on evaporation	20 300	16 386	16 601	19 413	15 857	14 957	13 611	14 471	14 671	17 811	18 186	
Suspended matters	Organic matter	0 829	9 114	18 414	5 914	4 586	3 686	1 913	1 914	1 086	0 686	0 943
		Mineral matter	6 086	8 729	130 743	48 343	33 214	30 686	26 971	14 829	11 486	4 629	6 114
Total suspended	6 915		17 843	149 157	54 257	37 800	34 372	28 914	16 743	12 572	5 316	6 638

It appears also that the proportions of phosphoric acid and potassa, which are the chief mineral ingredients of agricultural value in the suspended matters of Nile water, are more abundant in the August and September samples than in those obtained at any other time of the year. This will be evident from the following Table, which shows the percentage composition of well-dried Nile mud in the two periods referred to:—

Percentage Composition of the Sedimentary Matters from Nile Water.

	Samples taken in August and September.	Samples taken later in the Year.
Organic matters	15.02	10.37
Phosphoric acid	1.78	0.57
Lime	2.06	3.18
Magnesia	1.12	0.99
Potassa	1.82	1.06
Soda	0.91	0.62
Alumina and oxide of iron	20.92	23.55
Silica	55.09	58.22
Carbonic acid and loss . .	1.28	1.44
	<hr/>	<hr/>
	100.00	100.00
	<hr/>	<hr/>

The conclusions from these results are:—

1st. That the fertility of the Nile water is due to the organic matter, and to the salts of potash

and phosphoric acid dissolved and suspended in it.

2nd. That these constituents are most abundant in the water during the months of August, September and October, when the river is in flood; and that it is during the period of inundation that the sedimentary matter, or mud, deposited from the water, is most valuable as a fertilising agent.

Professor Wanklyn read a paper* on his analysis of the monthly samples of Nile water furnished him by Mr. Baker, and drew attention to the remarkable alteration in the proportion of chlorine, and the constancy of the hardness. His explanation of this is that storm-water sweeps over the surface of a country without penetrating far into the ground, and as the surface has long been denuded of salt, very little chlorine is found in the Nile at flood. When the river has fallen, the water which has soaked into the soil drains back into the Nile, not only concentrated by evaporation, but charged with chlorine extracted from extensive strata; so it is no matter for surprise that the water at low Nile

* See "Water Analysis," 5th edition. London 1879.

contains six to eight times as much chlorine as the flood-water. The hardness is due chiefly to finely divided carbonate of lime, and the slight variation in hardness is due, according to Professor Wanklyn, to the varying amount of carbonic acid present in the river.

Well-water is necessarily more heavily charged with salts than the Nile at the worst. This is clearly evidenced by the following abstract of the analysis of the water in some wells near Cairo, and in the river :—

	Well water.	Nile water.
Chlorine (per 100,000 parts) . . .	7.28 to 25.4	0.21 to 1.74
Soda . . .	5.13 ,, 10.75	0.30 ,, 1.30
Magnesia . . .	2.81 ,, 7.91	0.48 ,, 1.62

Farther south, in the region of tropical rains, well-water is still more impure. In 1876, Mr. Fowler, acting on the Khedive's instructions, sent an expedition, consisting of twelve engineers, 150 soldiers, and 400 camels, to explore the country between Aboo-Goosi on the Nile and El Fasher in Darfûr, and samples of water were brought from all the more important wells. In one of these, about fifteen feet deep, situated at Mahtoul, thirty-seven miles from the Nile, the

quantity of common salt contained in the water was no less than seventy-three grains per gallon, and in few others was it less than fifty grains.

Observations of the fluctuations in the level of the water in Egyptian wells afford interesting data with respect to the rate of filtration through fine sand. In 1867-68, daily records were kept of the varying level of the water in the Nile of Assouan and at Cairo, and in a well situated one mile and a quarter from the river at the latter place. The following table shows the height of water in the Nile, and in the well at Cairo, in mètres above the low Nile of 1867, at intervals of ten days :—

—	10th		20th		28th to 31st	
	Nile	Well	Nile	Well.	Nile	Well.
January . .	2 03	2 35	1·86	2 20	1 70	2·05
February . .	1·55	1·92	1 45	1 76	1 35	1·65
March . .	1 18	1 47	0 81	1·36	0 69	1·30
April . .	0 62	1 18	0 56	1 05	0 45	0·87
May . . .	0 40	0 68	0 28	0 57	0·14	0·42
June . . .	0 05	0 27	0 00	0 08	0 50	0·05
July . . .	0 75	0 00	1 13	0 10	2 06	0·28
August . .	3 63	0 35	4 60	0 69	5 55	1·25
September .	5 97	1 98	5·73	2 32	5 72	2 69
October . .	5·37	2 91	5·27	3 21	6 09	3·47
November .	4 68	3·66	3·75	3 45	3 09	3·21
December . .	2·54	3 02	2 40	2·80	2·18	2·56

Between July 11th and November 8th the water in the well was rising, and for the remainder of the year falling. In a certain sense, therefore, it may be said that the water flowed into the well from the river for four months, and into the river from the well for eight months.

At Assouan, 573 miles above Cairo, the rise commenced on June 6th, or about a fortnight earlier than at Cairo; and the maximum flood was 8·03 mètres as compared with 6·09 mètres at Cairo.*

The ruins of certain villages near Port Saïd, in Lake Mauzeleh, are described by Belzoni in his account of the Great Nile Flood of 1818. "The Nile rose this season three feet and a half above the highest mark left by the former inundation, with uncommon rapidity, and carried off several villages and many hundreds of the inhabitants. I never saw any picture that could give a more correct idea of a deluge than the valley of the Nile in this season. The Arabs generally erect fences of earth and reeds round their villages to keep the water from their houses, but the force of this inundation baffled all their

* *Proceedings Inst. C. E.*, Vol. ix.

efforts. Their cottages, being built of earth, could not stand one instant against the current, and no sooner did the water reach them than it levelled them with the ground. It appears to me to be in the midst of a vast lake containing various islands and magnificent edifices."

This phenomenon must undoubtedly have been a mirage so peculiar to this part.* Herodotus has preserved a tradition, which appears likely to be true, that in former times a less flood would cover the Delta than in later years; and thus a flood of twenty-seven feet four inches in a distant age would be far more terrible than the worst mentioned by Mons. Le Pére. In a very elaborate argument on this subject, Sir G. B. Airy, K.C.B., in his work on *The Earlier Hebrew Scriptures*, says: "I cannot entertain the smallest doubt that the flood of Noah was a flood of the Nile. The mountains Ararat must have been the hills skirting the Nile valley, most likely those on the eastern side, as facilitating the conjectural migration to Canaan. I am not aware of the slightest authority for interpreting the mountains of Ararat to be mountains of Armenia, or any

* *Egyptian Irrigation*, by Griffin W. Vyse.

other country than the borders of Egypt. Remarking that the language of the account is, on the whole, Elohistic, I am inclined to think that Noah was an Egyptian, who, probably, after loss of possessions in consequence of the Nile flood, migrated to Canaan." The following incidental notice supports this idea:—After the flood, Noah saw the rainbow; that is, he migrated from a country where there is little rain to a country where rain is more common. There is very little rain in Egypt, but there is rain in Canaan. (Deut. xi. 2; 1 Samuel xii. 18; 1 Kings xviii. 41, &c.)*

After the flood, flesh was to be eaten (Gen. ix. 3). It would seem that the diet in Egypt was almost exclusively vegetable (Num. xi. 5), for, though "flesh pots" are mentioned (Exodus xvi. 3), no particular flesh is mentioned, and the general word may not fully bear the meaning given to it. In the land of Canaan and its neighbourhood we have no reason to suppose that the food was in any great degree vegetable. After the flood, Noah planted vines, and this implies that he had not planted vines formerly. There

* Bishop Colenso agrees with Sir G. B. Airy, the late Astronomer Royal, in these views.

are no vines in Lower Egypt, but there are vines in Canaan.

The Jewish writers, during the course of their sacred literature, show no acquaintance with the details of the Creation, as given in Genesis, and the conclusion arrived at would point to the fact that these legends were introduced after the close of their sacred history. They had been in contact with Egyptians, and had opportunities of propping up their Scriptures from purely Egyptian sources. When taken up to be dealt with in Creation the condition of the earth is described as chaotic, water and earth mixed together. The môt, or mud of Sanchoniatho, with the hot air acting upon it (Bishop Cumberland's version), describes the exact position from whatever quarter Philo Biblius may have derived his materials. The Egyptian's opinion of the Creation was the growth of his own river's bank. The ancient philosopher who saw the Nile every year lay a body of fresh soil upon his field, was able to measure against the walls of the old temples, that the Delta was slowly but certainly rising.* An increase of the earth was being

* The Nile is one of the few rivers in the world which flow from south to north. All rivers, owing to the

brought about by the river. Hence he readily believed that the world itself had been formed "out of water, and by means of water," as described in 2 Peter iii. 5. The ancient Egyptians all held the same view that matter was itself eternal, and that the world, before it took any shape, was "like thin mud, or a mass of water, containing all things from which life sprung." And, as described in Sharpe's *Egyptian Mythology*, when the water had by its divine will separated itself from the earth, then the sun sent down his heat, and plants and animals came forth out of the wet land, as the insects are spawned out of the earth, before the eyes of the husbandman, annually, after the Nile's overflow has retreated. The Chaldean account, as interpreted by Berosus, is, "that the whole universe consisted of moisture, animals being generated therein." Belus, who signified Jupiter, divided the heavens from the earth, and reduced the world to order from "thin mud and water," from which he formed "the stars, the sun, the

earth's rotation, have a tendency to flow westward, and all excessive erosions and encroachments of alluvial rivers obey the law of gravitation, and erode and scour westward.

moon, and the five planets." (Cory, *Fragments*.)

During the inundation of the Nile the whole of the Delta of Lower Egypt, to a breadth of 100 miles, is under water. If the flood is unusually small, the land is not covered, and is barren for the next year; if the flood is unusually high, the eminences are covered, and the most fearful distress is produced—men and cattle are drowned, storehouses and mud-cottages are swept away, and everything standing is destroyed, and the land left in a state which generally produces pestilence. Bruce has remarked that in thirty years there was only one instance of scarcity from insufficient flood of the Nile, but there were three instances of famine and emigration of the inhabitants produced by excessive floods. The flood in 1861 did very great mischief, that of 1863 caused great alarm. Le Père, in his *Memoir de l'Egypte*, has given the following numbers in illustration of the dependence of the safety and prosperity of the people on the height of the rise of the Nile.

When the rise is below 5·4 mètres (or 17 ft. 9 in.) there will be a famine.

From 5·4 mètres to 6·0 mètres (or 17 ft. 9 in. to 19 ft. 8 in.) scarcity.

From 6·0 mètres to 7 0 mètres (or 19 ft. 8 in. to 23 ft. 0 in.) small flood.

From 7·0 mètres to 7·5 mètres (or 23 ft. 0 in. to 24 ft. 7 in.) abundance.

From 7·5 mètres to 8·0 mètres (or 24 ft. 7 in. to 26 ft. 3 in.) strong flood.

Above 8 0 mètres (26 ft. 3 in.) flood, extremely injurious, certain famine, terrible destruction to life and property, followed by pestilence.

Mr. Moor took the discharge of the Nile for Mr. Fowler, at El Coratim, about two miles above the Barrage, June the 11th, 1873, with the following result: "By multiplying transverse section by the mean of all the measured velocities, Moor's experiments confirm the theory that the velocity of river water varies with the depth, so that a series of particles which at any instant may be a vertical line, will in a short time form a curve, which approximates to a portion of a parabola. Then obtain the areas of a number of equidistant particular sections at right angles to the transverse section; the depth of any point being known, and velocities at surface, bottom and mean depth, and applying prismoidal formula, we obtain a close approximate to actual quantity passing."

“ *Transverse Section No. 1, taken June 11th, 12th, and 13th.*

Area of Low Nile	.	16,125	square feet
Length of Section	.	1,473·12	„
Mean depth	. .	10 95	„
Mean Surface velocity	.	53	ft. per min
Mean depth velocity	. .	43·92	„
Mean bottom velocity	. .	43 02	„

Flow $16,125 + 43\ 02 = 693,698$ cubic
feet per minute discharge.

“ *Transverse Section No. 2, taken June 17th and 18th.*

Area of Low Nile	.	16,092·6	square feet.
Length of section		1,702·8	Lin.
Mean depth	. .	9·45	

		Ft per Min	
Mean velocity (surface)		55 63	} Mean velocity of all 46·86.”
Velocity at mean depth		37·63	
Velocity at bottom	.	36·56	

This, however, was checked and worked out by a second formula, at the same time, when the velocity having slightly increased, the discharge was calculated at 754,000 cubic feet per minute.

According to M. Le Père, the minimum discharge of the Nile is 728 cubic mètres per second; and by M. Malezieux 676 cubic mètres per second; whereas M. Devilliers found it to be 500 cubic mètres. These observations of the discharge were taken above the apex of the Delta waters.

The crops of 1868 suffered heavily from an insufficiency of water, while those of 1869-70 were correspondingly injured by an excess of it, through a too high Nile in both years. The care of the river banks and of the canals and dykes forms a special labour-tax, which is assessed by local Councils, partly chosen by the fellahs themselves, and partly nominated by the Mûdir of the provinces.*

“Upon the whole,”† says Sir George Campbell, M.P., “the soil of Egypt seems not so Egyptian as is sometimes supposed, that is to say, Egypt is not simply a great valley over which the Nile in flood annually sweeps, leaving the sediment from which rich crops are reaped. The greater part of it is now artificially and carefully watered, with much labour and expense. In this respect there is a great contrast between Lower Egypt (the Delta) and the Upper Valley. In the former, which is the cotton country, the Nile does not sweep over the land at all, but the water is let in plot by plot, generally being raised by machinery or hand labour.”

In the Upper Valley, a good deal of land is

* *McCoan.*

† *Vide Fortnightly Review.*

reached by the Nile flood, but the greater portion is flooded in its turn by a system of letting the water on to great tracks of country, and then letting it off again to the next tract. In proportion as the water is not direct from the Nile and supplied through artificial channels, it loses its sediment, and becomes less fertilizing. In a season of extraordinary low flood, the whole country does not go to waste as in an Indian famine, but the area of direct supply is very much diminished, and the labour of raising the artificial supply is greatly increased. Water is plentiful, but there is difficulty in obtaining it.

The Delta cultivation is laborious and expensive, so that, though very valuable crops are well raised, there is much to deduct from the profits. In the upper valley, on the other hand, where grain is chiefly grown, there is very little of careful labour, and very rough cultivation. When the water is run off, the grain is roughly sown, often in very foul ground. There is no further irrigation, and crops are obtained, not exceedingly heavy, but cheaply got. Of the land in general, it may be said that is rich, but not with the richness of a virgin soil; wherever good land is rented for cash, it fetches rents in

excess of the avowed government assessment, and sells for a considerable price in the market. I now quite believe that which has been often asserted, viz. that in all the better parts of the country, at any rate, the land can pay the regular Government revenue now assessed on it, if the demand were restricted to this alone, and extras were not piled up. Well would it have been if the present Sovereign had borne in mind the maxims of financial prudence, even as they were set forth a very long time ago, by Amrou, the first Mahomedan conqueror. Two things, oh, Kaliph! are necessary for Egypt. The first, not to be seduced by the schemes of financial investors, leading to increased taxes; the second, to devote at least one-third of the revenue to the irrigation canals. Mehemet Ali and Abbas left no debts. Said Pasha but a comparatively small one. The late Khedive, unfortunately, listened to financial investors, who led him not only to increase taxes, but "to a debt of 91 millions sterling, as stated a short time ago, to which, it now turns out, that a few more millions must be added." As regards the very necessary injunction of devoting one-third of the revenue to the irrigation-works which are the source of that

revenue, the ex-Khedive might plead that he had done a good deal if his canal-works had been made out of revenue; but unluckily canals, as well as everything else, have been made from borrowed money.

I cannot make out that the old canals have been very much improved, but two new fine canals have certainly been made—the Ibraheemee, in Upper Egypt, a very fine high-level canal, by which the Khedive's great sugar estates, and a good deal of country besides, have been watered; and the Ismailia, by which the fresh-water channel to the Suez Canal has been extended and raised. There never was a country in which Sir Arthur Cotton and his water navigation were so much wanted. In Egypt, canals have very exceptional advantages. The Nile and its branches are admirably suited for navigation, and the canals of the Delta, &c. might supply a real network of communication. Boat-locks, however, seem to be unknown in Egyptian canals; they are simply blocked up with beams and grass wherever there is a change of level, and are so made impassable for boats, except the new canals of the present *régime*, which have magnificent locks on a magnificent scale. But

on the Ismailia, the rates charged for lockage are most prohibitory, and on the Ibraheemee I saw *all* the locks out of repair and blocked up. Seeing the trouble about passing the boats through the fine bridge over the Nile at Cairo, (which is well raised above the water), Sir George Campbell asked, "Why do they not make their masts to lower so as to pass *under* the bridge?" "Oh!" was the reply, "they wanted to do that, but they were not allowed; they were obliged to keep up their masts to pay toll."

The fertility of the Nile is unparalleled. The soil will bear three crops in the year, and the Nile is so rich that the water restores the land to its original state of fruitfulness. Cotton and sugar-cane crops greatly exhaust the land, and require weekly waterings to restore the soil.

The irrigation in the Delta has been greatly extended of late years, in spite of the ill-treatment the fellaheen have suffered, and a great deal of land has been further reclaimed from the desert. Mr. Cave found from the Public Register of Egypt the following schedule:—

Cultivated lands in 1862	. .	4,051,976 acres.
„ „ 1875	. .	5,425,107 „

And according to Mr. McEwen, the Khedive only

retains *one-seventh* of the whole cultivated lands for himself. His Highness, writes the same authority, has constructed two main irrigation-channels, 145 miles in length; and 112 minor channels, some 900 miles in all, with 426 bridges. Mr. John Fowler estimates that the irrigation canals excavated of late years have involved the excavation of sixty-five per cent. more material than the whole of the Suez Canal. But from personal inspection, and from the best information received from the officials and other authorities acquainted with the Egyptian Government, I have no hesitation in saying that the irrigation-works in the Delta might, under judicious administration, have been extended to 20,000,000 of acres by this time, without any additional cost; and I fully endorse the official statement made in 1875, by a well-known and reliable authority, that 35,000,000 of acres might have been reclaimed from the desert with the money that has been annually spent on maintenance.

The canals which have been constructed during the present reign have not been paid for out of the funds of the State, but by the work of the population; and Messrs. Goschen and Joubert record the fact that even the earthwork for the

Khedive's own railway was done by compulsory and unpaid labour. The substance of Mr. Cave's statements are identical with those of Mr. Goschen's. Egypt, in proportion to her cultivated land, is one of the most densely populated countries in the world, as well as the one in which property in the soil is held by the largest number of petty proprietors in proportion to the population. This sub-division of the land is due partly to the traditions of the country, partly to the instincts of the race, still more to the conditions of the Egyptian cultivation. But be the cause what it may, the passion for land is universal. The fellaheen are, and have been from time immemorial, a race of peasant farmers. The Delta is not a country where high farming, costly machinery, and the outlay of capital are required to make the earth yield forth her increase. Hand labour and constant supervision of the water-supply are all that is wanted.* It

* An analysis of the Nile deposit, according to Mr. Stanley Lane-Poole, gives the following component parts :—

Alumen	.	.	.	.	.	•48
Carbonite of Lime	.	.	.	.	.	•18
Water.	.	.	.	.	.	•11
Carbon	.	.	.	.	.	•9

is obvious, therefore, that a system under which small plots of ground are tilled by the owners of the soil, will, in Egypt, prove more profitable than a system under which large farms are cultivated by hired labour. Even under good and intelligent management, says a well-known writer on Egyptian matters, the affairs of well-to-do landowners produce one-third less per acre than those of the fellahen, who employ no labour but their own; and adds, the *corvée* system has flourished in Egypt during the present reign with a severity probably unknown since the days when the Pyramids were built. For eight thousand years works of public utility have been constructed in Egypt by forced labour. The system may be a bad one, but it is in accordance with the customs of the country. The *chér*, or forced labour system in clearing

Oxide of Iron	.	.	.	.	.	·6
Silica	.	.	.	.	.	·4
Carbonate of Magnesia	.	.	.	.	.	·4

The average increase of the deposit is about four inches and a half in the century. (Le Pere states *five* inches per century.)

The Nile water has a peculiarly sweet taste, especially during the turbid state which characterises the early weeks of the inundation, and is very wholesome, except during the fortnight or so when its colour is dull green.

canals, &c. is in vogue under British authority at the present moment in the Múltan and other districts of British India, and although much has been said against such an anti-English practice, it still goes on ; and as the cultivators and landowners know no other system in these out-of-the-way parts, and being peculiarly conservative in all their customs, it would be difficult to introduce a more equal system, or one which would be better understood or appreciated. The Panjábis have never appealed against it.* But with the Egyptians it is very different, and they, amongst themselves, protest against the whole *régime*, for it is distinctly admitted by Mr. McCoan that there are two classes of labourers—one, who have worked without any promise of pay, the other, who have been promised pay and have never received it. The Egyptian peasant farmers lead a much harder life than the worst-used of our Indian ryots. The latter are certainly at the mercy, in ninety-nine cases out of a hundred, of a hungry, greedy, village *bunya*, who demands and draws from them all he can, charging them 20 to 50 per cent. for money advanced.

* *The Indian Public Works Department*, by Griffin W. Vyse, Executive Engineer, Government of India, 1877.

But in Egypt the irrigator and cultivator pays taxes in *advance*, and the orders are imperative, the local officials have no choice, and the wretched peasant is compelled to find the money under pain of forfeiting his land. He goes to money-lenders; the rate of interest and loss to himself are ruinous. He has again and again to pay interest and *compound interest* for the accommodation. In anticipation of a good crop the taxes are increased. And yet, says a well-known authority, such is the marvellous fertility of the soil that, as a rule, the original loan and interest are repaid in the end, but the net result is that without any advantage to himself or any profit to the Government, the peasant has had to pay, in addition to his taxes, a bonus of some 75 per cent. of their amount. A greater waste of productive power, a more profitless tax on labour cannot well be conceived. The controllers of the debt appointed under the Goschen and Joubert scheme would do well to show the damage inflicted on the resources and productive powers of the country by the system under which the labour of the fellahs is diverted from its normal and legitimate course. By substituting free labour of tenants for the *corvée* system, the

administration of Egypt would be placed upon a footing in which the "sound, honest, and economical principles" recommended by Sir Stafford Northcote, in his speech on Mr. Cave's mission, would have a fair chance of application. The plight of the fellah under the existing system is such that they would gladly welcome the imposition of any foreign rule so long as it was accompanied by a removal of the special and exceptional sufferings they now undergo.

Harvesting is a very simple process. The stalks are cut by the sickle or pulled up by the roots, and heaped together in the middle of the field. A waggon with jagged iron wheels is dragged by oxen over the heap, round and round, till both ear and stalk are chopped up small. The grain is then separated by the simple and ancient expedient of throwing the chopped heap about in the wind, when the chaff and straw fly away. No other thrashing is usual. A sieve is sometimes employed to clear the grain. Before grinding, the corn has to be examined.

The means by which the yearly inundation of the Nile is caught and distributed over almost the whole cultivable surface of the country, are

at once simple, though not very efficient. In Upper Egypt a system of reservoirs, already mentioned, receives and stores most of the supply needed from Assouan to Assiout, below which a less complete chain of similar basins serves in part a like purpose, as far down as Ghizeh, the province opposite Cairo. Thence to the Mediterranean, the whole work of storage and distribution is done by canals. Of these, both in Upper and Lower Egypt, the larger primary ones tap the Nile at a higher elevation than those of the districts they are intended to irrigate, and are themselves again tapped by the secondary channels which irrigate still lower and remoter levels, and from which, in their turn, branch off yet smaller courses, that are again cut almost at will by the villagers, till the precious fluid is finally distributed as the exigencies of the various crops require. The headworks of the larger canals, which issue direct from the river, consist generally of substantial stone or brick-built viaducts, with openings of from ten to fifteen feet wide, which are regulated by vertical planks, "kurries," or sheet piling. At intervals down the canals similar dykes are placed to produce successive heads of water, as far down as the

annual intake will feed an overflow into the adjoining fields, or materially reduce the height to which the water has to be raised by manual or other labour. The secondary canals branch from the larger ones through weirs similar to those described, and like them, again, are dammed at intervals to feed the smaller channels, by means of stone or brick conduits through their banks. Like the Nile itself, where necessary, the whole of these canals are embanked, and the maintenance of their earthworks is a rigorous duty imposed on the adjoining villagers. The depth of water in the navigable canals averages about three feet at low Nile; but as the beds of the smaller channels are considerably above the ebb level of the river, these latter are, of course, dry during the greater part of the year. Soon after the annual rise begins—about July—the head dams of the large canals are opened, and the rising volume of water is admitted into the first sections, until their banks are overflowed, and the adjoining land flooded; the dykes lower down are then in turn similarly opened, as also those which feed the secondary channels, until the inundation is complete, as in “low” years the supply is insufficient for the

whole area to be irrigated, so in over-high Niles there is more water than is required, and the excess is more or less destructive to all the crops near the river. Another class of canals accordingly serves to catch this surplus water, and discharge it into the river lower down. But the existing provision for this method of drainage is still inadequate, and three times during the past ten years, great damage has been done by overflows, that could not be thus diverted in time. The great annual inundation which is controlled and distributed in the manner thus described, is further supplemented by numerous wells, by many thousands of *sakhras* and *shadoofs*, and a yearly increasing multitude of streams and other pumps. Mr. McCoan does not think that a greater existing area could be irrigated during the eight months of ebb, to irrigate which adequately would require a constant supply, all the year round, in the main canals, and to obtain this, the barrage of the Nile scheme, situate immediately below the apex of the Delta, was first projected by Mahommed Ali, fifty years ago, followed by Mons. Mongel's plans in 1847.

The whole cultivable lands of Egypt are divided into two classes, *rey* and *sharâky*, the

former meaning land which is naturally covered by the inundation with little or no artificial aid, and the latter that not touched by overflow, the water for which has to be raised by pumps and other hydraulic machines. In the valley two-thirds of the cultivable land is of the *rey* class, which bears only winter crops. In the Delta it is mainly *sharáky*, and it is on this land that a succession of crops can be grown in one year. After the flood season the winter crop is grown on the *sharáky* just as on the *rey* fields. In the summer, rice, cotton, and indigo are sown. The autumn furnishes the magnificent maize harvests and the crops of *durah* or millet, which is the staple food of the natives.

The Public Works and Agriculture form a joint department. It was nominally under Prince Ibrahim Pasha, the fourth son of the ex-Khedive, but in reality administered by his *Mustéchars*—Ali Moubarek Pasha for Public Works (of which he was chief engineer), and Moukhat Pasha for Agriculture.

The first section of this ministry had charge of all the canals and irrigation works, while the latter exercised such supervision over the methods of husbandry, and the distribution and rotation

of crops as can be officially brought to bear on the staple industry of the country. Ali Pasha Moubarek was educated in the *École Polytechnique* of Paris, and is said to be a theoretical and well-read engineer, but not very obliging in giving any information connected with his department. Oriental-like, he is suspicious, and imagines, like many other officials, English and French, connected with the Egyptian Government, that everything he has to do with should be carried on in a mysterious and secret manner. Exposure is what a great many of them dread. During my visit to Cairo, while on special duty for the English Government, I reported that more misrule and injustice exist in the Agriculture and Irrigation Departments of the State than in all the other departments put together. According to the register made during the late reign, there were (and still are) in Upper Egypt 206,358, and in Lower Egypt 891,641, or in all, 1,097,999 *feddans** of uncultivated land, besides which there are also in four of the lower provinces about 1,500,000 *feddans* of similar land not registered, the whole of which would become cultivable with extended irrigation.

* A *feddan* is nearly equal to an English acre.

Thousands of men and cattle are wastefully employed in working a system of irrigation which was probably old before the Pyramids were built.* The complete abolition, therefore, of these drains of forced labour, and the substitution of some cheap pumping machinery for the *sakki* and *shadoof*, would set free thew and sinew enough to till every acre of Egyptian soil that can be further reclaimed for cultivation. The wage of the labourer when paid in cash averages sixpence a day, the minimum a single *piastre*. Labourers for hire are difficult to obtain. The contractor or landowner defrauds them, and great misery and oppression takes place; in fact, as often as not they are dismissed without payment.†

The *sakki* is the so-called Persian wheel, surrounded by buckets, on the principle of the dredging-machine and Chinese pump. The *tâbût*, a fan with hollow fellies, is used for raising water from a low to a higher level. The *shadoof*, or water-balance, is the long pole with a weight at one end, and a bucket at the other, suspended near the centre of gravity to a cross-

* McCoan.

† Cave's Report.

bar, fastened to triangular posts, The *shadoof* is worked by men, the *sakki* and *tábût* are turned by oxen, ponies, and donkeys, but chiefly the former. The *tábût* is the variation of the *sakki*, mainly used in the Delta, where it is necessary to raise the water only a few feet. All three are very ancient, especially the *shadoof*, as is shown in the sculptures at Thebes and elsewhere.* The *chutweh* is worked by two men with four cords; the latest official return reports the total number of *sakkias* at 30,084, that of *shadoofs* at 70,058, of *tábûts* 6,926, and of steam-pumps 476, engaging the labour of more than 60,000 animals, and 150,000 men, for, on an average, about 180 days in the year.†

Besides these antique contrivances, 500 centrifugal pumps, driven by portable steam-engines, are at work during low Nile in the Delta, principally on the Daira and other large estates. The plough and other implements are as old as the Pyramids, and are to be seen on the most ancient tombs and sculptures. These primitive machines are used to water the *sharáky* lands.‡

* Ancient Egyptians. † E. de Régný-Bey.

‡ A single *sakki* is equivalent to five times the working of one *shadoof*—(M. Le Pere).

Cotton is sown in June, and gathered in October, November, and December.* Sugar planted in June is gathered in February. Wheat sown in January is reaped during April and May. Beans sown in January are gathered in March, April, and May. Barley sown in January is reaped in April and May. Indian corn sown in August is reaped in October. Cotton, which is planted in March, is gathered in September. Clover, lucerne, or vetches, planted in December are gathered in February, then eaten off by cattle. Beans, barley, and wheat sown in November are reaped in April—the ground is then allowed to remain for a year fallow, where the inundation is good, or manure procurable.

The following information I obtained whilst in Egypt, from an engineer of long standing, who is thoroughly well acquainted with the Government, the officials employed in the Agriculture and Irrigation Departments, and the whole system adopted throughout the country. For political

* One mètre of water in depth is required for the cultivation of cotton during the cotton irrigation season; the first watering before sowing is usually estimated at *one-eighth* of the entire quantity given during the season.

reasons he requested his name might not be disclosed :—

Does the fellah work well, and with a will ?

No, he does not, and has to be driven, and requires constant supervision.

To what is this due ?

Principally to the *corvée*, or forced labour system.

What quantity of work in cubic feet can he accomplish when so driven, and how long does he work ?

One fellah at the depth of ten feet excavates forty-six cubic feet of earth. This calculation is taken over a great average. For an augmentation of depth of one foot he accomplishes six cubic feet less, and *vice versâ*, that is, for each decrease of one foot in depth he excavates six cubic feet more. The men are allowed half-an-hour in the morning for breakfast, and one hour at noon, and are employed from sunrise to sunset. The fellah provides his own food whilst thus employed, is subject to the lash and stick ; but what he objects to most is the removal to another district or province, and to perform work beyond his own neighbourhood. He is transported from district to district by rail, and is

ignorant where he is going, and how long he will be away from his home or village. He has no redress, and his complaints he must keep to himself.

What slope are the main canals, section and discharge ?

The longitudinal slopes of the main canals vary, according to the configuration of the country through which they run. The gradient of the Mahmoudieh Canal is about 1 in 6,200 and the gradient of the fresh-water canal between Lefiche and Suez is about 1 in 3,333. Some other canals in this locality have a slope of 1 in 1,000, according to the general fall of the surface of the country.

In the smaller canals there does not seem to be much precision or theoretical knowledge brought to bear on the lines of canals and water-courses laid down by the staff of engineers who set them out, and many canals are either practically useless or do only half their work.

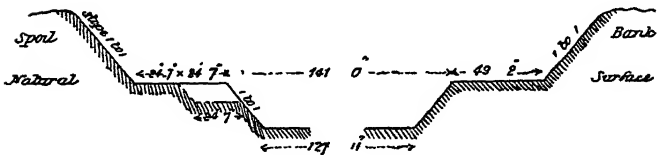
* The Nile overflows and waters 12,000 square miles, or two per cent. only of the whole area ; or, deducting the large coast-lakes, not more than 10,000 square miles and of this 10,000, one-fifth, or 8,000 square miles, is Delta.

All these latter are capable of being remodelled and greatly improved.

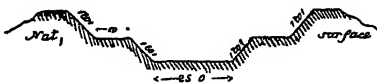
The sections of the larger, or main canals, are also very variable; these canals which are made for procuring water during the whole year are dug to the depth of twenty-six feet two inches, and these *perennial* canals show the best results.

The *inundation-canals* are dug to the depth of thirteen feet one inch, this being reckoned sufficient. The part of the fresh-water canal between Gessassine and Nefiche has a general section like the one indicated in the sketch, measuring about 1,700 square feet (as sectional area). The discharge varies, of course, with the height of the water, and this height or depth of

SECTION OF INUNDATION CANALS.



SECTION OF SMALLER INUNDATION CANALS.



water varies almost daily the whole year round. When the sluices are shut down and the water runs off, the head of the canal gets choked with silt and *débris*. The canals are seldom shut off unless a heavy breach or inundation occurs lower down towards the tail; they are regulated at will by sluice-gates, or "kurries," at the head of each important canal, and they can be cleared by opening those which aliment them. For every 4,000 acres to be irrigated in Lower Egypt, or 3,000 acres in Upper Egypt, the alimentation of a canal must be at the rate of thirty-five cubic feet of water received in it per second.

Inundation embankments, their section, and how constructed?

The embankments along the Nile and fencing in the canals are constructed once and for always, and require only yearly repairs. They are made with the earth taken from the bed of the canal, and are thrown up in regular layers and beaten into the proper sized embankments to hold back the rising of the waters. The breadth of the top is never more than sixteen feet, many, indeed are much less; the inward slope as three to one, that is, three horizontal to one vertical,

and the outward slope is two to one, two horizontal to one vertical.

The sediment of the Nile, maximum and minimum, during summer and winter seasons?

When the Nile water is most turbid, it is admitted by experimentalists that each thirty-five cubic feet of water contains 0.55 gallons of silt, which settles after forty-eight hours, when the water becomes fairly clear, though never perfectly so without being filtered. During "low" Nile the velocity is too slow to hold much silt in suspension, and before the rising of the Nile the water is a light muddy colour. In June and July it is greenish, from the vegetable substances generated in it.

The absorption and evaporation per acre in the Delta?

When the ground is quite dry in March and April, and cracked from the heat and dryness of the atmosphere, it is generally well watered before being ploughed, and for this first irrigation it requires from one-eighth to half more water than for the following waterings, according to the nature of the ground. It is reckoned that besides this one-eighth or half for "first" watering, which is only preliminary, from two-fifths to three-

fifths of the water given to the ground is lost through evaporation.*

Mean average watering per acre for crops?

As a rule much more water is given to the land, and consequently a better crop is obtained, when a pumping-engine is employed instead of the old-fashioned *sakhi*. The quantity of water to be given to an acre varies according to the kind of crop and time of the year. The average return over a number of years shows that for maize, beans, barley, and wheat 560 cubic feet per acre during 150 days, or five months (the usual season); and for superior crops 875 cubic feet, whereas for cotton, sugar-cane, rice, &c. the maximum shows 1,050 cubic feet are given to each acre of land cultivated during the said five months, or time taken to develop these crops. In ordinary calculations the average of 875 cubic feet of water to an acre may be allowed.

How is this watering regulated and checked?

When the level of the water in the Rhoda nilometer reaches the mark fifteen cubits and sixteen digits of the gauge column, equiva-

* Damietta to Rosetta is 80 miles, the base or coast-line of Delta is 150; exclusive of the large lakes near the sea, this triangle gives an area of 6,000 square miles.

lent to the altitude of fifty-five feet four inches above the average of the Mediterranean Sea, it is judged that there is sufficient water in the Nile to open the canals in lower Egypt, and the signal is given, and water is at once admitted into the Khalig or Cairo Canal, usually about the first week in August. Water being admitted into the canals, its level is regulated by adding or removing wooden horizontal beams, *kurries*, or by opening the sluice-gates in order to get the required discharge for irrigating the districts through which the canals run. The "kutchas," or temporary earth-dams, which shut off the water at the head of the inundation canals, are not removed until the required level is obtained, and permission given by the engineer or other official of the district.

What petitions or appeals, "urzies," are made by the irrigators, landowners, subordinates, and others?

This is a thing almost unknown; but whenever the permission to open the dams and bunds is wantonly delayed, so as to occasion severe losses to crops, irrigators and others have been known to appeal to the "Moudyr," or governor of the province, under whose orders the engineers

are placed, and it is in the power of the Moudyr to give the necessary order and redress the wrongs of the cultivators. The irrigation engineers and officials depend on the Moudyr only for protection and matters of police duty.

What tax per acre is levied on irrigated land ?

Taxes levied on land are not called *irrigation*, but simply *land-taxes*. The "kharragee" lands are now charged from 180 to 240 pt. (Egyptian piastres) per acre, according to the fertility of the crop ; and the "ushwree" are charged 7/ pt. per acre.

What amount of silt is deposited in the small canals and water-courses, and under what supervision are these, and how are they cleared, kept open, and regulated ?

The amount of silt deposited in the small canals and water-courses is in proportion much the same as that deposited in the larger and main canals and rivers, and may be calculated at 0.55 of a gallon, or 152 cubic inches for each thirty-five cubic feet of water admitted into the canal or water-course at head.* The gradients of

* The Delta is in the form of a triangle or pyramid, and the natives say the form of the pyramids was taken from the Delta of Egypt.

these being trifling, the velocity or flow is very small when it is once introduced into them. The smaller canals are all under the supervision of the State Engineers of the provinces. Whenever they inform the Moudyr that certain canals require clearing, banks breached require to be repaired, and other maintenance done, that official issues orders to call out the workpeople, and they are made over to the engineers, who carry out what is wanted. The work is usually done from April to the end of July, so as not to interfere with the collecting of the crops, &c., for which a separate system is in vogue. The workpeople are made up of whole families, old men and women, young boys and girls, children, in fact, are subject to the forced-labour system. More indulgence is shown to those near head-quarters—Cairo—than when far away, as the officials fear the Khedive's administrators, and other important functionaries of the State, who reside in the capital.

New water-courses can be made by the landowners at their own expense, on their own ground, provided they obtain the sanction of the Moudyr. Whenever any landowner wishes to cultivate any new ground (hitherto uncultivated), granted by Government, such land is exempted

from taxation for five years. These lands are generally reclaimed wastes from the desert, and are opened up free of charge, and all such lands intended to be improved are also granted free of all taxation; but the inevitable "backsheesh" must be given to satisfy the greedy officials concerned, who supervise the work on behalf of the Government.

What is the staff of engineers and officials maintained, and how are they employed and their work regulated?

There are two chief engineers, one for Upper Egypt and the other for Lower Egypt; for any special question of administration or duty beyond their immediate province they refer to the Minister of Public Works. Under the orders of these first-class engineers they have, besides the staff of their own offices, one second-class chief engineer for each province or state, and to these are adjoined as many assistant-engineers as the importance of the province requires. The second-class engineer is a sort of executive engineer, and directly responsible. The assistant engineers have under their orders the requisite staff of men for the purpose of regulating the sluice-gates and kurries, and the distribution of water, and control of irrigation-dams, bunds, &c.

What is the tax on land per acre, direct and indirect; also on irrigation, fees and payments, cost per acre, ploughing, sowing and reaping? The average of crops per acre, yield, return, and profit on rice, sugar-cane, maize, beans, wheat, barley, oats, cotton, &c.?

The tax on land has been stated to be 180 to 240 piastres tariff for lands called "kharragee," and 77 piastres for "ushwree" lands, and this includes irrigation tax and the money levied as subsidy to the Government. The subsidy tax varies, according to the nature and situation of the land, which is classed under five categories, paying respectively $2\frac{1}{2}$, $3\frac{1}{2}$, $5\frac{1}{2}$, $7\frac{1}{2}$ and $8\frac{1}{2}$ piastres per acre. The tax on irrigation, otherwise, is one-tenth of the tax on the land, so that if the amount of the subsidy tax be deducted from the total of the tax above mentioned, and the rest be diminished by one-eleventh, the rest will represent the bare amount of tax on land. All officials expect, nay demand, "backsheesh" from the cultivators. This is regarded as the Indian "dustooree," and twenty-five per cent. goes to feed the hungry Government officials of all classes. The *cost of ploughing* in Egypt varies greatly with the locality and natures of the soil, but it may

be assumed that to plough an acre or *feddan* with one pair of bullocks, donkeys, camels, buffaloes, or horses, one and a half or two days is required ; besides for making the furrows for sowing, the plough will again be required for half the day per acre. Taking the ploughman's wages at 1s. per day, and the pair of cattle at 2s., we have 4s. 6d. as the cost per acre for ploughing. When cultivators have their own cattle, and do all the field-work themselves, assisted by their wives and children, the expenses of ploughing are greatly diminished, and do not amount to half of this. For *sowing* cotton, two men are required per acre per day. The cost of reaping varies according to the kind of crop. For cotton, little children are employed to gather it from the plant, and are paid according to the weight each brings to the magazine. In general, it may be calculated that the cost of reaping, as also of sowing, may be taken to amount to two-fifths of similar work done in Europe when *men* are employed, and to half only when *women* are employed. The *average of crops per acre* varies according to the fertility of the ground, and the care taken in the culture and sufficiency of irrigation ; one acre gives 3 to 5 to 8 kantars of

ginned cotton, and 3·33 ardebs of cotton seed for each 5 kantars of ginned cotton; 1 kantar = 0·889 cwts., 1 ardeb of cotton-seed weighs about 270 *rotolis*, and 1 rotoli, 0·981 lbs., 1 ardeb = 6·9836 cubic feet. Cotton called “ashmonee” for each 5 kantars of cotton or per acre, gives 2·91 ardebs of cotton-seed. Maize about 15 ardebs (corn) to a feddan, and from 12 to 15 kantars (straw). Beans, wheat, barley yield equally from 3 to 4 and 5 ardebs per acre; oats are not cultivated in Egypt. Sugar-cane yields per acre as follows: 571 kantars sugar-cane, 388 kantars juice, 550 kantars wet megasse, 98 dry ditto; average density of juice in degrees, Baumé 8°; sugar yield, 20 kantars minimum, and 34 kantars maximum. The best rotation which gives best return is, 1st, cotton; 2nd, berceem (*trifolium alexandrium*); 3rd, maize; 4th, barley; all four in one year. Cotton requires most watering, as it is sown from the 14th to 23rd March, when the Nile is low, and artificial watering is adopted, till the first week in August. It is cropped in the middle of September. Sugar-cane requires much watering; it is planted between 6th February and 18th April, and cut from the 24th December to the 10th of January. Berceem

requires the least artificial watering, being sown when the Nile is in flood. There is no assessment on crops, taxes being levied only on land and irrigation. Waste lands and desert tracts are granted by the State for a term of years, free. Tobacco, fruits, vegetables, cheese, butter, eggs, fowls, &c. are heavily taxed on entering the towns of Egypt.

Population of the Delta ?

It comprises 2,993,110 inhabitants, including for Cairo, &c. 330,763, leaving a difference of 2,664,347 as the actual tillers and agriculturists of the Delta, or people supported by them.*

What area of the Delta is under cultivation ?

The total area under cultivation is 2,650,563 acres.

What is the total area of the whole Delta ?

Under cultivation . . .	2,650,563	acres.
The two Nile branches capable of being brought into cultivation . . .	57,054	„
The Canals, do. do. do.	67,656	„
Total area . . .	<u>2,775,273</u>	„

* Since this was written, it has been ascertained that the population of Egypt is nearly 6,000,000; Cairo, 427,000; and Alexandria, 287,500.

What is the proportion of inhabitants to the arable land ?

The proportion of inhabitants to the arable land is $\frac{2,650,563}{2,664,347} = 0.994$, or about one inhabitant per acre.

The number of inhabitants cultivating the country being only about 400,000, or $\frac{2,650,563}{400,000} = 6.626$, or one cultivator to each 6.626 acres.

What is the quantity of rateable crops produced in Egypt ?

Sugar	532,000 kantars.
Wheat	7,046,000 ardebs.
Maize	11,178,610 „
Barley	3,156,040 „
Beans	5,849,259 „
Lentil	238,459 „

And what quantity is consumed in the country ?

Wheat	2,591,839 ardebs.
Maize	9,118,869 „
Barley	2,109,756 „
Beans	1,423,055 „
Lentils	216,168 „

What quantity of rateable crops is exported ?

Sugar	432,000 kantars.
Wheat	1,454,161 „
Maize	159,741

Barley . . .	146,284 kantars.
Beans . . .	1,426,204 ,,
Lentils . . .	122,291 ,,

What other crops are raised in Egypt ?

Cotton (ginned) . . .	3,007,420 kantars.
Cotton seeds . . .	7,609,742 ,,
Indigo . . .	684 ,,
Henné (<i>lawsonia spinosa</i> <i>et inermis</i>) . . .	30,590 ,,

[The quantity of Henné ought to be at least
35,435 kantars.]

Habba soda (<i>nigella sativa</i>)	30 $\frac{1}{2}$ ardebs.
Hemp (<i>cannabissativo</i>) . . .	1,455 ,,
Poppy seeds . . .	4 $\frac{1}{2}$,,
Opium . . .	228 lbs.

[The quantity of opium ought to be at least 264 lbs.]

Flax . . .	42,056 kantars.
Tobacco . . .	55,900 ,,
Ditto Native . . .	1,828 ,,

[The quantity of native tobacco ought to be at least
2,334 kantars.]

Clover . . .	375,732 ardebs.
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[This is exclusive of the quantity consumed in the
country.]

Radish . . .	156 kantars.
Sesame . . .	3,693 ,,

[This quantity ought to be at least 24,885 kantars.]

Turnsol . . .	30 ardebs.
Vegetables of all sorts	23,384 kantars.

Onions	369,070 kantars.
Melons and Water	
Melons	59,970 „
Garlic	37,000 „
Melongena	2,450 „
Aniseed	50 „
Bamiah (<i>hibiscus esculentus</i>)	5,835 „
Carrots	750 „
Safflower	395 ardebs.
Cucumber	9,017 kantars.
Cummin	5 ardebs.
Gourds	8,170 kantars.
Colocoes (<i>arum colocasia</i>)	4,273 „
French Beans	2,245 „
Helbe (<i>femum græcum</i>)	828,306 „
Peas	12,000 ardebs.
Rice	106,316 „
Jalap	89,011 „
Melokhyeh (<i>corchorus olitorius</i>)	11,357 kantars.

Of the above products raised in Egypt, the following quantities are exported :—

Cotton	8,007,420 kantars.
Cotton seeds	7,342,120 „
Henné	35,435 „
Hemp	404,499 „
Oakum	25,966 „
Flax	25,290 „
Tobacco (native)	2,334 „
Clover seeds	79 ardebs.

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Sesame . . .	4,977 ardebs.
Linseed . . .	1,838 kantars.
Onions . . .	1,114 „
Garlic . . .	10 „
Baniah . . .	195 „
Baniah seeds . . .	10 „
Safflower . . .	10 „
Saffron (Egyptian) .	931 „
Vegetables (for Pickling)	36 „
Cummin . . .	98 „
Colocas . . .	15 „
French Beans . . .	324 „
Cress . . .	10 „
Cress seeds . . .	560 „
Helbé . . .	12,689 „
Green Peas . . .	1,364 ardebs.
Dry Peas . . .	263 „
Rice . . .	75,994 „
Melokhyeh . . .	2 „
Opium . . .	264 lbs.
Vetches . . .	2,386 ardebs.
Dates . . .	68,218 kantars.
Silk . . .	97,608 „
Green Pumpkins . . .	89 „
Pomegranates . . .	400 „
Oranges . . .	254 „
Lupins . . .	285 „
Lemons . . .	2,300 „

The cultivation of cotton, begun in 1821, is shown to be widely extended. Indigo succeeds

best in Upper Egypt; the growth of the sugar-cane is confined to this province. For the sake of the silk manufacture, 10,000,000 mulberry-trees have been planted in Egypt; but the hot winds often prove fatal to the silk-worms. The cultivation of the olive is on the increase. Attempts have been made to naturalise the coffee plant, clove, and cinnamon.

The system of manuring or enriching land impoverished by crops of rice, cotton, or sugar-cane, is very simple, and is the same as that adopted when lands are reclaimed from the desert, viz. inundating the land, and allowing the water to evaporate. When this has been done a few times, it is found sufficient.

Rotation of crops as follows :—

First year, sugar-cane planted in February, gathered in October and November.

Second year, ditto.

Third year, fallow.

Fourth year, wheat, clover, or maize, as previously stated.

Fifth year, maize, beans, barley, or wheat, ditto ditto.

First watering for any crop : when land is dry

five inches of water will suffice; allow it to percolate, plough, and then water three inches.

Cotton is sown just before the second watering.

Then when the plant is three inches above the ground, water three inches.

Cotton gets in all about five waterings of three inches each watering, before "high" Nile.

Clover takes only one good watering.

Wheat takes two good waterings.

Maize only inundation water; it is planted, or sown, in the mud.

Mr Foster thinks an average inundation and irrigation equals thirty-six inches of water, but twenty-five to thirty inches may be regarded as a very liberal average allowance per acre per annum, or ten cubic mètres per feddan per diem.

Twenty-five inches per feddan per annum = 7·2 cubic mètres per diem.

Thirty inches per feddan per annum = 8·3 cubic mètres per diem.

Thirty-six inches per feddan per annum = 10·0 cubic mètres per diem.

Egypt, from time immemorial, has been one of the greatest labour-producing countries in the

world. Under happier influences it might still perform that office by the free cultivation of the soil, and supply, cotton, sugar, rice, and every tropical product, as much as the world could consume. In the meantime, there is ground for hope that such a consummation is neither impossible nor far distant.*

Large and skilfully-constructed pumping apparatus exists only in the plantations and estates of the pashas, the people will have nothing to do with them. If a private person ventures upon one of these novelties, he is sure to let it stand again in a few months, and return to his old practice; something will soon become broken or choked up, and no one can be found for hundreds of miles, who is able to put it to rights.†

The manuring of the soil is most excellently performed, as has been stated, by the overflowing of the river. The dark rich soil comes chiefly from the mountains of Abyssinia, by the blue Nile; the white Nile contributes very little to the rich silt, so valuable for manure, which is held in suspension while the Nile waters are in

* Sir R. Alcock.

† Dr. Klunzinger.

motion. Only a few cultivated plants require a special manuring, for which pigeon's dung is the kind chiefly used. The ploughing is very primitive; the implement suffices for the soft slimy, stoneless soil, in which it draws only very superficial furrows, and no one thinks of improving this very primitive style of ploughing. The hoe is often used, and found sufficient.*

The labourers of the soil being, according to all recent writers on Egyptian matters, a sleepy and lazy race, prefer the least amount of toil with the greatest amount of sleep and rest. In this respect they are not unlike some of the Oriental races.

Speaking of Egyptian agriculture, it has been well said "the earth is tickled with a hoe, and laughs with a harvest," for over three-fourths of the country the soil is merely scratched with the crooked stick, which here, as generally throughout the East, does duty as a plough. Of the crops raised under these implemental disadvantages, cotton, though of less aggregate value than the cereals, ranks first in importance, although microscopic experiments with mummy-

* Dr. Georg Schweinfurth.

cloths have proved that *byssos* of Herodotus was flax, and not cotton as was long supposed. ¶

There is abundant evidence that the latter plant was grown and used by the ancient Egyptians.*

It was found, in 1821, by a Frenchman, growing wild in the garden of a Cairene Bey, and steps were at once taken by the Government to cultivate it. Its success has been marvellous, as the climate and soil of Egypt are admirably adapted to its growth.

The canals of Egypt measure lineally more than 8,400 miles, with a water surface of 100,000 square miles. The canals are classed as follow, the larger of which (called *Sefi*, or summer canals) are used for both navigation and irrigation, while yet smaller ones (called *Nili* or "High" Nile canals) serve the latter purpose only. Until the introduction of the railways nearly the whole transport of the middle and lower provinces was done by water, and even now the greater cheapness of the old method still secures for it a considerable share of the carriage of native produce to the coast and

* McCoan.

the chief inland markets. But with two or three exceptions the primary object of the whole 870 odd canals which now reticulate the country, is to receive and distribute the precious fluid on which everything depends; of these, fifty-one run through the Delta country. The Bahr-Yousuf proper (Joseph's river) taps the Nile above Mellawee and runs for 150 miles through a rich country to Benesouef, then westwards through the gap in the Libyan range, and enters the valley of the Fayoum, which it abundantly waters through a great network of branches, one of which empties itself into the Birket-el-Korn, and another joins the Nile at Rigga. Legends ascribe the construction of this great and important channel to the Patriarch whose name it bears, while geographers regard it as an old branch of the Nile, which, after watering the Fayoun, ran into the Mediterranean, west of Alexandria.* It is only navigable throughout its whole course during the inundation, being

* I saw evidences of an irrigation system in Egypt which a pre-historic age mastered, and which certainly showed unmistakable signs of hydraulic engineering art of high order. That system was not unlike what is adopted by the natives of Southern Afghanistan of to-day.

dry during the rest of the year. The late Khedive constructed Ibrahimieh, the next most important canal; it is 200 feet wide for one-third of its course, and fifty feet for the remainder, and it runs parallel to the Bahr-Yousuf for ninety miles. The vast reservoirs are filled during the Nile inundation, precisely on the same principle as the waters from the monsoon "rains" are collected in tanks throughout certain parts of India, and subsequently distribute their contents here, as in that country, into smaller basins and water-courses at a lower level, and so furnish water to the neighbouring land throughout the greater part of the year.

Of the fifty or more canals below Cairo, the most important are :—(1.) The Ismailieh, which starts from Boulak, runs fifty-five miles, and gives water-communication with Suez. The connection with the Suez Canal by widening the freshwater canal to 180 feet, and deepening it to eleven feet and a half between Zazazig and Ismailieh, has been completed, and through navigation for vessels 400 tons burden, paying half canal dues, established between Cairo and the two seas. (2.) The Bahr-Moez begins at Niet Radi, divides near Fell Basta, and empties itself

into Lake Menzeleh. (3.) The Chibin-el-Koum, ninety miles long, empties itself into Lake Bourlos. (4.) The Menoufieh, which crosses the Delta below its apex. (5.) The Mahmoudieh, which connects Alexandria with the Nile, cost £300,000, and is 100 feet wide, and navigable for large river-boats throughout the year. These greater canals and their branches make up a system of 1,900 miles between Farshoot and the Mediterranean. As, however, many sections are dry during the low state of the Nile, the waterway, which would otherwise be afforded, for the transport of local produce is broken and inefficient. Much might be done to these canals by deepening, straightening, and improving them. A few of these start direct from the Nile, but the great majority are subordinate ducts, capillaries so to speak, of larger channels by which the vital fluid is circulated to the arable lands.

In the course of his long and exhaustive statement on the public works policy of Indian Government, Sir Andrew Clarke quoted Mr. Bernard's note on the food supplies, and this is embodied in the report sent home to the India Office. It will be interesting to compare what has been said relative to the area cultivated

and the population of the Nile Delta, with the figures at the India Office concerning similar provinces of our Great Indian Empire. It seems that in the most thickly-populated districts of India there are about seventy-five to eighty acres of land under cultivation to every hundred persons, and that out of these acres sixty-five to seventy are under food crops. Oudh, for instance, with its dense population of 14 millions, has million acres of cultivated lands, of which 8,200,000 bear food crops. Madras has 21 millions of acres under food crops for its present population (excluding Zamindaries) of about 27 millions. Mysore has $4\frac{1}{2}$ millions of acres under food crops for its population of 5 millions. British Burmah has $2\frac{1}{2}$ millions of acres under food crops, with a population of $2\frac{3}{4}$ millions. The Central Provinces, where the land is poor and cultivation is slovenly, and where much cotton and oil seeds are grown, have only 13 millions of acres under food crops, out of a total of $18\frac{1}{2}$ millions of cultivated acres, but then its population is only $9\frac{1}{4}$ millions. Some provinces differ greatly from others; for instance, British Burmah, which exports annually 800,000 tons of rice, produces from two to three times as much

food as its people require. Assam, on the other hand, has also a very rich soil and heavy and never-failing rainfall, enormous areas of virgin land, yet she does not produce food enough for her people, and has to import food from thickly-peopled Bengal. But Assam probably stands alone in this respect, while all the other provinces produce enough food for their own support, and for export as well. A great deal, adds Mr. Bernard, has been said of late years about the vast areas put down with opium, cotton, indigo, seeds, and other crops, to the exclusion of food crops, and to the exploitation of India for the benefit of rich traders and of distant populations. But much of this kind of talk is due to ignorance, for out of the cultivated area of British India, estimated at about 160 millions of acres, only about 580,000 acres are under opium, and little more than 1 million acres under indigo, 8 millions oil seeds, and $10\frac{1}{2}$ millions acres under cotton, most of it for home consumption in India, while at least 130 millions of acres are under food crops. And an acre of food-crop land will, in an ordinarily good season, support two people if the produce of one province be taken with another. In Burmah and Bengal one acre sup-

ports three or four people ; in the Central Provinces and Bombay it supports less than two. No doubt the area under such crops as oil seed, jute and oil-bearing roots has increased greatly during the last ten or fifteen years. But, then, the total area under the plough has also increased vastly. In the Madras Presidency alone I find that Mr. Dalrymple, no mean authority, wrote in 1867 that the cultivated land in certain districts of Madras had from 1856 to 1866 risen from 10 millions to 16 millions of acres, so that it is quite safe to say that the area of food-crop land in India is now as high, or higher, compared with the population than it was in old times, notwithstanding the great extension of non-food staples like linseed and rapeseed.

The faults of the whole working of the Egyptian system of agriculture and irrigation are, to an outsider versed in the science of hydraulics and irrigation, palpable and glaring in the extreme, and have been written about, and held up to public ridicule, over and over again—not only is the system of agriculture one gigantic fraud, where bribery and corruption go hand-in-hand, but oppression and tyranny are the order of the day, in all matters where

Egyptian officials, and the fellaheen are concerned.

Under proper working the whole financial difficulties of the Egyptian Government might be met and met easily, if this, the most important branch of the State resources, was in honest hands and supervised by intelligent, straightforward officials and subordinates. And it is to the interest of the creditors that they should see for their own sakes this gigantic department properly and efficiently managed. The rich and prolific soil of Egypt can pay, and pay better than any other country in the world, but when the majority of the officials and tax-collectors are accomplished cheats, it is not to be wondered at that but little of the real revenue finds its way into the coffers of the State. The Egyptians are naturally conservative, and in this respect they resemble the Indian ryots, who cling to all their old worn-out contrivances and methods, with a dogged obstinacy. Bribery and corruption had an easy time of it, under the various dynasties of India, before the just and mild rule of England was adopted; and the result has been that bribery and corruption in British India *theoretically* no longer exist. They have

become things of the past; every ryot knows he can appeal in all matters connected with agriculture or irrigation to either the canal or civil officer for redress, and his appeal is attended to. If the simple plan, of allowing every Egyptian farmer, who had a grievance, to petition the nearest official (provided that official was himself honest) for redress, was sanctioned and strongly backed and supported by one and all of the legion of Government officials, the bribery and corruption now practised in Egypt would soon become things of the past too.

The *corvée* or forced labour system should be abolished, and the fellah should receive a fair day's wage for a fair day's work. The poor man should have the same independence and liberty allowed him as the rich and powerful, and equal rights in all matters connected with the law and the tribunal.

The taxes should be collected *after* the crops are cut, and levied according to a graduated scale on the sort of crop grown. About half the present nominal tax charged, or £1 per acre, should suffice in two seasons to bring double the quantity of land under cultivation that is at present shown. No "extra fees" or water

rates need be added to this simple method, and the revenue would very shortly be trebled. The labourer should be exempt from all other taxes, and the European merchants of Cairo and other large cities taxed instead. It is rather absurd that all these, with the rich Pashas and aristocracy of the land should be exempt from payment of taxes which at present are drawn from the wretched labourers.

The subordinate officials and officers of trust holding responsible positions in the Agriculture Department, are paid inadequately to keep them honest and above taking rewards and bribes from the cultivators and villagers. And the Khedive himself admits that until the pay is raised the remedy will never be effected. Until recently, all the officials of Government, high and low, were kept more than a year without receiving a piastre of pay, and the unscrupulous are entirely dependent on what they can make from their positions out of the people.

Mr. Cave * found by the Reports and Registers that the revenue of Egypt had increased from £55,000 a year in 1804, to £3,300,000 in 1830,

* Sir Stephen Cave was created a G.C.B. shortly before his lamented death.

and £4,937,405 in 1864 (the second year of the Khedive's reign, and to £7,377,912 in 1871, the year previous to the changes caused by the moukabala. This will give some idea of the richness and resources of a country which has so enormously increased its revenues in so short a time, and which has been allowed to become bankrupt. The productive power of the land has, it is true, immensely increased during the present ruler's administration; but how much more might have been done had His Highness but honest men for counsellors and advisers, instead of the pack of intriguing, plotting, selfish gamblers who have let the State into such terrible difficulties and brought desolation on the country and the people! All land theoretically belongs to the State, as in feudal times in Europe, and similarly large estates were parcelled among the conquering races, and charged only with a fixed quit-rent, called the *dîme* or *ouchour*. The remainder of the land is held from the State by communities or individuals on payment of a tax, called *karadj*, which is really a rent and which is variable and can at any time be augmented and confiscated at the will of the Government. Liberal rules have been enacted

by the late Khedive, so wrote Mr. Cave, and, to quote the same authority, His Highness fully intended to do much more good and carry out greater projects for the welfare of the country; but the time is past, and Egypt, unless something is shortly done, must fall to pieces, as an utterly demoralised State, whose Government have broken their word, and whose credit is worthless. The Ex-Khedive has been more sinned against than sinning, and has the sympathy of honest Englishmen, who regret that he should have been so easily duped, and induced to accept the brilliant schemes of selfish French speculators, and a host of other impostors and fraudulent capitalists, who have filled their pockets with his gold and left him to dream of castles in the air, and other bright pictures of raising corn in Egypt.*

The cost of the barrage £1,000,000, will reclaim from the Desert and otherwise irrigate by the proposed scheme over 4,000,000 of acres, in excess of that alluded to. If the present financial difficulties of Egypt could be cleared away, this magnificent work would be put in

* *Egyptian Irrigation*, by Griffin W. Vyse, M.R.A.S.

hand forthwith, and in a few years the additional money raised would more than compensate for the outlay. Provided the financial difficulties cannot be met, under proper management the money might be raised in England, and thereby made a financial speculation, and prove to speculator, financier, Khedive, bondholder and Government, a success of the first magnitude. To carry out such a scheme it would be necessary for the present Khedive to give a *proper concession beforehand*, signed and sealed by his own hand and that of the Sultan, to whom he refers in times of emergency, or whenever any question of this sort is raised.

CHAPTER V.

DESERTS AND OASES.

THE territory of Egypt includes certain fertile spots, which, from the peculiarity of their situation, amidst an ocean of sand, have been denominated islands. The term oasis, in the ancient language, signifies an inhabited place, a distinction sufficiently intelligible when contrasted with the vast wilderness around, in which even the most savage tribes have not ventured to take up their abode. It has been observed, at the same time, that as this descriptive epithet is applied to a cluster as well as a single spot, the use of it is somewhat ambiguous. In this respect, indeed, they bear a striking resemblance to islands in the Great Sea, where one of larger size is usually surrounded by others of smaller

dimensions, all taking their name from some circumstance, geographical or physical, which is common to the whole. Like Egypt itself, these isolated dependencies have been described in very opposite colours by different writers. The Greeks called them the "Islands of the Blessed," and, without doubt, they appear delightful in the eyes of the traveller who has during many painful weeks suffered the privations and fatigue of the desert.

On either side of the narrow valley of the Nile stretch enormous wastes of sand. The Libyan and Arabian deserts cover an area, according to Mr. Lane Poole, more than fifty times the size of the valley of Egypt itself. The Libyan desert is four times as large as the Arabian, and over 500,000 square miles, from the edge of the Nile's bed to the arbitrary western boundary of Egypt, extends this vast dreary expanse of salt limestone rock, rising and falling in monotonous waves, lacking every element of natural beauty, without mountains and valleys, unwatered and void of all green growth, over almost the whole of its wide extent, and possessing but the one virtue of a pure, dry, exhilarating air. The only exceptions to the general law of desolate same-

ness are a certain number of depressions, or pits sunk down below the rock to the clay substratum; when water filtered thus from the Nile reaches the surface it maintains a limited vegetation. These are the celebrated oases. Four extend in a curved line from the north-west boundary of Egypt to a point not far from Thebes, and a fifth lies nearer the river. The northernmost, some fourteen days' journey from Cairo, is the Oasis of Sirva, once famous for its temple of Jupiter Ammon, whither Alexander made a pilgrimage to consult the oracle, and where ruins and a sculptured figure of the deity, the ram-headed Amen-Kneph, still exist, but now renowned chiefly for its dates. Ten days' journey from Asyût is the next oasis, the diminutive Farâfrah, or "the bubbling springs"; and still further south, in a line with Thebes, and side by side, are the Western Oasis (Wah-ed-Dâkhileh) and the Great Oasis (El-Khârigh), with the ruins of a great temple of Amen-Ra. The chief routes to the Great and Western Oasis are from Girgeh (or Abydus hard by), on the Nile, or Beny 'Aly, lower down near Asyût. The Little Oasis is reached from Behnesa, and Sirva from Cairo or Terâneh, through the Nitrain

valley. The fifth, or Little Oasis (El Bahriyèh), is three or four days' journey from Behnesa, further north-east. There are also some less important depressions of small size. All the oases are deep hollows in the plateau, sometimes (as at Sirva) sunk much below the sea-level, surrounded by precipitous cliffs, scored by ravines, through which the valley is entered. The surface of the oasis is not one of unvaried green plain, but a number of verdant patches sprinkled at wide intervals over a carpet of desert; in fact, a miniature desert dotted with miniature oases. The water which filters through under the desert rock and vivifies these green patches, comes from a considerable depth, for it is always warm, 85° to 95° F., and iron and other minerals are in it. Its source is apparently inexhaustible, for a large number of artesian wells were sunk in the Western Oasis without any diminution of the supply. It rises with such force that the painful labour of the Nile irrigation is superfluous in the oases, and the course of the irrigation is inverted. The water is conducted over the clayey soil from the higher to the lower levels, down terraces of cultivated land. The gardens and terraces, divided by high earth-walls or hedges of acacia,

and the wells and canals shaded by ancient thorn-trees, wear a pretty look from the heights above, and the greenness might doubtless be extended to the whole of the oases, to the complete extinction of the desert places, but the water already is liable in its abundance to form marshes on the salt surface of the rock, which give the oases an unhealthy climate in the summer months. It used to be a fashion in Pharonic, as well as Roman times, to banish criminals to these spots,* where a slow death by ague and fever was

* The late Khedive, Ismail Pasha, banished many converts to various oases. He did it on financial grounds. If they returned they were executed. A great many, however, did return, but their whereabouts was never discovered by the authorities. It is strange that Mr. Lane-Poole has not mentioned this fact in his able book, recently published, on Egypt. There can be no doubt that the Ex-Khedive transported felons and outlaws to out-of-the-way oases, as he informed a Minister of the fact, who intimated the fact to me.

The sand-storms which pass over these green spots in the desert rage with terrific fury, and last for many hours at a time; houses and trees are blown down, camels suffocated, and men and cattle killed. Sand-storms are generally followed by rain or cooler weather. They occur at stated times, and the people are generally prepared for them.

The inhabitants of Sirva are in language and manners

a sufficient punishment for all offences. The unwholesomeness of the climate is partly the cause of the yellow skin and stunted growth of the people, who do not muster more than 38,000, of whom nearly half dwell in the Western Oasis, only 300 in Farâfrah, and about 6,000 in each of the other three. Their houses are often substantially built of palm-logs and stone, instead of crude brick, and are of several storeys, and the streets often run in almost total darkness under them. The produce of the soil scarcely does more than support the population, and the only export of any importance consists in dates of a peculiarly fine flavour. Besides the oases, the monotony of the Libyan desert is relieved by the Nitrian valley, a gloomy hollow, some twenty miles long, bounded by low hills, and containing ten dismal lakes, whence salt and natron are extracted. Round about are a few monasteries, the remains of the great Anchorite settlement of Nitriæ, the most notable fact about which, in modern times, is that it was the scene of Curzon and Tattam's depredations, whereby the British

Libyan. The region of the oases terminates towards the north, in the desert of the Natron lakes, which the Copts called Scete.

Museum was enriched by the acquisition of a thousand valuable Syriac codices which were perishing in the hands of the ignorant monks. South-west of the Nitrian valley is a forked river-bed, the Bahr Bela-ma, or "river without water." The Libyan desert has no natural boundary, since it is but the continuation of the Sahara, and the limit of Egyptian territory is vaguely indicated by a line wavering the twenty-third and twenty-fourth parallel of east longitude. In this, as in most other respects, the Arabian desert offers a thorough contrast. It is much smaller than the Libyan one, more hilly, is visited by rains, and hence is partly under vegetation, has green valleys here and there, but no oases; the home of the Bedouins, but has no inland towns, and is bounded on the west and east by the Nile and Red Sea. Several caravan routes lead from the Nile valley to Koseyr, the only port of Egypt on the Red Sea, except Suez. Three towns near together on the Nile, a little above Thebes, have served at different times as the termini of the Red Sea caravan route. First Koptos (Kupt) was the spot to which the Pharaohs and Ptolemies brought the stone they quarried in the Arabian desert for their temples on the Nile. In latter times Kôs

took the place of Koptos, till it was in turn superseded by Kine, the modern terminus, whence pilgrims used to start for Mecca, and Englishmen by the overland route to India, and through which all the Arabian and Indian trade of Egypt was carried on, before canals and railways combined to raise Suez to the position once held by Koseyr, and diverted pilgrims and Anglo-Indians alike from the caravan route.

CHAPTER VI.

THE UTILIZATION OF THE SALT LAKES BORDERING
ON THE MEDITERRANEAN, AND DESCRIPTION
OF THE OTHER LAKES OF EGYPT.

It is from about Saïdeh where the waters of the Nile diverge into two streams, to the shores of the Mediterranean Sea, that the Nile has in bygone ages been so erratic in its wanderings. It has traversed at various times every inch of land in the fork between Lakes Mareotis and Manzeleh. The whole formation of this part of Lower Egypt, otherwise the Delta, is alluvial deposit, brought down by the Nile in flood. The Mediterranean Sea at one time must have washed the base of the Ghebel Mokattam. "Lake Mareotis,* or Birquet Mariout," writes Mons.

* Translated from the original French.

Linant de Bellefonds, "is a spongy plain covered with a crust of salt on the area nearest to the sea, which is also the lowest part; the higher part is covered with salt earth, which, from its actual nature,* cannot receive any cultivation.

"The lake and the lands do not receive the water of the Nile, except in very small quantities, and when the flood water is made to run on the land for sowing.

"This lake is insalubrious for Alexandria, whereas it could be brought into cultivation, which would be of great service near a large city. This could be done by raising the lower lands and washing the higher lands. For this purpose it would be necessary to bring to the lake a large supply of the Nile water.

"The canal of Zerich, a continuation of the Bahr-Yousef, is very favourable for this project. It could be made to traverse the Rattatbe during a part of the flood season, and so to carry the water on to the higher portion of the lake. The water would wash this part, and would afterwards run by a diversion to the 'digue,' which should separate the higher from the lower lands. This

* Nature actuelle.

would bring silt to the low lands. When the higher lands had been benefited by the washing, the water would be let run on to the low lands. These low lands would be raised by the silt, and the water, freed of its earthy matter, would run towards the sea by a diversion, the silt of which should be at a suitable level. It would only require two years to bring under cultivation the first part of this area, which is at present marsh land, and unproductive ground. This result could not be obtained by draining."

Mons. Linant de Bellefonds is not quite right in this latter statement; such a method is perfectly feasible, as we all know, from the very extensive draining works in Holland, carried out with such successful results, but there is no object in draining Lake Mareotis when we have a river like the Nile close by, and whose waters are charged with such a vast amount of silt and *débris* as to make it the most invaluable agency if properly turned to account. Here, where Nature has done so much to help us in the work of reclaiming, we should readily seize the opportunity, and carry out what is already more than half done. The simplest method would prove the best; no sills or walls are wanted, but by

turning the stream into the highest part of Lake Mareotis, and nearest to the western arm of the Nile, the result would be obtained. It is most likely barriers, spurs, &c. would be necessary to direct the current, and help it in the work of silting and reclamation, and by decreasing the velocity, allow the silt-deposit to accumulate where it was required,* but nothing more than this simple arrangement is wanted in dealing with such a river as the Nile. By allowing the water to spread over the largest possible area, the velocity would be more easily decreased, when the work of silting and reclamation would more rapidly proceed. As the silt deposited, the channel would become more confined, and the velocity thereby greater. The work could then progress lower down, until the whole was completed. The three lakes, and all the marsh lands bordering on the western or Rosetta branch of the Nile, might be done in this way.

The "silting up" process was tried, and successfully carried out on the Indus, at Shah Jamal, in 1876. The Nile and Indus rivers resemble each other in many respects, viz. as

* Minutes of Proceedings of the Engineers, *Hydraulics and the Laws of Rivers*, by G. W. Vyse, A.M.I.C.E., B.A.

to their inundations, silt-deposit, and action generally. The discharge of the Indus in flood is about 850,000 cubic feet per second, and the Nile about one-third of that volume.

Probably the easiest work of all in the way of reclamation of one of these great shallow lakes bordering on the Mediterranean would be Lake Manzeleh—or rather a very considerable portion of it. By letting the Nile water in from Mansourah to a point near Tannah or Conribre, a great tract of this marsh land might be silted up and reclaimed without any further expense beyond cutting the channel mentioned, and that section of the lake from opposite the small town of Manzeleh and Materiele to Sane, might become land fit for the plough. Again, from Mitel Rholi to the lake is only a few hundred yards, and the expense of excavating a channel here would be comparatively trifling. Letting the Nile water in in this way might be done at all the most suitable sites; and thus most of this enormous expanse of shallow salt water, known as Lake Manzeleh, might become rich, fertile land. All the Damietta branch of the Nile might be turned off to accomplish this great work, passing down just enough Nile water for

the Damietta town and its irrigation. A canal 150 feet wide, with an average discharge of 1,500 cubic feet per second, would be sufficient for these purposes, and the present arm of the Nile might be further utilized by straightening all the sharp bends and twists of the channel, thus reclaiming much of the present bed, and additional land bordering its present course.

The fact that some old ruins of towns and villages have been found in the Lakes Manzeleh, Bourlos, Marietos, &c., does not prove that this portion of the Nile Delta, as has been asserted, is sinking, but from the evidence brought forward it is clear that these old towns and deserted villages were at one time enclosed by walls or embankments, and by shutting out the lakes from the sea, the water soon became less than the sea-level, by evaporation, percolation, and other causes, and many of the highest points now visible at low tide were once sites of townships, &c. This is the most reasonable construction to put on the matter, and one which is supported by scientific men. It is much more likely to suppose that a gradual upheaval is going on, and this, added to occasional deposits from inundations of the Nile, would more than

ever tend to prove that in the course of time this shallow basin will, without the help of man, become high land like the rest of the Delta. But much could be done at a trifling cost, and without any risk. If such a scheme as now proposed be at all feasible, the reclamation of this great stretch of land, now a shallow, useless waste of salt water, would in itself be an enormous gain to the Egyptian Government. The fact of turning the Nile off at this point would prevent any possibility of the river deposit ever choking up Port Saïd, as was suggested to that distinguished engineer, Mr. Fowler, who proposed a remedy for such a catastrophe, which was subsequently carried out, viz. to continue the western breakwater and make it a solid wall, to prevent the silt-deposit working through the breakwater. What Mr. Fowler wrote to the *Times*, February 18th, 1869, would apply to the present time :—

“ It cannot be doubted that large and almost constant quantities of fine alluvium will continue to be brought to Port Saïd from the Nile, and that the effect of placing a new obstruction to its course by a breakwater at right angles from the shore must cause a constant tendency to deposit,

and this result has already taken place to an extent deserving the most serious consideration. The remedy for the mischief, which may be said to have commenced and to be now continuing, is either to admit, as at present, the sand to pass through the breakwater into the harbour, and then depend upon dredging for keeping the channel and harbour clear, or to prevent it from passing into the harbour altogether by making the breakwater solid, and then encounter the difficulty, whatever that may be, of its greater accumulation outside.

“ The rate of accumulation in the angle formed by the western breakwater and the original shore was naturally very rapid in the commencement, because the area was small, and the water impounded in such a position as to be almost without motion ; but as the new shore, formed by the deposit, advances seaward, this rate of advance is, as might be expected, rapidly and constantly decreasing. The time which has elapsed since the commencement of this operation has not been sufficient to collect adequate observations by which any law or formula could be founded to represent the future rate of the advance of accretion, and no means exist of

estimating the precise change which will occur in consequence of making the breakwater solid. It is, however, very clear that many years must elapse before the line of shore can possibly reach down to the angle of the breakwater, because before that time the line of shore will have given the current very much its original direction and original velocity, and it may be that at or near this point the accretion seaward will cease altogether: but the greater probability is, that although it may have become so small as to make the annual progress scarcely discernible, it is still going on, and I should be disposed to view as a possible contingency the necessity of extending the western breakwater at some future time further into the sea. After the most careful observation I have been able to make of the old and new shore at Port Said, and the operations and consequences now going on there, my opinion is that no apprehension need be entertained as to the channel and harbour being silted up and destroyed, but at the same time I think considerable expense in dredging will be constantly required, that the western breakwater must be made solid, and may have to be extended."

Had the Damietta branch of the Nile been admitted into Lake Manzeleh at or near Mansourah (supplying that town and the small strip of land bordering this arm of the river with a canal sufficient for such purposes), there would have been no necessity to prolong the breakwater to Port Said, as the silt-deposit now wasted in the sea would have gone towards raising Lake Manzeleh, and, ere this, much of it might have become reclaimed good arable land. It is surprising that this was never thought of before, or at the time when the whole subject of extending the breakwater was raised, and increasing the cost of the works at Port Said, due to the Nile deposit showing itself in that locality.

Colonel (now Sir Andrew) Clarke, R.E., in conjunction with Captain Richards, R.N., in their Report on the Suez Canal, for the Admiralty and Parliament (1870) said :—

“ The greatest difficulty anticipated by those who were well qualified to form an opinion, was that the large quantity of deposit constantly being carried eastward from the Nile would rapidly pile up against any artificial barrier that might be constructed, and form a shoal across the entrance of the Canal. M. Lesseps, however,

boldly confronted the difficulty, and his decision has been justified by the event. That the operations of nature have, in some degree—indeed, to some considerable extent—produced the result anticipated, is not to be denied, as will be evident from an inspection of the plan of Port Said which accompanies this report; but it is quite manifest, from the rate at which the accumulation of sand is taking place, as shown by the periodical observations of the French engineers, and by our own examination, that any practical inconvenience to navigation from this cause may be considered as remote; but if at any future time it should arise, the remedy is sure and simple, viz. an extension of the breakwater.”

This idea is also what Mr. Fowler proposed, but it did not appear to either of these distinguished and scientific officers that the evil complained of could have been overcome by admitting the Nile water into Lake Manzeleh as previously mentioned in this report; the effect of the silting up is mentioned in the Report for the Admiralty under notice:—

“From an examination of the French plans and by our own measurements, the shore has extended seaward along the outside of the

western breakwater since 1860, or, in ten years, 1,220 feet. The action of the current has thus reclaimed in that period, in an angular form, an area of about 45 acres. An inspection of the French diagrams shows this process of silting has not been uniformly progressive; during some periods, indeed, it has been stationary. The area included within a line drawn from the eastern end of the breakwater to the tangent of the beach line, about three miles to the westward, is 1,400 acres, and from this some idea may be formed as to the remoteness of the time when any practical inconvenience to the harbour will result through the process of silting."

The "silting up" progressed at such a rapid rate, that not long after the above report was written, it was found absolutely necessary, in order to keep the Canal open, to carry out the work of extending the breakwater at a cost with minor works of nearly half a million sterling. The peculiar formation of the two branches of the Nile (Rosetta and Damietta) jutting beyond the ordinary line of coast, far into the sea, points clearly to the fact that the work of silting and accumulation is ever at work and adding more and more to the shore at the mouth of either

stream beyond the influence of the current ; whenever as in past times it has influenced the current by choking up the head of the bed, it soon makes a fresh channel for itself in such light alluvial soil as the Delta, as is to be seen in many of the abandoned beds of old rivers of Lower Egypt.

The minimum average discharge of the Nile recorded is about 18,500 cubic feet per second. During the height of the Nile inundation, the volume of water discharged by the eastern arm or Damietta branch at Mansurah, has been calculated at 155,000 cubic feet per second. Taking the average of six months, deducting for the channel 150 feet wide, with an average supply of 1,500 cubic feet per second, which would suffice for the town of Damietta, and the irrigation wants for the small strip of land between Mansûrah and Damietta, the remainder of this volume of water might be utilized, as previously stated, for silting up the hollow Lake of Manzeleh ; and the present bed of this arm of the river from below Mansûrah, would thus become an abandoned channel, which could be sold to the cultivators, and would realize—judging from the value of the land in this locality—a sum more than equivalent to compensate for the necessary

excavation of letting the water into Lake Manzeleh. Taking the average discharge for six months, it has been calculated that the sediment would give 100 cubic feet per second ; discharge, as solid matter, 3,000 per minute, 180,000 per hour, and 4,320,000 cubic feet per twenty-four hours as the amount of silt-deposit receivable.

The superficial area of Lake Manzeleh I estimated when at Cairo, from the most reliable maps, as 14,636,150,000 square feet, and averages about three feet in depth ; in fact, this may be regarded as a maximum rather than a minimum depth. The total quantity as ascertained, to bring the lake level with the rest of the Delta, fit for agricultural purposes, amounts to 43,903,450 cubic feet. By the simple agency of utilizing the silt-deposit of the Nile, it has been calculated that it would take about nine years to reclaim the whole of Lake Manzeleh.

It may be worthy of interest to note here, as an instance of what can be done by reclaiming this sort of land from the river by using the silt-deposit,* the amount of work that was accom-

* " Geological Notes on the Indus " by Griffin Vyse, F.G.S., *Royal Asiatic Journal* 1878 ; see also *North-West Frontier of India*, by Griffin Vyse, Field Engineer, T.C.F. Force, S. Afghanistan, pp. 50, 51.

plished on the River Indus in the Punjab in 1875-76 * in the short space of four months during the inundation or flood season. The Nile and the Indus are in many respects similar, viz. as to their annual floods, inundations, turbidity, velocities, and action generally, the Indus being the larger river in flood (its discharge is 850,000 cubic feet per second), but equal to the Nile during the rest of the year. In six months (four months actual working) six square miles of land were reclaimed from the river, which formerly had been a deep broad channel two miles wide, averaging a depth of twenty feet (see also *Professional Papers on Indian Engineering*, No. ccxlii., by Griffin Vyse, F.R.G.S., published by Government). In many places twenty-eight feet were sounded prior to the commencement of the work of silting. The amount of deposit was calculated to be 3,360 million cubic feet of solid matter. The greatest amount of silt deposited in any one day was two feet in depth (see *Minutes of Proceedings of the Institute of Civil Engineers*, vol 1. page 213).

* Griffin Vyse, Executive Engineer, Government of India, on the "River-training of the Indus," *Professional Papers on Indian Engineering*, vol. vi., published by Government; also "Vyse on River Defence Works," *Ibid.*

The idea of silting up the lakes, I understand, was suggested some years ago, and since my first report to Government appeared, a company to carry out this scheme was formed, but not having any practical men who understood such work, it has been regarded more or less as a failure. This is a matter of great regret, for the project is perfectly feasible, and could even now be achieved if carried out on the Indian principles.

The *Times* recently remarked that "In the half-yearly statement of revenue expenditure published on July 1st, not a third of the money (£81,000) allotted to a work has been spent. In the Public Works Department again there seems the same sluggishness. Out of £440,000 allowed for the year, only £130,000 has been taken. Yet in this latter department there is always scope for remunerative expenditure as long as land near the river is left barren, and Nile mud rolls down to the sea. Every Egyptian traveller knows the long line of marsh by the northern coast, which in Holland would at once be drained and planted, and many a traveller by the overland route has seen at Suez a fresh-water canal emptying itself into the sea, with a low-lying plain of

sand hard by, only waiting for irrigation to become a garden. Of course the Controllers have only advising powers, and must act with great tact and discretion. Too much interference would only weaken their influence. But discretion must not go to the extent of abstention. They were appointed to watch over the financial administration of Egypt; but good finance comes only out of good government, and therefore they were given unlimited powers of investigation into every branch of the administration, with the right to express an opinion on every Government measure." Nothing could be better than this graphic, reliable article, and I endorse every word of it, but I beg to differ from the remarks made about treating the shallow lakes as they do in Holland. It could be done without doubt, but there is no need, that I can see, for adopting such a measure when a far simpler process would suffice.

M. de Blignières is a man of vast experience and is thoroughly sound in all his views. He is admirably adapted to fill his present important office as a sort of Minister of Public Works, but his knowledge of hydraulics is somewhat limited, and his advisers in these matters are generally

officials who are actuated by personal motives, and who are at times apt to thwart his intentions of promoting all useful and good works for the benefit of the Khedive and the people. The *Times* remarks that on the whole the control works well, and Messrs. de Blignières and Colvin have steered with success through a difficult sea, which is studded with many rocks, national and international. But they are not the only Englishmen and Frenchmen who have to work together in Egypt. All important administrations are directed by gentlemen of either nation. They all receive what would be very large salaries in Europe, and what seem enormous salaries to Egyptians. Their position is only justified by the reforms they have effected. Egypt, on the whole, has been benefited by them, and the countries they come from may take a pride in much of their work. We are not sure whether England has the greater cause for pride. The position of Riaz Pasha as Prime Minister is unstable, we are told; Nubar Pasha and Cherif Pasha are acting together, and ready to take his place. The Khedive himself is desirous of becoming President of his own Council. As to the Premiership, it is not very

important as long as the Controllers act together and with firmness. Nubar Pasha is an enlightened statesman, and would understand the situation. Cherif Pasha has also the reputation of being an able and honourable man.

But if the Khedive presides the functions of Messrs. de Blignières and Colvin, as Controllers, would obviously become a most difficult task.

Lake Mareotis was once a fertile plain, with only a fresh-water lake in its centre, but now a salt marsh and the bane of the climate of Alexandria. The cause of this change was a strategic operation of the British army before Alexandria in 1801, in cutting off the water-supply of the besieged by letting the sea into Lake Mareotis. A number of villages were swept away, and many lives sacrificed, but Alexandria was taken, and its climate was ruined. A portion of Mareotis to the north-east separated from it by the high embankments of the Mahmudizeh canal is called Lake Abookir,* and through this part of the marshy zone issued the ancient Canopic branch of the Nile. Further

* The Bay of Abookir is the site of the celebrated action between the British fleet under Nelson, and the French navy, August 1st, 1798.

east is Lake Edku, and still further stretches the long lagune of Lake Burullus, which receives the waters of the canal that flow in the bed of the old Sebennytic arm. Easternmost of all, beyond the Damietta branch is Lake Manzeleh, the largest of all, and, according to Mr. Lane Poole, covering an area of a thousand square miles, and receiving the Mendesian, Tanitic, and Pelusiatic arms, or rather canals. A vast expanse of swamp and sand and brackish water, dotted with islets narrowing to marshy creeks, a desolate region where the curious half-savage population are supported principally by fishing, which is let out by Government for £60,000 a year. On the Syrian confines in ancient times a more eastern extension of the lagune system existed in the "Serbonian Bog," famous for its quicksands, or perhaps concealed water which swallowed up armies, and notable also for the theory which places the route of the Israelites of the Exodus along the strip of beach dividing Lake Serbonis from the sea. It is now filled with sand. All these lakes are separated from the Mediterranean by sandy strips of coast, upon which the ports of modern Egypt, Alexandria, Rosetta, and Damietta, Port Said, the creation of the Suez

Canal, are built. Besides these, there are only a few unimportant villages on the desolate ridge of sand-hills.

About seventy miles up the Libyan Hills open, and we enter a pear-shaped hollow in the plateau, the Faiyûm, or Lake District, the most fertile of all the rich soil of Egypt, watered by a long canal or branch of the Nile adapted for canal uses, called the Bahr Yûsûf, which runs from near Asyût for 207 miles to the Faiyûm, where it spreads out into a network of canals and fills the large Horn Lake (Birket-el-Karu). The chief city of the Faiyûm is the Medînet-el-Faiyûm, which contains 9,000 out of the 35,000 inhabitants of the district, and stands near the ruins of the ancient Crocodilopolis, capital of the home of Arsinoë.

To quote the lively and still faithful picture of rural Egypt up to this point given by Amrou, its Saracen conqueror, in his reply to the Caliph Omar, as recorded by Gibbon: "O commander of the Faithful, Egypt is a compound of black earth and green plants, between a pulverised mountain and a red sand. The distance from Syrene to the sea is a month's journey for a horseman. Along the valley descends a river

(on which the blessings of the Most High repose, both in the evening and morning), and which rises and falls with the revolutions of the sun and the moon. When the annual dispensation of Providence unlocks the springs and fountains that nourish the earth, the Nile rolls his swelling and sounding waters through the realm of Egypt. According to the vicissitudes of the seasons the face of the country is adorned with a *silver* wave, a verdant *emerald*, and the deep yellow of *golden* harvest."

Amrou had some idea of filling in the shallow lagunes with Nile mud. But with our knowledge of engineering, we shall probably see this scheme accomplished by the direct agency of the Nile itself.

CHAPTER VII.

THE SUEZ CANAL.

THE idea of restoring the original strait by joining the Bitter Lakes to the Mediterranean Sea on the one side, and the Gulf of Suez on the other, is of very ancient date. History informs us that it was attempted with success in the time of the Pharaohs; and in the Ptolemaic age an indirect junction between the two seas was effected by a canal—the original alignment of the present fresh-water canal—connecting the Pelusiac arm of the Nile near Bubastis with the city of Heroöpolis at the head of the gulf of the same name now separated by a sandy plain from the Red Sea and called the Bitter Lakes. The direct route now established is, however, according to Mr. Lane Poole, unprecedented.

The same reliable authority tells us that it was a favourite scheme with many of the rulers of Egypt; and Buonaparte during the French occupation seriously entertained the idea, but gave it up in consequence of a mistaken calculation on the part of his engineer, whereby the levels of the two seas were taken to be considerably unequal instead of being, as they are, practically equi-distant from the earth's centre. This error was corrected by M. Linant, and in 1854, M. de Lesseps laid his plan before Saïd Pasha, with whose approval and material assistance the Canal was begun in 1859 by the Suez Canal Company. At first the forced labour of 25,000 Egyptian peasants, changed quarterly by the Viceroy, was employed; but when this contract was very properly broken at the demand of the English Government, the Company's engineer supplied its place by a variety of ingenious machines, by the aid of which every difficulty was at last overcome, and the Canal opened with truly Oriental rejoicings in the presence of all Europe on the 17th November 1869. Since then the number and tonnage of the ships using it have steadily increased, till in 1878, 1,593 ships passed through it (of which 1,227 were

British) with an aggregate tonnage of over 3,000,000 and paying dues to the amount of £1,200,000. The total capital employed by the Company up to the time of the opening was about £17,000,000, of which about £10,000,000 bears interest. The original capital was £8,000,000, the indemnity from the Khedive for breach of contract in withdrawing forced labour, &c. £3,360,000. A Lottery Loan, 1868, produced £4,000,000; another loan in 1869, £1,200,000. Of this, Egypt contributed about £8,500,000 in taking shares, paying indemnity, and renouncing interest, besides undertaking the reckless expenses of the opening ceremonies. The British Government, however, purchased the Egyptian shares for £4,000,000, Egypt engaging to pay 7 per cent. interest till 1886, as they do not carry interest till 1894. The working expenses of the Canal in 1878, were £675,910, and the receipts nearly double that sum.

Compared with the Cape route to Bombay, nearly 5,000 miles are saved.

The length of the Canal is 100 miles, its depth 26 feet, and its width at the bottom 72 feet, at the surface 190 to 328 feet, according to the natural level of the surface. Starting from the

east side of the bay of Suez, with a wide channel protected from the sand shoals of the gulf by a mole of the same hard rock as the beautiful mountain of 'Atâka, which overhangs the west coast, it traverses the low marshy plain of Suez for 10 miles, and then enters the deep cutting 5 miles long, caused by the higher land of Sha-loof, where it contracts to a width of 190 feet, at the surface, the bottom remaining 72 feet, as before. Then pursuing its way for 75 miles, marked by a line of buoys through the Bitter Lakes—now great sheets of water 25 to 30 feet deep, but before the Canal was dug, wide expanses of salt marsh—whence it issues through a low tract only to encounter another stretch of higher land through which it is conducted by the cuttings of Serapeum and Tûsûn, 6 miles long, the Canal enters the Crocodile Lake, or Timsah, once a reedy pond of brackish water, but since the Canal let in the Mediterranean, an expanse of 6 square miles of clear blue water. The highest point of the Isthmus is then reached, the "Causeway" already referred to, some 60 feet above the sea-level, this is pierced by a deep cutting 6 miles long, and the canal skirts the edge of one of the Balah Lakes, cuts through

a sand-pit into the largest lake, issues through the sand-hills of El-Kantarrah ("the bridge," *i.e.* between Asia and Africa) into Lake Manzaleh, and running for 27 miles along its east side, opens out to a mouth of 1,000 feet as it enters the harbour of Port Said on the Mediterranean coast.

There are three towns, besides villages and railway depôt on the Canal, and they all owe their existence or survival to it, and bear the marks of the *nouveaux riches*. Suez at the Red Sea entrance represents the ancient port of Clysma, but never attained to much repute till the Canal revived it, and even now it is a wretched little town, consisting of the usual Arab mud-huts, a few shabby mosques, and some European erections in lath and plaster. The new harbour outside the great swamp which stretches in front of the town, is the only notable thing about Suez besides the Canal. Ismailia, on Lake Timsah, is the result of the necessity for housing the Company's workmen, and is of small consequence now the Canal is completed and most of the workmen gone. It marks, however, the angle where the fresh-water canal and also the railway from Cairo turn south towards Suez.

This Canal which originally connected the Pelusiac arm of the Nile by Bubastis with Heroöpolis, and supported by its moisture the strip of green soil which divides the desert from the Delta eastwards, had run dry beyond Ghassasîn, and its present revival is the work of the Suez Canal Company, who prolonged it to Ismailia and then down to Suez, for the sake of supplying their workmen with water, which otherwise had to be brought on camel-back at an enormous cost. This canal, though shallow, serves for a certain amount of local traffic, and its usefulness is increased by the new Ismailia canal, which connects it with Cairo. Port Said, at the northern extremity of the Suez Canal, is the counterpart of Suez with European improvements, but whilst Suez is only the resuscitation of the Canal, Port Said is its creation, and owes its existence to the fact that where it now stands the approach to the coast is deepest, and its site was therefore selected in 1859 on one of the strips of islands forming the sea-wall of Lake Manzeleh, as the best place for the exit of the Canal, and it was christened after the patron of the enterprise and the founder of the Egyptian National Debt. The most notable things about

Port Saïd are its two breakwaters, more than a mile and a half, and a mile long respectively, consisting of some twenty-five thousand blocks of concrete, each weighing upwards of twenty tons, laid *pierre perdu*. They are inclined towards each other, and enclose an outer harbour of 570 acres, from which they are intended to keep out the drifting sands, but constant dredging is needed to preserve the required depth of twenty-six feet. Three sheltered basins make up the inner harbour inside the coast line. The general aspect of Port Saïd and of the other two Canal towns, is that of people who have had one good time and hopefully expect another, but meanwhile prefer to wait and do nothing. A serious collapse of the Suez Canal is urgently needed, adds Mr. Lane Poole, to stir up the towns it has created.

It would be difficult to discover a much more desolate shore than that of the Red Sea. Klunzinger describes the country along the coast as a "howling wilderness," with a parched salt soil, brackish water, and no vegetation. Nevertheless the profits of the trade with Arabia and India have always kept the rulers of Egypt alive to the importance of a port on the Red Sea. In Ptolemaic times, besides Clysma (now

Suez) there were five trading stations along the west coast, of which Berenice, near the famous Emerald Mountains, was the chief, but these, like all settlements on a shore where there are no rivers, and no cultivable soil had an ephemeral existence. At present Koseyr is the only port on this coast besides Suez. Further south, indeed, Egypt has acquired from Turkey the ports of Suâkin and Musâwa, well placed on islands, with fine harbours, considerable population, and a valuable trade with the heart of Africa, and still beyond on the Gulf of Aden, Zeyla, and Berbera. But on the coast proper, the sole port of Egypt is Koseyr, founded by Selîm, the Turkish conqueror of Egypt, near the site of an ancient station. In the time of Mahommed Ali, Koseyr rose to a position of much prosperity ; 30,000 pilgrims bound for the Holy City of Islam (Mecca), passed through it from the Nile each year. The corn for Arabia was exported thence, and twice a month steamers landed their passengers, who came home from India *viâ* Kine and Cairo. At that time Koseyr had a population of 8,000, now it has 800. The railway from Cairo to Suez, and then the Suez Canal, demolished its flourishing transport trade, and it is now an

insignificant little port, whose chief interest lies in its coral reefs and pearl fisheries.

At its northern extremity the Red Sea divides into two gulfs, that of Suez, and that of El 'Akabah, with the mountainous peninsula of Sinai between them. Both belong to Egypt politically, but geographically the true boundary of Egypt is obviously the west coast of the Gulf of Suez, continued by the Canal to the Mediterranean. The interest of Sinai is chiefly geological and artistic, though to some it has a fictitious theological attraction. It may be added that it is probable that the Israelites were never there.

The Isthmus of Suez was originally a strait, and the only eminence on its low level surface—the hilly district called El Gizr, or “the causeway” near the middle—is the result of the accumulation of sand produced by the tides of the two seas meeting, aided by the silting up of the country about the isthmus, which is the counterpart of the depression still taking place along the coast of the Delta, in spite of the Nile deposit. The silting, however, did not cause the drying up of the entire strait, but left a series of lakes or salt marshes.*

* Mr. Lane Poole.

At the littoral slope of the mountains, where they descend to the Red Sea, "the air, the soil, the water, the rocks, the structure of the mountains, and to some extent, also, the animals, plants, and people, change their character. A fresh pure sea-breeze blows from the north, or, laden with clouds and moisture, the warm and oppressive south-east wind, which, along with the always pleasant north wind and the cold north-east, rules the winter half-year, and which is kept from reaching the Nile valley by the intervening mountains, as the samúm (hot wind) from the west has its progress eastwards arrested." The springs that here and there occur have a very bitter taste, and sometimes give out a smell like that of sulphuretted hydrogen. In places the soil appears loose and impregnated with a saline fluid. A bitter perennial rivulet, the Ambiga, runs down into the valley, and gives a verdant existence to a grove of rushes, but after a few days' rain becomes a raging, devastating stream. Already, at a distance, the most striking feature of this littoral portion of the mountains is the long-stretching ridge of white limestone hills, which rise youthfully among the dark and ancient primary rocks. From the bare hill

terrace that spreads out before us we perceive on the eastern horizon a bluish black band, which separates the earth from the clear blue sky.

It has been remarked that there is practically little or no tide in either the Mediterranean Sea or the Gulf of Suez, so the Canal is not subject to much tidal change. There is a constant but gradual flow from both sides towards the centre into the Bitter Lakes, to compensate for the enormous amount of percolation and evaporation which are continually going on. The Bitter Lakes, in consequence, are becoming each year more saline, and in time the accumulation of salt will prevent fish from existing in their waters. This matter has only quite recently attracted the attention of the scientific officers connected with the Egyptian Government. It has been remarked that the colour of the Bitter Lakes is the most intense and lovely blue of any sea in the world. At present the Suez Canal and Bitter Lakes, and Lake Timsah, are full of fish, and an enormous trade is carried on by the sale of the fisheries.

Dredging machines are always at work in the canal to prevent the channel from silting up; owing to the bottom and sides being composed principally of sand, the sides have a great ten-

dency to fall in and choke the waterway. The maintenance of the Suez Canal is very costly. Brushwood and stone-pitching of the sides have been carried out with great success, but in some places this has not been practical, and erosion is the result. Reeds, willows, and sea-water shrubs have all been tried, in some cases with satisfactory results ; but along some reaches nothing will grow. When a large steamer runs into the sides, or on a sand-bank, or aground, the Canal is sometimes blocked for days and weeks together. It was a mistake not to have made the Canal broader at the time of its construction, to do so now would involve an enormous expenditure—cofferdams sheeting, pumping, &c.; besides it would not always be possible to keep the Canal open during such alteration. Under these circumstances another Suez Canal scheme has of late been spoken of, the cost of which would not be more than 10 millions sterling, and would in many respects be a great improvement on the present Canal. Of course such a scheme as a second Suez Canal would be fraught with innumerable obstacles, political and financial, and the project must be shelved for many years to come under existing circumstances, although it would be a

great boon to the world at large. Egypt, France, and England would have all to come to a certain understanding, as each and all have now vested rights and interest in the communication afforded by opening out the Suez Canal, the great trading route between the Eastern and the Western world. The *Times* has remarked that the Frenchman has done eminent service in these matters, while the Englishman has not had the same time or opportunity of making his mark. The majority of the officials connected with the control of the Suez Canal and other Egyptian affairs are Frenchmen. In the Railways there are a Frenchman and an Englishman. The latter is the senior, and holds the rank of President of the Board, and he has a great Indian reputation for administration. The Telegraph department, conducted by Englishmen, is under the Railway Board. The harbour of Alexandria is managed by an English naval officer, under the Railway Administration. The Coastguard is commanded by an Englishman, who has done good service with poor material and small funds. The harbours of Port Saïd and Suez, the light-houses of the Mediterranean and Red Sea coast, are all under the control of Englishmen. The

postal arrangements are also in English hands. The pilots, masters, superintendents, station and signal masters in the Canal are about half English half French. The maintenance and general superintendence is chiefly in the hands of the French officials. The financial, checking, and other offices are conducted by the English. According to the *Times*, England, for political reasons, disliked the Suez Canal enterprise when it was first started, and attempted to prove it must fail commercially. Herein England made an egregious blunder, and there could not be a greater *sic vos non vobis* than when she herself bought four millions worth of shares in order to obtain an imperial interest in the concern she had so roundly condemned. Since that date the traffic of the Canal has gone on increasing. Thus in June 1870, the year of commencement, fifty ships passed through, paying £20,000 in dues, while in the same month of 1881, 187 ships passed through, and paid £140,000 in dues. This opposition of England at the inception of the great work was most galling to France, and added to the antagonism of the two nations in all things Egyptian. The next stage in their joint relations came out of the extravagant career and

insolvency of Ismail Pasha. This crisis, definitely for the first time, brought England and France together and on an equality in Egypt.

Mr. Edward Dicey, who is a perfect master of the subject, said, in speaking of the Suez Canal, that amongst the Khedives' unmortgaged assets, he still retained 177,000 founder's shares in the Canal Company. By the terms of the award given by the Emperor Napoleon, these shares were to receive no dividend till the year 1895, and judging by the returns of the Canal at this period, even their prospective value was excessively doubtful. These shares were offered in the first instance at Paris as security for a loan, and the proposal was coldly received. While these negotiations with Paris were going on, the advisability of purchasing these shares, and of thereby securing a direct interest in the Canal, was suggested to the British Government by our then Consul-General, Colonel Stanton. The suggestion was adopted with a promptitude rare in the annals of our Foreign Office, and one morning, in the commencement of November 1875, Europe was suddenly startled by the announcement that England had become one of the principal proprietors of the Suez Canal by purchasing the

Khedive's interest in the concern for the sum of 4 million pounds. This purchase, though decried at the time, was a wise measure; viewed as a mere financial transaction it has proved a brilliant success, as the shares for which we gave 4 million pounds five years ago, are now calculated at their market price worth over 10 million pounds. But if the shares in question had proved not worth the paper on which they were written, the purchase would still have been a prudent one to make. The Suez Canal had been constructed entirely by French agency in the face of the continued opposition of England. The inevitable result was that the administration of the whole concern was animated by a spirit of absolute indifference if not of positive hostility to British interests. So long as peace prevailed this was a matter of comparatively little importance. Nineteenths of the traffic through the Canal consisted of British merchandize, sailing under the British flag. The necessities, therefore, of the Canal as a commercial speculation afforded an adequate guarantee that in time of peace the concern would not be administered in such a way as to interfere with our maritime trade. But in the event of an European war, commercial con-

siderations must inevitably give place to political exigencies. Our highway to India—the most important link in the communication between the British Isles and our Eastern Empire—lay under the exclusive control of a company devoted, and rightly so, to French interests, and in whose management England had no voice or part. Now supposing that in any war between European Powers, the interests of France, whether as belligerent or neutral, were not identical with those of England, it is obvious that the latter must have been sacrificed to the former. No doubt England, so long as she commands the seas, could, in case of necessity, have compelled the Canal authorities to remove any restrictions upon her free power of transit through the Canal, but such compulsion could not have been applied without a rupture with France, which it might easily have been of the utmost importance to us to avoid. As things now are, the danger to which Mr. Dicey has alluded is materially diminished though not absolutely removed; England has obtained a direct interest and voice in the administration of the Canal. No steps injurious to our interests can be taken without our knowledge or even without our sanction. In other words, the

purchase of the Khedive's shares converted the Canal from a French into an Anglo-French enterprise, and this advantage could not well have been purchased too dearly. Mr. Dicey, in his late able work, has most clearly proved that the command of the Suez Canal is essential to the safety of our Indian Empire; and if the command of the Canal can only be secured by the occupation of the Isthmus, then we shall not act up to our obligations towards India if we fail to occupy the Isthmus when it lies in our power to do so. Mr. Gladstone agrees so far with Mr. Dicey as to admit that, under certain conceivable circumstances, it might be our duty to occupy Egypt for the protection of India. The command of the Suez Canal is daily becoming more and more important to us in order to secure our free communications with India, and in the event of the overthrow of the Ottoman Empire it will become absolutely essential to our safety to secure the command of the Canal, and to do this we must hold the Isthmus. Those who doubt the accuracy of these assertions should open a chart of the world and inspect for themselves the position of the Suez Canal, lying as it does as a sort of land-lock in

the very centre of our route to India. It is the great toll-gate between the East and the West, and it is most important, for political and strategical reasons, that we should have the power of keeping it open at all times for our ships.

There can be no doubt that, owing to the peculiarity of the structure of the Suez Canal, it could very easily in a very short time be rendered perfectly useless by a company of sappers and miners, thus constituting the Canal impassable for months. The marvel is that when Lord Beaconsfield was in power, he did not annex Egypt instead of Cyprus. He went half-way and suddenly stopped. The purchase of the Suez Canal shares for 4 million pounds met with the applause of the English nation, both Conservatives and Liberals agreeing that it was a very wise step. But the Suez Canal is the *point d'appui* of our hold on India. The direct control of it by England appears to all thinking Englishmen as absolutely essential, and of the highest and most vital importance. *It may, for various political reasons, be delayed, but it is inevitable that, sooner or later, we MUST make the Suez Canal British property.*

CHAPTER VIII.

ANCIENT EGYPT.

It is intended in this chapter to give an outline of Egyptian history from the earliest times down to the accession of the Saracenic princes, an epoch at which the power and splendour of the more ancient governments were oppressed by a weight of barbarism which has not yet been removed. In regard to this subject, it may confidently be asserted that there is no portion of the remoter periods of the human race more obscure from the want of authentic records, or more perplexed by groundless conjecture and bold speculation. The student who begins his inquiries with the establishment of the Egyptian monarchy, and proposes to sail down the stream of time, accompanied and guided by the old

historians, soon discovers the numerous obstacles which must impede his course. The ancient authors, from whom he seeks information, require him to carry back his imagination to an era many thousands of years prior to the existence of all written deeds; and they then gravely introduce him to gods and demi-gods, who dwelt on the banks of the Nile, and governed the fancied inhabitants of that fertile region.

Facts and legends have been hopelessly intermingled, and it requires great care and thought to adjust such a history out of the multiplicity of the books which have been written on so vast and difficult a theme. If, impatient of the fables related to him respecting supernatural personages, the inquirer should ask who was the first human sovereign who reigned over Egypt, he is encouraged by being told that his name was Menes, and that his history is not altogether unknown. But he soon finds out that the exploits of this prince greatly resemble the achievements of the god Osiris, and that the limits between mythology and the simple annals of a mortal race are not yet fully established. But to a certain extent, at least, the history of ancient Egypt can be placed on credible grounds, and even be rendered capable

of throwing light upon the condition of contemporary kingdoms. We must at once relinquish the regal gods and the thirty-six thousand years of their government, as, perhaps, the only indication, of some physical principle, or, more probably, the expression of a vast astronomical cycle. The sun, moon, stars, comets, lightning, thunder, fire, and leaders of the celestial host, have, according to ancient mythology, ruled over Egypt, before it became fit for the habitation of mortals. The authors of this hypothesis had nothing more serious in view than the gratification of their fancy in the wilds of that *terra incognita*, which in every quarter of the globe stretches far beyond the boundaries of authentic history.

As the Arabic language has been for twelve centuries the language of Egypt, the literature of that country necessarily merges in the wide sea of Arabian literature. There, as in other Mahomedan countries, the Koran is the only book systematically studied. In the schools established by Mahomed Ali for specific purposes, and placed under the direction of the Franks, suitable texts of various kinds were indispensable, and these have generally been supplied by trans-

lating the French. The modern Egyptians have as yet acquired, and but partially, the first elements of science. It is not improbable that from the time of the Macedonian conquest, nine centuries and a half before the Arab invasion, the Egyptian language began to give way to the Greek, losing its literary cultivation, though it remained in vulgar use. The introduction of Christianity naturally favoured the inroads of the Greek language, and it is not surprising that the Coptic language, in the specimens remaining to us, should exhibit a large intermixture of foreign words. After the Arabs were settled in Egypt, the Coptic continued to be cherished only by a small despised sect, and it ceased to be a living language in the twelfth century. Coptic literature belongs to the Christian period, and is almost wholly theological. If, therefore, we would look for the true indigenous literature of Egypt (that literary cultivation which belonged to the country when its historical importance was at its height), we must seek it in the graven monuments of that period. But as the description of those wonderful monuments belongs properly to topography, they will be found indicated elsewhere under the heading of *Literature*, and we shall

confine the data to such a brief general review of them as will serve to indicate the chief epochs of the history which they record, and the cultivation of the people.

Passing over the thirty-six thousand years during which ancient Egypt was ruled by gods and demigods, we come to the mortal Menes, the founder of the first of thirty dynasties recorded more or less perfectly by Manetho, the high priest of Isis at Sebennytus, who lived about 300 B.C. But so arbitrarily has the high priest's information been dealt with by the writers who have handed it down to us, and who have sought to adapt it to their own theories, that it cannot be decided whether he places Menes 5400 or 3900 before the Christian era. (In the Chronological Summary I have placed it at 4650 B.C.) However, it is worthy of remark that the son and successor of Menes is said to have written a book on anatomy, and to have had a famous temple at Memphis. This city was already under the second dynasty the capital of the kingdom, and mention is made at the same early age of Bubastos, or Pu-Pasht (Pibeseth, Ezek. xxx. 17), dedicated to the goddess Pasht, the remains of which may still be traced at Tel-Bastah, on the

east side of the Delta. With the fourth dynasty begins the period of undoubted contemporary monuments.

Shûfo (Cheops) built the Great Pyramid. in which his name is written ; his immediate successor built the second ; and his nephew Menkera the third. A portion of the coffin of Menkera, with his name inscribed on it, is now in the British Museum, being probably the oldest specimen of writing extant beyond the pyramids and the tombs of Gîzeh and Sakhara. These earliest known specimens of hieroglyphic writing exhibit the art in complete maturity, and, coupled with the pyramids, prove that Egypt under the fourth dynasty was already far advanced beyond the infancy of civilisation. The eleventh dynasty was the first of the Diospolitian or Theban kings, whose celebrity, however, commenced with the twelfth, to which belonged Sesortasen, one of those kings whose achievements have been heaped on the half-fabulous Sesostris, of whom there remains an inscribed pillar, recording his conquests in Nubia ; and his son Ammenemes III., who embanked Lake Mœris and built the labyrinth. This edifice, the foundations of which may still be traced, appeared to the Greeks, even

while Karnak stood in all its glory, to be the greatest and most wonderful in the world. The memorials of this distinguished dynasty are written or graven on the walls in the grottoes of Beni Hassen. The fifteenth and two succeeding dynasties were those of the Hyksos, or shepherds, whose tyrannous rule continued for some centuries. These shepherds—that is, pastoral and comparatively rude tribes—appear to have been the Canaanites, who, on their expulsion from Egypt, founded Jerusalem. With the eighteenth dynasty begins the most brilliant period of Egyptian history, and the greatness of Thebes. Aahmes (Amosis), the first king of the eighteenth dynasty, is supposed by some to have been the Pharaoh (Ph-re king), under whom the Exodus took place; though others suppose the Exodus to have taken place in the reign of Ramses (Sesostris), the last king of the last but one of this dynasty. Subsequently comes a series of great princes—Amenoph, Thohmes, Horns, Ramses, and Menephthah, to whom are due the grand monuments of Karnak, Luxor (el-Akhsar), Medinet Abu, Amada, Semneh, &c. The inscriptions of the victorious kings are found at the present day from Syria (at the

Nahr-el-Kelb) to Gebel Barkal, above Dongola in Nubia. Their conquests are recounted on obelisks, temples, tombs, and represented by paintings, with hieroglyphic explanations so elaborate and frequent, as to furnish the material of a voluminous, though still obscure literature. The tombs of the twelfth dynasty are, many of them, in the valley named Baban-el-Mulak (Gates of the Kings), extending in subterranean chambers, with painted or inscribed walls, to a distance, in some instances, of 350 feet. Some papyri, written in the reign of Menephtan II., the last of this dynasty (and son of Ramses III., the Sesostris of most writers 1340 B.C.), have been partially interpreted, and throw a curious light on the manners of the age. One of them contains instructions written by a Minister of State for the secret preparation of a certain feast, entitled "Table of the Sun" (in old Egyptian phrase, the king), as described by Herodotus 800 years later, and had its origin in Thebes.

Under the twentieth dynasty began the decline of Egypt and of Egyptian art; while Assyria, on the other hand, rose. A Pharaoh, probably the last of the twenty-first dynasty (Tanites, by Isaiah, called the princes of Zoan), gave his

daughter in marriage to King Solomon (1 Kings ix. 16).

The twenty second began with Sesonchis, the Shishak of Scripture (the first Pharaoh mentioned by name in the Bible), to whom Jeroboam fled, and who afterwards pillaged Jerusalem. In the paintings at Karnak which represent his conquests, this event is shown in detail, and the written title, "King of the Jews," points out the principal captive. The next dynasty was founded by Sabaco (So, the ally of Hosea, 2 Kings xvii. 4), originally from Upper Nubia. His name, as well as that of his follower Tirhaka, or Zerach, the Ethiopian, is found on the monuments. The twenty-sixth dynasty is distinguished chiefly by Psammetichus, in whose reign the Greeks began to grow numerous in Egypt. This was followed by the Persian Cambyses and his successors for 124 years, after which period we have again three dynasties of native princes, the last king of Egyptian race being Nectanebus, of whom there remains a temple and inscription at Philæ. He was driven from the throne in 341 B.C. by an usurper, who was soon after displaced by Darius Ochus, and he in turn was obliged in 332 B.C. to make way for Alexander.

The ancient history of Egypt may be divided into three epochs :—Firstly, from the foundation of the Empire to its conquest by Cambyses. The kings who reigned in this period are designated by the title of Pharaoh, signifying in the ancient Egyptian language “*Great King.*” Secondly, from the Persian Conquest to the death of Alexander the Great. Thirdly, the Ptolemies, ending with the death of Cleopatra, and the subjugation of the country by the Romans.

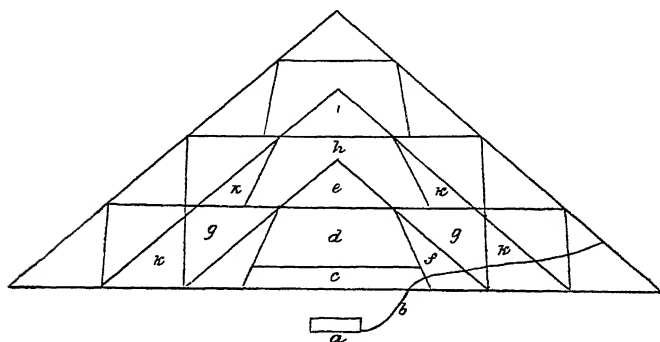
The pyramids for several thousands of years have attracted the curiosity of travellers, and given rise to much learned disquisition ; while so great is their magnitude and so durable the materials of which they are constructed, that they present to us the same subject of study which was contemplated by Herodotus, Eratosthenes, Diodorus, and Strabo. A pyramid, Mr. Lane Poole says, is simply a barrow, only it is a heap of stones instead of earth, and the stones are laid regularly, and their edges are finished, instead of being roughly thrown together.

The principle of the pyramid is always the same. A rocky eminence on the desert tract lying between the river and the Libyan hills

above the reach of the floods, was excavated for the sepulchre of the King, and a sloping passage was cut to it from the surface, Over this, to protect it from the invasion of desert sand, and to mark the spot, a large block of stones was built, not quite in the shape of a cube, but tapering somewhat to the top. This was done probably early in the King's reign, and if he died at this point his mummy was inserted into the tomb, a small pyramidal cap was put on the top of the block of stone, and triangular blocks were built at the side, and a small pyramid, hermetically sealing the sepulchre of the King, was then complete. If the King continued to reign, he omitted the cap and triangular blocks, and put another quasi-cube above the first, and other blocks round the base, so as to form a second stage, which, if the King were now to die, could be completed at once by a cap and triangular side-blocks to fill up the outline to the pyramidal form. The longer the King lived the more numerous the stages became; but at the same time the more rough became the masonry, for it is clear that in the small pyramids, when the masons had plenty of time before them, the blocks are better fitted together,

and the surface more smoothly polished than in the larger pyramids, when death stood near the King, and he had to hasten the completion of his cairn. There are sometimes other chambers besides the tomb in the pyramids, which were probably substitutes for the subterranean tomb in the latter stages of the pyramid. In every case the entrance to the tomb itself—

FORMATION OF A PYRAMID.—SECTION.



a Subterranean chamber. *b*. Entrance-passage. *c*. Rock foundation. *d*. First block. *e* Cap *f*. Side triangles. *g*. Side blocks for second stage *h*. Centre block, second stage. *i*. Cap, second stage. *k*. Side triangles, second stage. And so on.

generally a steep, sloping passage, narrow and low —was carefully concealed by ingenious devices, which were resorted to in order to prevent the sarcophagus from being carried away. The materials of the pyramids are mostly stone from

the neighbouring limestone quarries, with finer blocks brought over the river from Tura and El Maasarah, but some are of brick.

All the Egyptian pyramids are collected together in one region, with the exception of a few small brick cairns at Thebes, and some insignificant and later pyramids in Nubia; and this region is the necropolis of Memphis, for the pyramids are all tombs of kings and dignitaries of the early Memphite dynasties, who (according to Brugsch) ruled Egypt from about 4000 to 3000 B.C. Of the old royal capital itself nothing remains but a few fragments of colossi, some granite blocks, a few statues (in the Bûlâk Museum), and the huge figure, nearly fifty feet high, of Ramses II., which belongs to the British nation, but has hitherto failed to find a transport to England.

But of the necropolis of Memphis there remains not only the long series of royal pyramids, but also a large number of subjects' tombs. Of the pyramids, the larger and most remarkable are the three of Gîzeh, the Step pyramid of Sakkarah, and the "false pyramid" of Meydûm. They all belong to the oldest dynasties—one may even belong to the first or Thinite—but the

earliest identified is that of Meydûm, which is ascribed to Senofern, of the third dynasty (B.C. 3766), from whom to the end of the sixth dynasty it is known that every king built a pyramid. The three pyramids of Gîzeh are the tombs of three kings of the fourth dynasty, Cheops (or Shûfo), Chepren (Khafra), and Mycerinus (Menkera).

The pyramid of Cheops, known as the Great Pyramid, covers an area the size of Lincoln's Inn Fields, and originally had a height of 480 feet (higher than Strasburg, the tallest spire in Europe), with a cubic content of 3,277,000 cubic yards, or 7,000,000 tons weight. Its base is square, and exactly faces the four cardinal points. The four sides were originally case'd with beautifully-fitted polished slabs of limestone about 8 feet by 5 feet, on which were apparently engraved many inscriptions, but these slabs have been stolen by more modern builders, hence a slight reduction in the dimensions of the pyramid. The outer stones thus exposed are from two to five feet high, and each recedes about a foot. The sides rise at an angle of about 52° and at the top is a square level platform about thirty feet square. In ancient times the entrance

was entirely undiscoverable in the smooth polished surface, though there seems to have been a movable stone known to the priests; but now the entrance is opened in the north side about forty-five feet from the ground, covered with a pent-house roof. A passage rather less than four feet square and 320 feet long, sloping downwards at an angle of nearly 27° , so straight that the daylight can be seen from the lower end, leads to the sepulchral chamber* (40 ft. by 27 ft. by 11 ft. high). Rather less than a quarter of the way down, another passage, barred by a granite block, which has compelled explorers to force a new entrance, branches off and ascends at an equal angle for 125 feet, when a horizontal passage diverges to the so-called Queen's Chamber, and a narrow tortuous pit descends more or less perpendicularly to the subterraneous chamber; the ascending passage then widens into what is called the Great Gallery, 150 feet long and 28 feet high, a vestibule is reached with a

* Colonel Vyse, the celebrated archæologist and scholar, brought to light much valuable information about the Pyramids, and in his able book on the subject, he gives ample and graphic descriptions of his researches and discoveries.

granite portcullis, the survivor of four running in granite grooves. Beyond is the King's Chamber, about 35 feet long and 17 feet wide, with a height of 19 feet, roofed and walled with granite slabs so exquisitely fitted that it is impossible to introduce a sheet of paper into the joints,* and containing a lidless granite sarcophagus, long ago rifled, like most of the pyramid tombs. The King's Chamber is not quite under the apex of the pyramid, and the vertical pressure is further reduced by five low empty chambers over it.†

The second pyramid, of Khafra, a little to the south-west of the Great Pyramid, to which it is slightly inferior in size, is remarkable for retaining much of its original casing at the top.

The third pyramid, of Menkera, is less than half the height of the others, but it was originally cased with polished red granite, which still remains

* We tried to insert the blade of a strong pocket-knife into the joints of the masonry without success. The mortar is equal to the stone in durability, and in trying to cut it the knife was broken.

† The hieroglyphics discovered by Colonel Vyse in the interior of the Great Pyramid are not cut in the stone, but put on at a subsequent period, and are coloured.

to the height of thirty feet or so, and is known as the Red Pyramid. The British Museum possesses a mummy stolen by some of our archæological body-snatchers from the lower of its two subterranean tombs. In front of the Great, and at the side of the third pyramid, are three little pyramids with descending passages to subterranean tombs. One of these, Herodotus tells us, was of Cheop's daughter, and probably all were of the royal family. In front of each pyramid there was once a temple, dedicated to the deified king of the sepulchre, and remains of such temples are to be seen before the second and third pyramids of Gizeh. The approach to the pyramid platform was guarded by the Sphinx, the symbol of Horns in the horizon, a man-headed lion hewn out of a projecting rock, with a sanctuary between its fore-legs, which M. Mariette believes to be older than the Great Pyramid. This mysterious figure, the meaning of which has never been clearly understood, is in great part buried in sand, but its enormous head and shoulders rise massively out of its desert shroud, and in spite of the mutilation of the face, the loss of helmet, nose, and beard (in great part the disgraceful work of modern

travellers), it possesses a strangely impressive aspect.*

North of Gizeh is the ruined pyramid of Abu-Ruweysh, and south are the four shapeless dilapidated survivors of the fourteen pyramids of Abu-Sir, chiefly of the fifth dynasty. Further south is the second great necropolis of Memphis, the pyramid plateaux of Sakkarah, with eleven pyramids, innumerable tombs of all ages, adorned with magnificent wall-paintings, and the famous Apis mausoleum, the discovery of M. Mariette, wherein all the sacred bulls that were worshipped alive at Memphis, from the eighteenth dynasty to Ptolemaic times, were, when dead, buried in huge sarcophagi, in recesses arranged along galleries, and were worshipped in a temple now covered up with sand, from which came some of the sculptures of the Louvre. Of the pyramids built in six steps, the one with the angles not filled up is said to have been built by Uenephes, of the first dynasty, and, if so, is the oldest monument in the world. It is peculiar in having an

* Mark Twain, generally so witty and flippant in his clever book *The New Pilgrim's Progress*, has given a splendid description of the Sphinx, the word-painting is unique, the pathos perfect.

oblong instead of a square base, in not facing the four points of the compass, and in the number and construction of its passages and chambers. The truncated pyramid attributed to Unas, the last king of the fifth dynasty, called the Mastabat-Faraûn is also remarkable for its incomplete shape.

Beyond Sakkarah are the two large stone and two brick pyramids of Dashûr, and still further (outside the actual Memphite necropolis) the so-called "false pyramid" of Meydûm, built by Senoferû, but having the triangular facings of its upper courses demolished, and thus, like the Step Pyramid of Sakkarah, exhibiting clearly the principle of pyramid-building. In the tombs near Meydûm were found the oldest sculptures and paintings in the world, now the chief ornaments of the Bûlâk Museum.

The pyramid phase is the earliest in Egyptian art. In speaking of the temples of Thebes, we shall have to consider the latest style of sepulchral monuments; but at no other period do we find those qualities of imposing vastness and bewildering antiquity which give the pyramids their unequalled fascination.*

* S. Lane Poole.

It is very extraordinary that such superb piles are nowhere to be found but in Egypt, for in every other country pyramids are rather puerile and diminutive imitations of those in Egypt, than attempts at appropriate magnificence.

Some of the stupendous blocks of ashlar, lining the passages, we measured, and found them to be on the face thirty-one feet long by seven feet and a half deep; such stones would probably have a bed of fifteen feet, so one of these blocks would contain 3,487 cubic feet. These are dressed so "true" that a blade of a knife cannot enter the joints—a more marvellous result of human labour has not been found on earth. As large mechanical contrivances and cranes were unknown to the ancients, it is probable that these massive blocks were brought into place by embanked scaffoldings, approached by easy earth-work gradients.

The discoveries of Burckhardt, Banks, Drovetti, Cailland, Buckingham, Belzoni, Waddington, Hanbury, Hamilton Leake, Brugsch, Mariette, Wilkinson, Lane, Vyse, Klunzinger, and other celebrated Egyptologists, have made the present generation familiarly acquainted with her caverns,

temples, sepulchres, and pyramids, her gods and demi-gods, mummies, and amulets, after having been invisible and incomprehensible to Europeans for six thousand years. Young and Champollion have lifted the veil from her mysterious hieroglyphics,* and unrolled those historical records, which baffled the scrutiny of Grecian sages. An order of priests recorded and communicated from generation to generation the system of their religious belief and worship, and were the teachers of whatever parts of knowledge and science were not mysteriously concealed from the people. Agriculture was the employment of the majority of the ancients. The monarch had disciplined soldiers for his guard, and all the pomp of a court. Pastoral occupations were not unknown, but overlooked. Various mechanical arts were used to provide many of the secondary accommodations of life. Houses were built of bricks. The bodies of the dead were curiously embalmed. The corn of Egypt was exchanged for the spices, pearls, slaves, and precious metals, and goods which strangers brought to purchase it. Such was the condition of human life in Egypt when

* See *Literature*, p. 46.

the ancestors of the Jewish nation were driven by famine to go down from the parched plains of Syria into this land of fertility and plenty.

Abraham visited Egypt about 1918 B.C., and at that time we are not historically acquainted with any permanent settlements having been made, even in southern Asia. The kingdom of Thebes in Upper Egypt is supposed to have been founded soon after the dispersion of the Noahite family, although the name does not occur in the Bible. In the time of Homer, this city was still the boast of Egypt; but in the reign of Osymandias, the seat of the monarchy was transferred from Thebes to Memphis, which continued to be the royal residence till destroyed by Nebuchadnezzar about 567 B.C. Egypt in those times* had several rival cities, rival states, and rival monarchs. The ancient periods of history were preserved by means of hieroglyphics known only to the priests, who assured Herodotus that by means of these records they could trace their national history back 50,000 years.

* This version, and what follows, is given to show Mariette's account, which is somewhat different to that recorded by other renowned authorities previously given in this chapter. It is impossible to say which is right.

All tradition and historical monuments, however, refer us to early inroads of invaders, and the conquest of various parts of Egypt by fierce hordes from Ethiopia, and by tribes from Asia of Phœnician and Arabian origin. These latter were the *Amitæ*, or shepherd-kings, who reigned about 511 years. They lived in constant hostility with the people, until expelled into Syria about 1874 B.C. The Diospolitan monarchs were contemporary with the shepherd-kings, and with the Pharaohs of Mizram or Lower Egypt. The shepherd-kings were the fathers of the Philistines, who occupied the east shores of the Mediterranean, and occasionally extended their power as far as the banks of the Euphrates. The term *pak* denotes shepherd, and *stan* means country. *Pakistan* literally signifies the country of the shepherds. It is probable that the warlike nation who fought the descendants of Abraham for the Syrian border were the progeny of the royal herdsmen who ruled the rich territories of Lower and Upper Egypt

The Shepherd expedition is not yet extinct in Central India. The sacred writings of the Hindûs record two migrations from the west in remote times; first, of the *Yadavas* or “sacred

race," and afterwards of the *Pali*, or shepherds from Egypt. They ruled from the Indus to the Ganges, and are called *Pali-botteri* by Pliny and *Pali-putras* in Indian history. They were active, warlike, and roving, and they spread over Asia, Africa and Europe. They took Arabia and the western shores of the Red Sea. By the Greeks and Romans they were called *Barbaria*, from *verber*, shepherd. They wore long hair, lived in tents, and shifted their homes from place to place. They seem to have been the Eastern Ethiopians, as distinguished from the western both by Homer and Herodotus. They are to be found in Afghanistan and Bilûchistan to this date.

After an obscure interval, of which the duration is not known, Sesostris appeared, of whom so many fictions have been related in history; but there seems no doubt of his existence, and that in his youth he subdued Arabia. He next conquered Libya, and rendered the Ethiopians his tributaries. With a vast army he invaded Asia, crossed the Indus and Ganges, turned north, and founded a colony in Europe. After nine years absence he greatly improved his Egyptian kingdom. He fortified the east side

with a wall, which ran from Pelûsiam through the desert to Heliopolis; he dug canals from the Nile; from Memphis to the sea he erected temples in every city, and covered the land with columns, obelisks, and triumphal monuments.

After the death of Sesostris, another chasm in history presents itself, concluding with the reign of a King Amasis. We next meet successively with Cetes, contemporary with Priam, and Remphis, and Cheops, the original builder of the Great Pyramid. At last Psammetichus, son of Nechus, ruled from 679 B.C. Manetho enumerates Psammetichus as fifth sovereign of the Saitic dynasty and Prince of Sais, with Grecian soldiers. Bubastos, on the Pelusian arm of the Nile, became the capital, where he developed commerce. He was succeeded by Nechus (the Pharaoh-Necho of Scripture, about 617 B.C.). Egypt had a powerful navy, and Nancrates was a great commercial place; but from this period the country became involved in wars with Southern Asia. The forests of Lebanon attracted the cupidity of Nechus II., and led him to attempt the conquest of Syria and Phœnicia. Josiah, King of Judah, being in alliance with the

Assyrian king, refused to let the Egyptian army pass through his kingdom. A battle ensued at Megiddo and Josiah was killed. The conqueror now advanced to the Euphrates and took Carchemish; but encountering the Babylonian king, Nebuchadnezzar, he was defeated, and lost all his Asiatic conquests. Among his successors was Apries (Pharaoh-Hophra), with whom Zedekiah, King of Judea, entered into so rash and fatal an alliance. Apries tried to obtain Cyrene, a Grecian town in Africa, but failed, and he was killed. Under Amasis Egypt enjoyed peace, and had 20,000 populous towns. Pythagoras, the Grecian sage, visited him. His dispute with Cyrus, on account of his alliance with Croesus, occasioned the attack of Cambyses, who defeated the forces under Psammenitus, son of Amasis, at Pelusium, and took Memphis in 525 B.C. After this Egypt became a province of the now powerful Persian Empire for about 200 years. Psammenitus was the last native sovereign of Egypt (Ezekiel xxx. 13).

EGYPT UNDER GREECE.

When the dominions of Darius were seized by Alexander the Great, Egypt received the con-

queror with no show of resistance, and the vanity of the Macedonian was flattered by his being pronounced the son of Jupiter Ammon, when he visited the temple of that deity. On his death Ptolemy Lagus (Soter) became the first Egyptian Viceroy. Libya and Arabia were also part of Egypt. Alexandria was enlarged and beautified, and became the capital. Ptolemy founded colleges, libraries, institutions, which became the centre of learned men; he added Palestine, Syria and Phœnicia to his empire, and closed an illustrious life in his eighty-fourth year and thirty-ninth of his reign, B.C. 284.

His son and successor, Ptolemy Philadelphus, founded Ptolemais, completed the canal of Suez which his father had begun, and built the Pharos, or light-house. He died 247 B.C. His son, Ptolemy Evergetes, was a warlike and successful prince, and showed kindness to the Jews. He was succeeded '221 B.C. by Ptolemy Philopater, an execrable despot, whose career was brief. His son also had a brief reign. On his death the queen-mother, Cleopatra, became sovereign. At her death Ptolemy Philomater reigned; taken prisoner by the King of Syria, his younger brother Evergetes II., surnamed *l'hyscon*, for his

size and gluttony, reigned in his stead. His atrocities were most brutal. He died at Alexandria in his sixty-seventh year and twenty-ninth of his reign, 122 B.C. During the succeeding reigns of Ptolemy Lathyrus, Alexander II. and Ptolemy X., civil wars prevailed, and the predictions of Isaiah (xix. 2) strangely verified. "I will set the Egyptians against each other, brother against his neighbour, city against city, and kingdom (*nome*) against kingdom." Ptolemy X. was a weak creature, surnamed *Aulets*. He feared Rome, and bribed the favour of Julius Cæsar, then Consul at Rome, by presenting him with 6,000 talents or about £1,162,550. Driven from the throne by rebels, he was replaced by the Roman General Mark Anthony. At his death he left his children under the protection of Rome. Ptolemy XI. and XII. were associated with their sister Cleopatra in the government of Egypt. The death of the famous Cleopatra * closed the dynasty of the Ptolemies after 294 years, and Egypt became a Roman province.

* It was not consistent with Egyptian decorum that Cleopatra should reign alone ; so, to satisfy the prejudices of the people, her brother was placed also on the throne.

EGYPT UNDER ROME.

Under Ælius Gallus, an attempt was made to subdue Arabia. Adrian visited Egypt in A.D. 117. While the Emperor Probus commanded in Egypt, he carried out many public works in that country. Diocletian punished the cities of Alexandria, Busiris, and Coptos severely for rebellion. Christianity was early introduced into Egypt, and Gibbon says the zeal of the people for this new religion was most marked. The cities of Egypt were filled with Bishops, and the deserts swarmed with hermits. The first example of monastic fame was Anthony. So well did his views please the people, that in a short time the majority of the Egyptians became monks. The Church, however, soon fell, and disputes between Arian, Catholic and Heathen factions were long and fierce. Under Theodosius paganism was sup-

He was killed very shortly afterwards. The assassination of the conqueror of Phœnicia and the subsequent defeat of Mark Anthony raised Octavianus above the reach of the most powerful of his rivals, and he became the head of the Roman world. Cleopatra made her escape from his revenge in a voluntary death, and put an end to her life by the bite of a poisonous reptile. With Cleopatra ended the line of Grecian sovereigns.

pressed, but the valuable library of Alexandria—the finest in the world—was destroyed at this occasion. Christianity instead of proving a blessing proved a curse; the priests and patriarchs promoted warfare, and perpetual struggles fill up the annals of Egyptian history until the Saracen invaders appeared upon its frontiers.

SARACEN INVASION.

Memphis was first taken by the General of Omar. Alexandria surrendered, was pillaged, and its third Great Library perished. Reduced to a province of the Mahommedan Empire, Egypt claims but a slight notice from history. For a short time it was independent, then ruled by the Khaliffs of Bagdad till 968, when it was reduced by Moez to a petty state. During this period the throne was filled with adventurers. Of this dynasty the last of the Fatimites expired in 1171, when Saladin, an ambitious, clever man, assumed sole power. Favoured by circumstances he declared himself King, 1173. Not being a descendant of the Prophet, he could not be *Khaliff*, which implies holiness; so he chose to call himself *Sultan*, and left the office of pontiff

to be filled by a descendant of the Prophet, whom he ruled.

As a province of the Roman Empire, the history of Egypt can hardly be separated from that of the mighty people by whose deputies it was governed. It was, indeed, occasionally disturbed by insurrections and wars, but it was, nevertheless retained with a firm grasp both against domestic and external foes, until the decline of power compelled the successors of Augustus to withdraw their legions from the extremities of the Empire to defend the provinces of Tiber and the Danube. Adrian, in the beginning of the second century, spent two years in Egypt, during which he laboured to revive among the natives the love of letters and the beauties of architecture. Severus, too, at a somewhat later period, made a similar visit, when, like his predecessor, he exerted himself to relieve the burdens and improve the condition of the great body of the people. In particular he countenanced every attempt that was made to repair the ancient monuments, as also to replenish the museums and libraries of Alexandria with works of art and science, and, above all, to instruct the people, and show them the absurdity

of their superstitious belief and magic deceptions of astrology. The reigns of Claudius and of Aurelian were slightly agitated by the pretensions of Zenobia, Queen of Palmyra, who, as a descendant of the Ptolemies, announced herself the Sovereign of Egypt. Her army advanced to the frontiers, and even gained some victories over the Romans ; but her troops being steadily opposed by the legions of Syria, she sustained a total defeat, and was carried captive to Rome. When, at a later period, the Emperor Probus visited Egypt, he greatly developed all arts and sciences, and built splendid palaces. The navigation of the Nile, so important to Rome itself, was improved, irrigation was extended ; temples, bridges, porticoes, and forts were constructed by the hands of his soldiers, who acted by turns as architects, engineers, and cultivators. On the division of the Empire by Diocletian, Egypt was reduced to a very small state. Achilleus of Alexandria and the Blemmyes, a savage Ethiopian race, defied the Roman arms. The Emperor resolved to punish the insurgents, and opened the campaign with the siege of Alexandria. He cut off the aqueducts which supplied every quarter of that then immense city with water. After

eight months of terrible suffering the besieged submitted to the clemency of the conqueror. The fate of Busiris and Coptus was even more melancholy than that of Alexandria. Those proud cities—the former distinguished by its antiquity, the latter enriched by the passage of the Indian trade—were utterly destroyed by the arms of the enraged Diocletian. The introduction of Christianity, says Gibbon, was marked by repeated outrages among the people, and even by such commotions as threatened to shake the stability of the Government. The adherents of the old religion resisted, on some occasions, the destruction of their temples and the contemptuous exposure of their idols, while in more than one instance the Christian ministers insulted their opinions, and set at defiance the authority of the magistrates and Government, when interposed to preserve the public peace. But after the conversion of Constantine the power of the Church was exerted to co-operate with the provincial rulers in supporting the rights of the Empire, and in repelling the inroads of savages from the east and south. Nor was it till a new religion arose in Arabia, and gave birth to a dynasty of warlike sovereigns, that Egypt, wrested

from its European conquerors, was forced to receive more arbitrary masters, and submit to a severer yoke.

CHAPTER IX.

HISTORY OF MODERN EGYPT.

THE enterprising spirit breathed into the Saracens by their military prophet soon made itself felt in the rapid conquests which they effected in all the surrounding countries. Egypt as a province of the Roman Empire, which was already about to fall in pieces by its own weight, could not resist their arms led by the valiant and politic Amron. Aided by treachery, this fortunate general obtained possession of Alexandria, to the inhabitants of which he presented the humiliating alternative of paying a heavy tribute year after year or of embracing Mahommedism. Another valuable library and many magnificent works of art which adorned that city fell a prey to the religious bigotry of the conquerors. Frequent

contentions ensued during the eighth century for the Khaliff or Caliphate. Among the various dynasties which assumed the reins of government were the descendants of Ali, son-in-law of the Prophet, of Abbas his uncle, and of Fatima his daughter, who continued to urge their respective claims for several generations, and to expel one another in their turns from the thrones of Damascus and Bagdad. The powerful families of Aglab, Omniah, and Ikshed seized the authority along the shores of the Mediterranean, and alarmed the holy successors of Mahommed in Syria, and on the banks of the Tigris. At length, towards the end of the tenth century, the chief of the Fatimite branch removed the seat of the power from Cvrene to Cahira—the City of Victory, the Grand Cairo of modern times. The eleventh century brought upon Egypt a succession of calamities, terrible famines, plagues and pestilence, which reached Syria. These were followed by an inroad of Turks, whose mercenary and debased soldiers overran the country.

SALADIN.

The powers of Europe were about this time exhausting themselves by endeavouring to take

from the Turks the Holy Land, a country which did not belong to them, and from the possession of which they did not hope to reap any other advantage than that of being able to defend Christian pilgrims to Jerusalem. But in order to obtain this, mighty armies were levied. Kings left their own dominions a prey to anarchy and confusion, in attempting the overthrow of the Mahomedans in the East. The Pope called the war holy indulgences of the fullest kind were granted to the Crusaders, and excessive cruelties were considered as acts of devotion. Every hero was a saint, every soldier a devotee, and the Church both in a metaphorical and literal sense, was styled *militant*. Saladin at this time overran Egypt, and was naturally induced to turn his arms against the enemies of his religion, and to fight for the possession of countries over which he claimed sovereignty. William II. of Sicily had carried victory into Egypt, and with a numerous army laid siege to Alexandria. Saladin approached to its relief, and the Christians, without daring to venture on an engagement, fled, leaving behind them all their military stores and baggage. But the Sultan was not so fortunate in his next encounter with the Crusaders. In 1177 he led

his army into Palestine and attacked them, but was defeated with the loss of 75,000 men. In 1182, Saladin made another expedition into Syria, but was not more successful than formerly, being repulsed by Aleppo and Al Mawsel. At sea, however, his fleet obtained a complete victory over the Christians. In 1183 he entered Syria and took several cities, but in 1187 he gained a victory which surpassed all his former conquests. At Tiberias, after three days of fearful bloodshed on both sides, the Crusaders were completely vanquished. The King of Jerusalem was taken prisoner, with Arnold, the Prince of Al Shawbree, and the masters of the two military orders at Jerusalem. Acre, or Ptolemais, next surrendered, and the army being divided into three bodies, Neapolis, Cæsarea, and Sepphoris fell into his hands. Joppa made a glorious resistance, but was taken by storm, Sidon surrendered, and Berytus capitulated, followed by Ascalon. Jerusalem was next invested, and a breach being made in the walls, the garrison capitulated, and were allowed to march out with their families and property.

The rapid conquests of Saladin caused the Franks in the East to lose courage. Their grief

was extreme, not so much on account of the numbers killed as that the Holy Land and its sacred relics were still in the possession of "infidels." Thierrî, grand preceptor to the military order of Templars, writing to his brethren in the west concerning the misfortunes of the Crusaders, says, "The King is taken, and what is still worse, the precious wood of the True Cross has been burnt by the infidels." In Europe nothing could equal the consternation with which the tidings were received. The Pope died of grief; public prayers and fasts were appointed on the occasion, and the cardinals swore never to mount horse so long as the enemy held Jerusalem. The churches were draped in mourning, and so were the people.

Saladin continued to pursue his victories. After reducing Laodicea and many other great places, he advanced against Antioch, whereupon the Prince of that place prayed for an eight months' truce, which was granted him. Meanwhile the Crusaders assembled and acted with unanimity, and received large reinforcements from Europe. In 1189, their armies mustered 85,000 men, and they seized Alexandretta and Ptolemais. Saladin was defeated, and 15,000

of his warriors slain. Richard I. of England (Cœur de Lion) now appeared on the scene, and in conjunction with Louis II. of France, obtained complete victory over the enemy. Richard I. butchered 3,000 of Saladin's army in cold blood, and procured the supreme command of the combined armies for the skill and generalship he displayed at the siege of Ptolemais (now called Acre). He met Saladin before Ascalon, and totally defeated his army, which was 300,000 strong. Richard's successes were not lasting, and he soon had to conclude a truce, which, according to the custom of the times, was to continue for three years, three months, three weeks, three days, and three hours. The whole of the sea-coast from Jaffa to Tyre was surrendered, and the pilgrims of Europe travelling to Jerusalem were to be protected by Saladin himself. But scarcely had the King of England returned home, when Saladin became ill, and he died in his fifty-fifth year, a ter twenty-four years' reign.

FROM SALADIN TO THE FRENCH INVASION.

Saladin died in 1193, and was succeeded by his son Alariz, a weak, timid man. The empire existed for a time, and then rapidly declined.

Nothing of interest occurred till 1250 when the *Mamlûks* (the word *Mamlûl* signifies to possess), a band of Circassian slaves, of daring warlike propensities, drove the Sultan Malek Al Salah from the throne, and usurped the Government. But, brave as they were, their army was too small to maintain authority over the whole of Egypt. They purchased Christian slaves and trained them as soldiers, and placed them at different important posts. But the discipline being defective, the Christian soldiers, designated *Borghites*, soon became much more powerful than their rulers, and assumed the Government of Egypt.

The Borghites, by the same military exertions which had acquired it, preserved their authority for over 200 years. In 1517 they were attacked by Selim, the Turkish Sultan, but could not sustain their insufficient armies against the overwhelming number he brought against them, and they suffered terrible defeat. Selim entrusted the power of Egypt to a republic, and divided the country into twenty-four districts, under separate Beys. During the reign of this government he allowed the Mamlûks considerable influence, which they augmented until the Turkish authority was

annihilated. In 1746, Ibrahim, became ruler of Egypt; he was succeeded by Ali Bey, whose valour rendered him a dangerous neighbour to the Turks. He was poisoned by General Mahomed Bey (one of his officers) in 1773, who reigned in his stead, but only for a few years, and at his death civil internal wars followed. Each chief who had wealth or craft sufficient to form a party, claimed the sovereignty. Meanwhile the Porte resolved to recover Egypt, now virtually lost. In July 1786, the famous Hassan Pasha, with 25,000 men, landed at Alexandria, and defeated the Mamlûks under Mourad, near Mentoobes. Hassan signed a treaty, and left the Mamlûks in full possession of the country between Barbieh to the frontiers of Nubia. Ismail was left at Cairo in charge, and behaved splendidly, keeping the Beys in order till 1790, when he died of the plague. Cairo reverted to its former masters—Ibrahim held the south, and Mourad ruled the regions northward.

FRENCH INVASION.

Such was the state of Egypt when the French, or rather Buonaparte, undertook that expedition which bears some resemblance to the Crusades of

ancient times. The affair was contrived, planned, and executed by Buonaparte, without reference to the Directory. His motive was the love of glory, and he thought that something more was required to dazzle the eyes of the French nation before he seized the supreme power. He wished to command the road to India, and to deprive the English of their trade in the East, for at all times France has tried to hold power and prestige in that quarter. Caracoŭ (an Arab) revealed to Philip Augustus that the possession of Egypt could alone insure that of Syria. This revelation, previously hoarded up and preserved as a State secret, led St. Louis at a later period to the banks of the Nile. We know the elaborate and magnificent plans which were conceived by the genius of that mighty soldier Buonaparte; the men of France shared the convictions of their general, and they did not hesitate to say that Egypt was the key, gate, and centre of the universe, politically and strategically.

“From Egypt,” said Buonaparte, “I can strike with success, and become master of the east and west.”

On the 20th May, 1798, Buonaparte embarked at Toulon. The armament, under Brueys, con-

sisted of fifteen men-of-war and 200 transports. On the 9th June it reached Malta, which at once capitulated. Garrisoning Malta with 3,000 men, the fleet proceeded to Alexandria. On July 1st, Buonaparte, with 5,000 troops, landed at Marabon, and seized Alexandria. The army marched in triumph through the Delta, and met with no opposition until they reached Cairo.

Near Gizeh, Mourad Bey, with 10,000 Mam-lûks, opposed the French, but was signally defeated. This "Battle of the Pyramids" made the French, masters of Lower Egypt. A column was sent in pursuit of Mourad, another was left in Cairo, and Buonaparte, at the head of the third, marched in search of Ibrahim east of the Delta. But the French navy, which had conducted Buonaparte and his army thither, was by no means equally fortunate. A British fleet under Nelson had been despatched to intercept the French when they left Toulon, but it arrived at Malta two days after the French had sailed; Nelson then made for Alexandria, and passed them unperceived, but scarcely had he left it when the French fleet arrived. Brueys drew up his ships in line of battle near the shore, and

Nelson, having heard the French were at anchor in Aboukir Bay, again made his appearance on 1st August, and by one of those daring manœuvres which only true genius can conceive, and British pluck execute, forced half of his squadron between the French fleet and the shore. The action began at 7 P.M., at 9 the French admiral was killed, at 10 his ship, *L'Orient*, of 120 guns, was blown up. Fighting continued the whole of that night, and the morning showed the French fleet totally disabled, and in the possession of the British. Buonaparte's position in Egypt was now rendered very critical, but he was equal to the emergency, and the vigour of his character became conspicuous. He erected forts at Balbais and Salhaic, and Alexandria and Cairo were put in a state of defence. The inhabitants of Cairo, four months after the arrival of the French, attacked them, but were repulsed. Ibrahim was overtaken by the French, and defeated, and Mourad, after a desperate battle, was utterly routed by Desaix, near the pyramids of Sakkarah, in Upper Egypt. During these operations, the French were terribly cruel to the people. To effect their expulsion from Egypt a great strategic plan was formed. Gezer Pasha, Viceroy of Egypt,

led a Turkish army through Asia Minor to attack the French in the direction of Syria.

Mourad Bey, who had collected another army in Upper Egypt, made a flank attack on the Nile; and Sir Sidney Smith, in command of the British troops, directed the general execution of attack.

During this short period of peace, the French were employed in scientific experiments, in surveying, boring, sounding, testing, taking observations of the Nile, delta, hills, lakes, &c., taking levels from sea to sea, and recording archæological notes. But as soon as Buonaparte perceived that he was to be attacked by numerous combined armies at different points, he resolved to meet the Turkish army in Asia Minor, and to protect Egypt he left part of his forces behind him. Cairo was held by Dugua; Rosetta by Menou; Alemyras commanded Damietta; Marmont held Alexandria; and Desaix remained in Upper Egypt to watch the Mamlûks. The greater part of the French forces, under Generals Kleber, Bon, Lannes and Regnier, marched towards Syria. On the 17th of February, Buonaparte compelled the Turks, who held the strong fortress of El Arish, to surrender. Gaza yielded without resistance, and Jaffa (the ancient Joppa), after a desperate defence, was

taken. The massacre of 4,000 of the Turkish garrison* after they had surrendered themselves prisoners of war, will remain a lasting stain on Napoleon's name.†

The British, under Sir Sidney Smith, resolved to undertake the defence of St. John d'Acre, with a view to gain time. To encourage the pasha who commanded the place, Colonel Philipeaux, an eminent military and civil engineer,‡ was despatched to strengthen the ruinous fortifications. The English captured the fleet of gunboats, with artillery (intended to be used against us). The guns were at once landed, and employed in the defence.§ Buonaparte, little doubting of success, having taken possession of Saffet, Nazareth, and Sheffam, to facilitate his march on Damascus, reconnoitred Acre, and resolved to attack it upon the east. On the 20th of March the trenches were opened, batteries and counter-batteries were mounted, and in a few days a breach was made, a mine sprung, by which the French imagined they had injured the counterscarp. They rushed to the attack, as at Jaffa, but, crossing the ditch, they

* M. Miot.

† Wilson.

‡ Napier.

§ Sir S. Smith's Despatches.

could not face the vigour of the English, and were hurled back with terrible precipitation. Smith, convinced that the defence of Acre depended more on the courage of his troops than on the strength of the place, endeavoured, by frequent sallies, to interrupt the progress of the enemy's work. In this way much valour was exhibited on both sides. The Turks, under English officers, perceived that the French were not invincible, and they soon were able to repel those assaults which French skill and intrepidity frequently directed against them. It is impossible here to detail the siege operations of Acre. Buonaparte led in person assaults which were always repulsed. The number of the dead was so vast, that the bodies served the besiegers to construct ravelines and outer defences. The French were occasionally permitted to enter the fortifications, when the English and Turks would rise from hidden places, and cut all down. At length, according to Sir Sidney Smith, the French refused to mount over the putrid bodies of their companions. A flag of truce was sent in by an Arab, proposing a cessation of arms for the purpose of burying the dead. The Turks and English had agreed to the proposal, when the French made an assault, but the former were prepared, and

they were repulsed with terrible carnage, which historians consider "their perfidy richly deserved." Buonaparte, convinced that Acre was impregnable, resolved to retreat. He buried his artillery, and his troops burnt and ravaged the country through which they passed. The Ottoman Porte now organized a large army for Egypt. In Buonaparte's absence the Arabs had terribly harassed the French, but on his return he at once restored order. While engaged with the Mamlûks, the Turks arrived at Aboukir, landed an army, and took the castle of Aboukir by storm. The French vigorously attacked them, and finally the Turks were defeated. Thousands were drowned in attempting to escape to the ships lying off the castle. Fort Aboukir was stormed, and Buonaparte, to some extent, by this military exploit retrieved his fame after his failure at Acre. He prevented the Turks, under Mustapha, from being joined by the Mamlûks, the Arabs, and the remains of Mourad's army. But while establishing the French power permanently in Egypt, he received intelligence from France which presented to his ambitious mind a prize far grander than the conquest of Egypt, so, disclosing his plans to General Berthier, and his military secretary,

Bourrienne, he sailed for France, on the 24th of August, there to carry out a far more wonderful scheme.

The French army continued to prosper for some time after Buonaparte's departure, but without a fleet their forces could not be replenished, and their enemies daily became more powerful. Sir Sidney Smith, with a powerful Turkish contingent, commanded the British army, and Kleber was chief of the French army. The latter entered into negotiations with Sir Sidney Smith, who assumed political and military control. His authority was afterwards controverted, and many clauses were set aside by the English Government and Parliament. It appeared that the brave general had exceeded his powers, which the French strongly resented, for they had relied on the treaty signed by Smith, and had evacuated every post in Egypt but Cairo and Alexandria. But the British Court wished Egypt rid of the French. The latter attacked the Turkish army 40,000 strong, and defeated them with a loss of 10,000. Meanwhile, a second expedition was equipped, under Sir Ralph Abercrombie, in order to expel the French from Turkey. The British landed at Alexandria,

in March 1801. The sea was rough, and our troops were landed in small boats, but the French had prepared a warm reception for them. The English, leaping on shore, formed into line, and drove the French before them for three miles. After a severe conflict the British gained a victory, but the brave Abercrombie was killed. This battle settled *pro tem.* the fate of Egypt. The British and Turks attacked the French near Ramanieh, and were again successful. Cairo, which had been held by the French, capitulated, and Menon afterwards accepted for the French army in Egypt the same terms which were granted to those who had occupied Cairo. The French, as prisoners of war, with their baggage and arms, were, at the British expense, carried to the Mediterranean ports, and by the treaty of Amiens the British made over Egypt to Turkish rule.

Destruction of the Beys.—The Turks determined to consolidate their strength in Egypt by the destruction of the Mamlûk power. Accordingly, seven of their chiefs were invited by the Turkish admiral to repair to Alexandria, to arrange the best means of restoring them to their power. They were received with great distinction, but the Turkish pasha tried to carry them off to Con-

stantinople, and Osman Bey (the chief) was killed in the affray. This outrage excited the indignation of the British, and, through General Hutchinson,* the other Beys who had been taken prisoners were set free, and they agreed to abandon all claims to Cairo and Lower Egypt. They then retired to Upper Egypt, and fixed themselves at Dongola, the capital of Nubia, and from this time their power in Egypt may be considered to have ended.

Second British Campaign.—Nothing of importance happened till 1807. At this period the French and Russians were fighting, and the French, by threats and promises, forced the Turks to join them against the Russians, and thus Great Britain, as the ally of Russia, became involved in war. In order to create a diversion in favour of Russia, by drawing the attention of the Turks to the defence of their own territories, an expedition of about 5,000 British troops, under General Fraser, was despatched from Sicily, in order to

* It is not generally known that General Hutchinson employed sepoy with the British army in Egypt at this time, and that they behaved splendidly. This was the first time that sepoy had been employed by us out of India.

take Alexandria. The troops landed on the 17th of March, and after a few trifling skirmishes, the people compelled the Governor to capitulate. The British general, however, soon found himself involved in very serious difficulties. Alexandria drew all its supplies from the interior by the canal, and as the two garrisons, Rosetta and Ramanieh, commanded the navigation of that canal, it was impossible to hold Alexandria without gaining possession of both those fortified places, and Generals Wauchope and Meade dashed into Rosetta, regardless of the strength of the enemy, or of his position. The result was that they lost 500 killed, and had to beat a retreat. One general was killed, the other wounded. Another attempt was made under General Stewart, but the enemy being strongly reinforced, it again ended in defeat. General Fraser, finding his forces were reduced, entered into a capitulation, and the prisoners on both sides were restored.

It was during the French occupation that Mahomed Ali came on the scene. He was born at Kavalla, an ancient town of Macedonia, not far from the shores of the Grecian Archipelago, in the year 1767. His father, Ibrahim Aga, was an Inspector of Police of that place, and the son

was fond of a military life, though, by way of speculation, he embarked in the more lucrative trade of a tobacconist. At the time of the French expedition he crossed over to Egypt with the contingent ordered from his district, and became an officer in the Turkish army, which, under the auspices of the English, defeated the plans of their adversaries. By his daring he became very popular, and he headed every enterprise. He commanded the Albanese, his own countrymen, and he gained for them great renown, and nothing but the ease with which he saw it was possible to advance his fortunes amidst the confusion of the moment, prompted him to turn it to his own individual account. Force and fraud were alike the stepping-stones to the attainment of his ends. By these means he brought the whole of Egypt, Nubia, and Dongola under his dominion, and the greater part became his own personal property, and he appointed himself Governor and Viceroy of Egypt. As Lord of Egypt he was the self-created successor of Khurshîd Pasha from 1804. Civil commotion followed his appointment, and the Beys, with their Mamlûks, endeavoured to regain the power they had lost. This ended in a miserable failure, and Mahomet Ali massacred all

he could seize, and many innocent ones were slain. He put down rebellion with a terribly strong hand, and gained great power throughout the country. He esteemed European civilisation, and developed many great public works. He founded the dynasty which now rules Egypt. To his firm despotic government the country is indebted for the profound tranquillity which it enjoys. He was very fond of the English, but he measured his attachment to them by the extent of their truthfulness, intellect, and attainments. He befriended the Christian religion, and tried to be all things to all men. For an ignorant, self-made man and an adventurer, he was, all things considered, a grand specimen of an Asiatic.

CHAPTER X.

THE FINANCIAL, POLITICAL, AND STRATEGICAL
SITUATION.

I HAVE elsewhere stated the vast importance attached to the attitude of the English Government with regard to Egyptian affairs. Never was it so marked as it has been of late, and is shown by the sensitiveness of the Stock Exchange to every report and telegram, however wild and absurd, affecting the subject. Egyptian Preference Bonds rise and fall with every rumour, and a "certain amount of anxiety," the *Economist* affirms, "is observable in the City; partly political, based mainly on the state of affairs in Egypt, partly on account of the long-continued very heavy speculation in Paris. The Bank of France has not followed the line taken by the Bank of England

as to raising the rate, at least, it had not done so up to the time of our going to press, and since it has not done so at once, the intention may be not to do so at all. The stock of gold in the Bank of France is now comparatively small. It will neither be husbanded, nor the speculative spirit in Paris restrained by leaving the Bank rate there so much below the Bank rate here. The Bank of Germany has raised its rate to $5\frac{1}{2}$ per cent. for discounts. The Bank of Holland has only put its rate up to $3\frac{1}{2}$ per cent. It is difficult to imagine why that bank does not put its rate more on a level with the rest of Europe, except that the Dutch, though a very speculative people, are slow to move in such matters, and the Bank may be indifferent to a bullion demand. Our market may for a time receive a slight assistance from this source, but it cannot be much. In other respects should a bullion demand arise, it is England almost alone that holds an available supply. To raise the rate here will always provide a sufficient protection against foreign demands. The monetary situation, though requiring the thoughtful attention of business men, presents no cause for serious anxiety. Trade with us is in a position in which

it can hardly be otherwise than sound—just reviving after long depression. That it should have to meet the burden of dearer money is a thing to be regretted, but the consequent repression of an over-speculative spirit will be, in the long run, a more than equivalent advantage.”

It will be as well, perhaps, to quote from certain high and influential journals, at home and on the continent, holding different views, so as to gauge public opinion on important political and strategical matters connected with Egypt.

“There seems,” says the *Saturday Review*, “to be an idea of a very hazy kind, but which floats about in its random manner, that England ought now to do something wonderfully strong and bold in Egypt, to cut herself adrift from France and Europe, and announce that she intends to come forward as the sole and unfettered guardian or owner of Egypt. It is even suggested that the Cabinet has already formed a plan of this sort, and that Mr. Gladstone is commissioned to disclose the great secret. What the Cabinet may be planning cannot be known until the world is told; but it may be said, without hesitation, that, if the Cabinet has any

scheme of the sort, it is entirely departing from the policy which England has pursued towards Egypt and Turkey under a succession of Ministries for half a century. It is, no doubt, possible that, if England announced its intention of seizing on Egypt, no power might think it worth while to make the seizure a cause of open and immediate war. Even France might resent and protest, but submit. But the restraining influence of England in Europe as a conciliatory and peaceful power would be at an end. What we had done in Egypt, France might do in Tripoli, Russia in Armenia, or Austria in the Balkan peninsula. We should either have to look on in a quiet and humble frame of mind while others were imitating our example, or we should have to go into a war of our own seeking in order to prove that we could guard our route to India. Apart from initiative acts of spoliation, we should have alienated all the Powers that think they have interests in Europe which ought not to be overlooked. We have been preaching in the last month to the French day after day, and showing them the folly of alienating Spain and Italy by their Tunis expedition. The French would have an opportunity which they would keenly enjoy

of sending our sermons back to us, and showing our folly in alienating every Mediterranean power in order to have a free and open highway through the Mediterranean. As a mere matter of gain and loss, apart from the serious question of principle involved, we should probably do better to rely on our power of sending troops to India in war time round the Cape than to rely on our power of sending them through the Canal in the face of an alarmed and provoked Europe. As things are now, every European power recognises that we have interests in Egypt which we must uphold. If we uphold them in such a manner as to command the approval and concurrence of Europe, we really uphold them. If we uphold them so as to shock and alienate other powers, we destroy the very interests we are seeking to protect."

The *Saturday Review*, it will be seen, has used some of its stock-in-trade expressions, such as "random," "vague," "worthless," &c. in alluding to the action suggested by the ablest and most competent authorities in dealing with the Egyptian solution, and some people without further questioning have thought fit to regard this prejudiced Review as the mouthpiece of

British public opinion. Such reasoning is too absurd.

The *Saturday Review* says something like this : “ We should not occupy Egypt ; to do so would be a crime. But then we are totally ignorant of facts and history, and do not know what we are talking about ; and the occupation of Egypt, as far as we can see at present, would not necessarily increase the sale and influence of the infallible *Saturday Review*.”

The *Times* takes a much more comprehensive and liberal view of the subject, although many of its opinions are at variance with some of the statements I have made.

“ All sober-minded politicians,” says the *Times*, “ experienced a sense of profound relief when the tension created by the threatened revolt of the Egyptian troops was removed, for the time at least, by the concessions of the Khedive and his Ministers. But few can believe that the situation has been rendered permanently secure. It cannot be denied that the Anglo-French Control, if permitted to work without disturbance, will continue to bestow, as it has already bestowed, vast benefits upon Egypt. Nor, if the system is left unobstructed, is there any reason why Eng-

land and France should not continue to guide it harmoniously. It is in the event of organised and obstinate obstruction that the difficulties of co-operation may be multiplied. An attempt on the part of the Egyptian National party to set at naught the Control or to overthrow its work would compel this country to choose between several courses, each of them open to grave objections. The abandonment of Egypt to native administration would mean a surrender to anarchy. While we are agreed, as Mr. Goschen forcibly put it in his speech at Ripon, "that the the ascendancy of England in Egypt must be strengthened and maintained, must be made strong, and must continue," the resignation of our rights over a country which is "the key of India," is not to be thought of. But those rights so far as they are represented by the Anglo-French Control, are implicated, unfortunately, as we have always contended, with the pretensions of France, the assertion of them by an Anglo-French intervention, is scarcely less impracticable than their surrender. It is a proceeding which, to put it plainly, would expose the interests we are bound to regard as of paramount importance to risks not less than those

of Egyptian anarchy. The Government must not shrink from the contemplation of contingencies which, however painful, are too evidently possible. The moment may be at hand when it will become necessary to give effect to the principle that so long as England is mistress of India her political interests in Egypt cannot be allowed to be subordinated to those of any other Power whatever. To this end a policy is needed,—courageous, resolute, and far-seeing—a policy inspired by convictions such as those to which Mr. Goschen, amid ringing cheers, gave energetic expression at Ripon. It may not, happily, be necessary to pass from words to deeds, but many grave complications may be spared if the purpose of this country is made clear to the Great Powers of Europe as well as the Egyptian people.

“The departure of the Turkish Commissioners from Egypt,” says the *Daily Chronicle*, “has taken place as anticipated, and the question is thus cleared of a serious complication. We have now to decide on a course of action in face of the disorder and anarchy that prevail in a country to which we cannot be indifferent. So long as India remains a part of the British Empire, England can suffer no encroachments on her

influence in Egypt. As Mr. Goschen said the other day at Ripon, that country must remain open to England under all circumstances, against all comers, as a highway to our Indian dominions. Even if a railway could be constructed across the Asian territory that lies between the Mediterranean and our north-west frontier, it could never wholly supersede the route by the Red Sea, and could be made use of only so long as the different States through which it passed were in good humour and friendly to this country. Mr. Goschen is no alarmist, and his experience at Constantinople and in Egypt is second to none. His opinion, therefore, on this point must be accepted as of great weight. It is satisfactory also to observe that he is highly pleased with the attitude assumed up to the present by the British Government, and that Mr. Colvin,* our agent in Egypt, is singled out for special praise and commendation. Under present management, then, our interests in that part of the world are safe, and we may rely on a speedy settlement of affairs on a more secure and permanent basis than ever. With regard to the internal administration of the country, it is very difficult to

* Now Sir Auckland Colvin, K.C.M.G.

decide what is the best course to take. The demand of the mutinous colonels for a Constitution was too manifestly a mere cloak for disorder and disaffection, and bears absurdity stamped on the very face of it. Fair and firm government is what is wanted in Egypt, and above all the disbanding of that preposterous army which lives in idleness and adds daily to the burdens of the fearfully overtaxed fellaheen. This task lies before Mr. Colvin and the home Government, and we are well satisfied that the chances of its accomplishment are so good."

"Egypt holds, and ought to hold," says the *Morning Post*, "a prominent place in the foreign policy of every Italian Cabinet. There was, therefore, nothing to excite surprise in the fact that the *Opinione* in a recent number, in an extremely well-reasoned and temperate article on the basin of the Mediterranean, asked the question whether in any new phases of Egyptian politics, such as seemed likely to arise from the *pronunciamiento* of the Egyptian officers, Italy intended to remain with her hands crossed and play the part of a mere passive spectator in whatever arrangements might be made for the redistribution of power and influence at Cairo

amongst the great European powers. France, the *Opinione* observed, has virtually annexed Tunis to Algiers. There is every reason to credit the truth of the statement made both in Spanish and German journals, that an assurance has been given by Prince Bismarck to the Spanish Minister that in the event of serious differences arising respecting Morocco between France and Spain, the latter country may count on the support of the German and Austro-Hungarian Governments. Such support would, in truth, be only one of the natural political consequences of the marriage of the King of Spain with an Austrian Princess. Austria, however, the *Opinione* affirms, is steadily advancing her interests in the basin of the Mediterranean by pushing forward her outposts along the eastern coast of the Adriatic. England and France have come to a joint arrangement respecting the financial administration of Egypt; and England, in addition, has established herself in Cyprus, there occupying a naval station which forms a new and strong link of the chain, having for its other massive links Gibraltar, Malta, and Aden. Amidst these political combinations and territorial changes actual or probable, must Italy

remain passive and powerless? We have stated the question almost in the precise terms employed by the Italian journal. In its statements and reasonings it leads up to the conclusion that the exclusive direction of Egyptian affairs by any foreign Power is sure before long to produce serious complications, and we must therefore again assert that the true basis of the settlement of the future is to be found in the treaties of the past, which constitute the foundation of international law and order. By the maintenance of Egypt as an integral portion of the Ottoman Empire, we shall best avoid the danger of reopening the Eastern Question in its most vital point. We cannot hold fast to a better policy than the maintenance of existing treaties."

The correspondent of the *Standard* telegraphed from Cairo that the Khedive received the Turkish Mission courteously but firmly, and they were dismissed briefly; also that—

"Cherif Pasha declines to have any official relations with the Turkish Mission, neither will he recognise any arrangement between the Egyptian Government and the Turkish Commissioners received by the Khedive.

"The Provincial Governors have received orders

from the Minister of the Interior to proceed with the election of members to the Chamber of Notables. The Minister, in his circular, lays down rules and regulations to be observed.

“ No Egyptian statesman is more desirous of the redemption of the Egyptian debt than Cherif Pasha. Not only the Khedive, but the Notables themselves, are animated with the same sentiment, and it is not considered at all improbable, when the Chamber of Notables assembles in December, the question of temporarily augmenting export duties in order to hasten the amortisation of the Egyptian Railway Loan and the Unified Debt will be seriously considered. How long, under existing circumstances, the European Controllers General will be maintained is doubtful, although it is reported that the paragraph in Cherif Pasha's Programme was imposed by British representatives, and although it is certain that Cherif Pasha is a partisan of European financial control in a just proportion.

“ In considering the part that Cherif Pasha has taken with reference to giving the Egyptian people a voice in the Government of the country, it should be remembered that Cherif Pasha, whose high character is admitted, believes himself to

have been in the past a victim of absolute power, and I have it from Cherif Pasha's own lips that over and over again he cautioned Ismail Pasha against the course he was pursuing, but Ismail would take no heed.

“It is very satisfactory to find that the most complete accord on every point exists between the Khedive and Cherif Pasha. It is further stated that Ahmed Bey Arabi, before leaving Cairo, reiterated to Cherif Pasha the devotion of the entire army to the Khedive and to himself.

“Cherif Pasha's situation is showing signs of improvement, and Omar Pasha has been appointed Governor of Alexandria. This is the outcome of the Egyptian Mission.”

From their Berlin Correspondent the following important telegram, bearing on the political situation, appears, and shows what the Radical section of the Germans think:—

“I have reason to believe that certain Great Powers contemplate making use of Spain, if opportunity should offer, to widen the presumed breach between England and France in reference to the various complicated questions connected with North Africa. Independently of this, Spain, I hear, will probably take a very active part in

Mediterranean affairs in case France or England attempt to extend their sovereignty any further over that part of the world.

“Respecting the Sultan’s letter, which is to be presented by Ali Fuad Bey to the Khedive, I hear from a good source, but I do not guarantee the report, that it contains the assurance that the Sultan intends neither to depose the Khedive nor to diminish his authority in any way. The Sultan in that document only attempts to show the Khedive and his Ministers how they can make the home and foreign policy of Egypt harmonise with that of the Porte. The Sultan further requests the Khedive to remain strictly neutral in his relations towards England and France, and to preserve the independence of Egypt as part of the Turkish Empire.

“The German Government, viewing with some jealousy the influence of England and France in Egypt, is informing the Powers that it holds the solutions of the complications of that country to be a question of common European interest.”

The Vienna correspondent, at the same time, sent the following, which gives a faithful echo of public opinion there:—

“Official intelligence from Cairo states that

the Khedive is perfectly reassured as to the results of the visit of the Turkish Commissioners, and is convinced that Europe would not allow Turkey to proceed with Egypt in any arbitrary manner. The appearance of the Commissioners before the end of the crisis would have produced a very different effect. But the crisis is now practically past, since the departure of the mutinous regiments. The *Neue Freie Presse* says :—

“ ‘ The mission of the Commissioners is purely formal. If Turkey possessed the power to give effect to her claim to Egypt, her fleet would to-day be on the way to Alexandria. In that case there would be no danger of a conflict ; on the contrary, the greed for Egypt would vanish. But poor Turkey, instead of an army, sends only two Commissioners.’

“ I hear that the Austrian war-ships will leave Egyptian waters immediately after the removal of the troops has been completed. All the foreign Consuls, and the Khedive himself, are reported to have thanked the Austrian Government, through the Consul-General, for the presence of these vessels, which helped to a considerable extent to relieve them of the feelings of discomfort at first inspired by the recent crisis.”

“ The more or less semi-official telegrams which come from Constantinople seek to attenuate the importance of the mission with which Ali Fuad

and Nizami Pashas were entrusted to the Khedive. The *Vakit*, however, published not only a semi-official, but an official announcement, which left no doubt as to the real character of this mission. The Commissioners of the Sultan were entrusted 'with making a thorough enquiry into the complaints made by a portion of the Egyptian army, against certain functionaries.' Now, as the complaints of a part of the Egyptian army do not regard, as the *Vakit* says, certain functionaries, but the political system in Egypt, it follows that we are going to see a fresh attempt on the part of Sultan Abd-ul-Hamid to substitute real sovereignty for the suzerainty he exercises in that country. We should comprehend, although we should not approve, the personal intervention of the Sultan, if there were only a military dispute between the Egyptian Government and the colonels; but it is not at all this. After having considered for many long months what use they could make of their strength, the colonels have found nothing better than to ask the Khedive to adopt a series of constitutional measures which would be for the purpose of greatly modifying the political state of Egypt. Assuredly they care very little about the execu-

tion of these measures ; they only demanded them in order to give a fresh proof of their power, and to show that it would not be easy to punish them for their former faults. They could not demand, as in the time of Ismail Pasha, that their back pay should be given to them, as, since the institution of the control, they have regularly received it at the proper time. They could not even demand that it should be increased, as it was increased a few months ago. They had no personal complaint to make. Therefore they bethought themselves of declaring that they were the representatives of a pretended national party, and imposing on the Egyptian Government, in the name of that party, a whole programme of purely political reforms. But thenceforth the question raised by them concerns the firmans which have organised the powers of the Khedive, and, consequently, is no longer within the exclusive province of the Sultan.

“ Need we remind anyone, in fact, that the firmans which organised the powers of the Khedive could not be promulgated without the authorisation of the protecting Powers of Egypt? We will not go so far back as Mahomet Ali. What good? Three years ago, when Ismail Pasha dis-

missed the European Ministry presided over by Nubar Pasha, Abd-ul-Hamid wished to reply to this bold stroke by dismissal. France and England at first opposed this. They only consented, several months afterwards, to permit the Sultan to dismiss Ismail Pasha, and they only allowed him to do it on certain conditions quite different to those he had decided on. Everybody knows that he wished to substitute for Ismail Pasha, not his heir in the direct line, Tewfik Pasha, but his heir according to Mussulman law, Prince Halim ; he wanted, moreover, to reduce the Viceroy to a mere *Vali* (Governor-General), placed directly under the authority of Constantinople. France and England rejected all these pretensions. The Sultan was obliged to resign himself to acting as the mere proxy and instrument of the Powers. It is, therefore, quite clear that whatever may be the conclusions of the report of Ali Fuad Bey and Nizam Pasha, they will not have the right to come to any resolution as to the Egyptian crisis without the consent of France and England. But if it be so, ought not England and France on their parts to make an inquiry into the complaints of the Egyptian army, in order to know to what extent they will have to take them into account ? Why

should they not send to Cairo, as one of our correspondents proposed, military delegates to study the real situation of the country? One may be sure that these delegates would be received there with the same submission, and more submission, than those of the Porte.

“One may be sure also that they would not fill a double office. In 1862, after the events in Syria, the Porte hastened to entrust to one of its most distinguished politicians, Fuad Pasha, a reparative mission in that country. Syria is a Turkish province, not an independent vice-royalty like Egypt. This did not prevent France from having Fuad Pasha escorted by her troops, nor all the Great Powers from sending representatives as quickly as possible to Beyrout to put an end to a crisis which Turkey might have an interest in developing. It was by this means that a peace was established in Syria which has not been disturbed since.

“The example is a good one to follow, with the modifications suitable to the circumstances. There has been no massacre in Egypt, there has not even been a revolution, properly speaking; an expeditionary corps is, therefore, useless. Reduced to its proper proportions, the Egyptian crisis

comes to a question of personal security for the three colonels, who only demand an efficacious guarantee against the chastisement with which people threatened them without really having the power to apply it. But, if this question is not speedily settled, it is quite clear that it will soon be complicated by many others much more grave. After the riots in February the colonels only asked to be reassured. Instead of that, some unhappy Palace intrigues, which the Khedive made the mistake of not cutting short, came to frighten them still more. Every day some imprudent word caused them consternation. Only one hope remained for them; they knew that as long as the Minister of War, put in office through their revolt, remained in power they would have nothing to fear; that Minister fell, and everybody around the Khedive repeated that his fall was the signal for repression. Thenceforth, believing themselves lost, they risked all for all. Not knowing from whom to ask support, they applied to the Sultan, and, as they knew his Pan-Islamic ideas, his liking for religious propaganda, and the wrath the Tunisian Expedition caused him, they wrote to him, that in the presence of the dangers threatening the Mussulman

world on all sides, and especially in the presence of the sad example of Tunis, which had not the strength to resist the unjust aggression of the Christians, they thought it fit to increase the Egyptian army, in order to prevent in Egypt the eventuality of a similar calamity. At the same time, they turned to the discontented Egyptians, to the adversaries of the Riaz Ministry, and, borrowing their principles, they offered them office, after a riot in which they had claimed the execution of political programmes of which the former had made use as an arm for opposition. But then, it is well to repeat, all they did was for no other purpose but to avert the dangers which they believed hung over their heads, and with which, in fact, we must admit they were threatened. . . .

“ It is only just to admit that the new Ministers have made the best of a complicated state of things. Cherif Pasha managed to send away the regiments from Cairo without making any compromising concession to them. He has, moreover, with perfect loyalty reassured those who might fear encountering in him an opponent of the Anglo-French protectorate. Herein he has given proof of indisputable political foresight.

“Cherif Pasha has turned to England and France with as great ability as frankness, and asked them for assistance which they eagerly granted him.

“But for this assistance to be efficacious it must not be purely platonic. Placed between the army, the Khedive, the Notables, and the Sultan, Cherif Pasha would no doubt succumb to the intrigues which would surround him, if his personal authority were not strengthened by that of France and England. Whatever confidence they may have in Cherif, his word will not suffice to reassure the three colonels; they know that a reverse of fortune may drive him away from the Ministry as an accident placed him in it. Still less will he have the strength necessary to put an end to the intervention of the Porte in Egyptian affairs, and to prevent the Sultan from fomenting the fanaticism of the Arabs against the Christians, and the jealousy of the Circassians against the Arabs.

“The only means of putting everything in order, to pacify Egypt in a definitive manner, is to interpose France and England between the army and the Egyptian Government, as they have been interposed but a short time ago between the

Government and its creditors. The bitterest opponents of the Anglo-French control are forced to admit that this control has saved Egypt from bankruptcy, and restored more than a milliard to the holders of Egyptian stock. That is, it appears to us, a fine enough result for us to take an example from it, applicable to present circumstances. A military control, which would only last a few months, or a few weeks even, would suffice to calm the Pretorian effervescence from which Egypt is suffering at this moment. Accustomed for centuries to submission, the Arab officers would receive this not only without protest but with gratitude, provided that it was presented to them as a means of making order, legality, and security reign in the army as they now do in the finances. As for the pretended national parties who are intriguing with the Porte, would it not be a great advantage if this step of France and England put an end to the unhealthy dreams in which they indulge, and the echo of which extends as far as Algeria and India? ”*

“The Sultan has not been able to resist the temptation of asserting his suzerainty over Egypt by an express act, and has sent Ali Fuad and

* *Le Journal des Debats.*

Ali Nizami as extraordinary commissioners to Cairo. These two gentlemen, according to the official *communiqué* published by the *Vakit*, will conduct, in concert with the Khedive, a thorough inquiry into the complaints which have been made by a part of the army against certain dignitaries, and make a detailed report thereon. Their mission is confined to this and the intervention of Turkey also. No Turkish ironclads are steaming to the mouth of the Nile, but only a harmless packet-boat with two still more harmless commissioners; the sword of the Caliph is not raised threateningly against Egypt, but only a pen, and this only in the hands of two officials. When they come to an end with their inquiry, perhaps, scarcely anyone will think of the cause of their mission, and the results of it will at the best be only an interesting document, and more probably only a very tedious one. One cannot talk of an intervention, and the right of the Porte to interfere in the home affairs of Egypt is indisputable.

“Nevertheless, the despatch of the two Commissioners has offended England greatly. They telegraph to us from London:—‘Earl Granville has sent a note to Constantinople, in which he declares that England certainly does not wish to

diminish the suzerain rights of the Sultan, but cannot repress serious objections to the mission of Ali Fuad and Ali Nizami, and can only advise the Sultan to recall them as soon as possible.' That is very plain language, which one cannot easily misunderstand. It betrays sufficiently the intentions of the present English Ministry. The sending of the Turkish Commissioners may be for no purpose; nay, one might maintain that the Sultan's Government might have done better not to have sent them; but why should England be annoyed that the Porte asserts its rights over Egypt in this pacific and harmless way, if she were not already resolved to pluck Egypt like a ripe orange. The irritation of the Gladstone Cabinet about the measures of the Porte is uncommonly significant: it proves to us how far the English plans are already advanced. The Turkish suzerainty in Egypt is not to exist any longer; it is gradually to be entirely forgotten, in order that no legal reasons may be raised against the future possessor.

“However practical a view the English may think they are taking of the Egyptian affairs, we think that there are some great errors in their calculations. As regards France, it is quite

certain that she would not regard an annexation of Egypt by England with indifference. The 'speculation policy' of England thinks to quiet the French with Tunis, and to stifle the objections of Italy by referring her to Tripoli. One dirty piece of business for another is their motto. But even if England succeeded in coming to an understanding with France and Italy about the Barbary States, from whose shores the terrible sea-robbers used formerly to ally forth, and to which the covetous looks of the modern diplomatic pirates are now directed, the other Powers still remain.

"How Russia, for example, views the Egyptian Question we see from an article in the *Journal de Saint Pétersbourg*, which clearly gives England to understand that she is not entitled to alter the destiny of the land of the Pharaohs. 'The possession of Egypt,' writes the Russian paper, 'is neither an exclusively English nor an Anglo-French question, but is, on the contrary, too closely connected with the *status quo* in the East as a whole for any single Government to be able to settle it on its own authority.' The hint will scarcely be disregarded in England. Not that England seriously believed in the

abstention of Russia, but one may conclude from the language of the St. Petersburg paper that the Russian Government would only consent to the acquisition of Egypt by England on conditions which would press too much on England. In Russia, it is true, they might know with certainty before anybody whether Gladstone is resolved to deliver over Constantinople to the Russians for Egypt. The much-talked-of article in the *Times* has indicated this, but not with the distinctness which they may consider desirable on the Neva. Until they are perfectly sure about this they will declare the plans elaborated in the *Times* to be 'adventurous,' but keep a watchful eye on every step of England, in order that she may not get Egypt into her power before Russia has secured the premium. England's plans under such circumstances are by no means to be realised quickly, and Earl Granville, therefore, did not need to get into a passion about the sending of the Turkish Commissioners to Egypt. Ali Fuad and Ali Nizami will not bring about a change in the circumstances of the country. It is true that they may have extensive powers, but, on the other hand, there is the reassuring fact for the present Khedive that Halim Pasha has not

started for Egypt. . . . The two Turkish Commissioners used a very great deal of paper, but to attribute to their mission a more than formal significance would be to mistake its true character. If Turkey possessed the strength to assert her right over Egypt in an effectual way, her fleet would now be on the road to Alexandria, and then even the danger of a conflict would not be at hand, but the lusting after Egypt would cease. As poor Turkey, instead of an army, can only send two Commissioners, England shows her teeth at her. It is the old tale! The weak are ever in the wrong, and, therefore, Turkey has again committed the mistake, as she has often done of late years, of anxiously preserving the appearance of power, while the power has left her.”*

“At Leeds, Mr. Gladstone was induced to express his views on several interesting points of the politics of the day. The execution of the Berlin Treaty as regards Montenegro and Greece, the campaign undertaken by England in Afghanistan, the conflict with the Boers, and the affairs of the Transvaal, have been, turn by turn, reviewed by the illustrious leader of the Liberal party. We think it well to draw the attention of

* *Die Neue Freie Presse*, Vienna.

our readers again to this, particularly as in one part of his speech Mr. Gladstone has treated questions which have a more direct interest for us at the present moment. We refer to Egypt, and the negotiations entered into some weeks ago with our country with a view to the conclusion of a definitive Commercial Treaty. 'I am happy to be able to state,' said the Prime Minister, 'that the Anglo-French intervention has been beneficial, not only for the finances but for the condition of the peasants of Egypt. Our policy in Egypt will be guided by this consideration, that we must try to act strictly in concert with the friendly and allied Government of France. We do not doubt that we shall be able to continue to act in perfect union. We will try to prevent difficulties arising between Egypt and the Sultan. I hope we shall succeed. Unless there be an unforeseen necessity we shall not try to extend the limits of our interference. In all we shall do we shall act, not from dynastic or selfish motives, not trying to make the interests of England predominant, but with a view to ensuring the welfare of Egypt.' After such plain and explicit language, any suspicion of seeing England pursue in Egypt an exclusive and personal object ought to

be removed, and also one may indulge the reasonable hope of seeing all difficulties settled by the salutary agreement of the two nations who have devoted themselves to the accomplishment of a work essentially profitable to the civilised world.”*

A Constantinople correspondent says the disappointment at the Palace is very great that Ottoman troops are not permitted to be sent to Egypt.—The Sultan appears to maintain that as he acceded to the request of England and France to depose the late Khedive, his authority should be supported, as otherwise his suzerainty will be jeopardized. The Commissioners were despatched without any notice to the Ambassadors, nor were their instructions communicated. It is added that the attitude of the Porte is one of expectancy. It is waiting to see what course will be taken by France and England.

A Cairo correspondent telegraphs that perfect tranquillity reigns in Egypt. The principal Envoy addressed the Egyptian officers and troops at the Ministry of War, and pointed out the irregularity of their proceedings, in imposing conditions upon the Government. The officers

* *La Patrie*, Paris.

replied that they were driven to that course by Riaz Pasha ignoring their just demands. The principal Envoy warned them that they must in future observe strict obedience to the Khedive, and remarked that the Sultan regarded Egypt as the brightest jewel of the Ottoman Empire.

After the Turkish Commissioners had left for Constantinople, it is said that Nizam Pasha addressed the 5th Regiment, and impressed on the officers and soldiers the necessity of strict discipline and obedience to orders. The Khedive informed the Commissioners before their departure that he would proceed to Constantinople as soon as public affairs permitted, probably in the summer, to protest against certain Powers, and he would arrange the details of his visit with the English and French Governments. The fact is, the Khedive in his heart of hearts dislikes interference, and secretly endeavours to obtain complete freedom of action.

A highly interesting letter signed "Miles" appears in a late *Morning Post*. Although I do not altogether, in his latter statement, agree with him, I quote it *in extenso*, as indicating the opinions of a great section of the community, and the views of half the Cabinet.

“The English and French Governments having, according to telegrams in the newspapers, decided on sending ships of war to Alexandria, it would appear that a commencement has now been made of a policy advocated in the *Times* of the 23rd September by a writer who was introduced to the readers of that journal in a leading article on Egyptian affairs as ‘a well-known correspondent,’ with the intention, no doubt, of preparing the public for the course to be pursued by Her Majesty’s Government in Egypt. It is therefore desirable that public attention should be drawn to the nature of the advice tendered by the correspondent in question. This advice is merely to repeat in another and more objectionable form the policy pursued by the present Government with reference to the cession of territory by Turkey to Montenegro. This well-informed correspondent urged that ‘what is wanted is some powerful demonstration on the side of authority. It would be best if England and France could make this demonstration together. In any case England ought to do it. It is a legitimate opportunity for England to show her imperial interests in the country. It could be done by means of her fleet, and does

not require any drain on her army. If neither England nor France move some other Power may do so. If no interference takes place some worse outbreak will ensue, and more violent measures will become necessary.' The Montenegrin demonstration was made by all the Great Powers conjointly, and therefore all were interested in finding a way out of it when its failure had been proved by Turkey's refusal to accept their dictation ; but a demonstration by England alone, or conjointly with France, involving a violation of the Turkish territory, in contravention of existing treaties, unless with consent of the other Great Powers, might possibly meet with opposition, instead of finding all those Powers willing to assist in bringing it to a peaceful termination. The well-informed correspondent says that all that is wanted is the intimation of the presence of a force sufficient to secure order in Egypt, and that the marines on board our Mediterranean squadron will alone suffice to overawe all the soldiers of Egypt, who are by no means fighting animals. This correspondent entirely ignores history, and proceeds upon a very dangerous assumption. The French, to their cost,—and, there can be little doubt, to

their great regret, if their present opinions could be known,—entered upon their Tunisian conquests with a light heart, in contempt of the opposition they might receive from disorganised and indifferently-armed Arabs. Shall we embark in a like spirit with a mere handful of men, not even organised as a movable column, on an enterprise having for its object to coerce soldiers who, under good leaders when co-operating with us on the Danube and in the Crimea in 1854-55, exhibited qualities of endurance and fighting powers that would have done credit to any army in the world. In this case, too, they would apparently receive the cordial support of their fellow-countrymen, who are reported to be only too anxious to get rid of the foreign officials forced upon them by England and France, and to whom they are compelled to pay large salaries for administering the finances of their country in the interests and for the benefit, not, be it observed, of the English or French Governments or people, but of speculative holders of bonds issued by a former ruler without their concurrence or connivance. If the Egyptian forces, encouraged by Turkey's Montenegrin experience, should resist, under the assumption that they do not receive even passive

support from any other Power, the position of a few hundred marines landed in Alexandria would be most precarious. They could not be expected to maintain authority much beyond the ground on which they might stand. It might be well, therefore, to consider the measures that would be necessary to extricate them if shut up and surrounded by a hostile population. The fleet would not dare to fire on the town, and, by bringing destruction upon property owned to a great extent by Englishmen and other foreigners, accompanied by loss of life, cause that very intervention of other Powers, accompanied by demands for compensation, which the well-informed correspondent appears to regard as so objectionable, and to hold out as a threat to induce active interference on our part. The disembarkation of a small force of marines would result either in an ignominious retreat or in their hasty reinforcement by troops in such numbers and so organised as to secure not only order, but the government of the country, and to hold it against all comers. If the former alternative be rejected—which would be a repetition before Europe of our Transvaal experience, very much resembling the old fable of marching up the hill and then marching down

again—we must be prepared for the latter, which will reopen the whole Eastern Question. In the leading article referred to allusion is made to the material interests of England, France, and Italy. But are there no other Powers which have interests at stake in Egypt? Russia, which seems to be ignored, will certainly not regard military operations undertaken in Egypt by the Western Powers with indifference, the Canal being, as has been lately proved, the line of communication by which she can most speedily reinforce her fleet and army in the Chinese seas. The interests of Germany also, and of Austria, and, in fact, of the whole world, are so involved that it is scarcely possible the subject should not have occupied attention at the meeting at Dantzic, and that it will not be introduced at the forthcoming meeting of the Emperors of Austria and Russia. Awkward questions of guarantees and compensation to other Powers may be raised, and it is impossible to forecast where the stone, once set rolling, may stop. A naval demonstration, accompanied by the disembarkation of a small body of marines, would be as useless as the despatch of troops to Malta before the Crimean war, who were intended to support diplomatic action, but became the

nucleus of an army, which, upon the rupture of negotiations, was prematurely hurried into the field, unprovided with those necessary adjuncts without which it could not enter upon active operations. The late naval demonstration in the Adriatic ought also to act as a beacon against any like operations; its failure was due to the fact, of which any sailor or soldier could have forewarned diplomatists, that fleets can have no possible military action beyond the range of their guns, and to the want of cordiality, if not jealousy, which prevented the Powers from backing it by a combined land force capable of enforcing their decrees. A Great Power like England cannot afford to bully or threaten, but should so organise her forces, naval and military, as to be ready, whenever a course of action has been deliberately decided upon, to enforce it. The knowledge that we were so organised, coupled with a few active preparations in England, would be a far stronger demonstration and a greater safeguard to British interests than demonstrations by a fleet, which may be useful against a horde of pirates, as at Algiers, or against a Power with extensive maritime interests, but are absolutely useless against a Power, be it great or small, whose chief material

interests do not depend on the sea and are at a distance from its shores. The best course for England to pursue is to let Egypt alone, and allow her to govern herself, giving her any moral assistance she might be willing to accept, such as the loan of men like Gordon Pasha, and not to interfere so long as she is left to herself by other Powers and our route to the East through the Canal is unmolested. As Egypt is now situated her occupation by a European Power can only be effected by an expedition dependent upon the sea, which England ought, therefore, to be able to prevent by her fleets quite as effectually, if not more so, than if she occupied Egypt herself. For us to occupy Egypt a considerable military force would be required, and a large annual expenditure. The whole Eastern Question would be raised, and an amount of opposition calculated to endanger our best interests, such, for instance, as a renewed effort on the part of Russia to make a further advance towards Constantinople, and to get the free access for her fleets through the Bosphorus to the Mediterranean. To do Russia justice, the principle that would actuate her in seizing Constantinople, because she considers it would be to her benefit

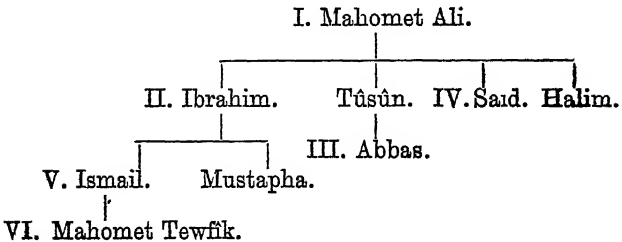
to possess it, is quite as pure and unobjectionable from a moral point of view as our seizure of Egypt would be for no other reason than because we consider it to our advantage to possess it. We cannot even plead the excuse that our traffic through the Canal has been in the least degree molested. The plea that the bondholders may lose the interest upon their bonds is no plea at all, and would never have received more attention than the same plea has in the case of Spain, Turkey, and some of the American States, if Egypt had been capable of resistance. This, however, is entering upon topics beyond the mere question involved in a naval demonstration, to which I was anxious to draw attention with the object of conveying a warning that the line of action advocated by the 'well-informed correspondent' of the *Times*, of which we see the apparent commencement in the despatch of ships of war to Alexandria, is contrary to all sound military principles, is fraught with danger, and in the end may be very costly to the nation."

The general tone of the opinions expressed by the Continental press has clearly shown us that England is regarded as *de facto* ruler and guardian of Egypt, not only on account of the

prominent position she took in expelling the French from the country, but from the firm and practical support given by her to Mahomet Ali, the founder of the dynasty which now reigns in Egypt. Her claims are, therefore, special and exceptional, and she has vested interests in dealing with Egypt. Lord Granville in his late celebrated despatch evades the question; a few months hence this policy will be deemed inadequate. England should not shirk a duty which by right is hers to define, claim, and exercise.

APPENDIX.

DYNASTY OF MAHOMET ALI.*



CHRONOLOGICAL SUMMARY.

- B. C.**
4650. 1st DYNASTY. **Thinite.**
Menes, first King of Egypt.
Unephes (builder of Step Pyramid of Sakkarah ?)
- 4133.** 2nd DYNASTY. **Memphite**
 Egypt made four kingdoms.

* "Mahomet Ali" is often spelt by Orientals "Mahommed 'Aly."

- B.C.
8966. 3rd DYNASTY. **Memphite.**
Hieroglyphics invented.
Senoferû (builder of Pyramid of Mey-
dûm).
8733. 4th DYNASTY. **Memphite.**
Exodus of the Israelites.
Shufu or *Khufu* (*Cheops*); Great Pyra-
mid of Gizeh.
Khafra (*Chepren*); Second Pyramid of
Gizeh.
Menkera (*Mycerinus*); Third Pyramid of
Gizeh.
8566. 5th DYNASTY. **Elephantine.**
Unas (Mastabat Fara'ûn).
8300. 6th DYNASTY. **Memphite.**
8100. 7th, 8th, **Memphite**; 9th, 10th, **Heracleo-
polite** (1st Dark Period and Chasm
in History).
2600. 11th DYNASTY. **Theban.**
2466. 12th DYNASTY. **Theban.**
Osirtasen I; Obelisk of Heliopolis, *Se-
sortasen*.
Ammenemhat III.; Labyrinth, *Mœris*,
and Parliament.
2233. 13th, **Theban**; 14th, **Xoite**; 15th, 16th, 17th,
Hyksos, or Shepherd Kings (2nd
Dark Period or Chasm in History).
Syphoas invents letters.

- B.C.**
1700. 18th DYNASTY. Theban.
Thothmes III.; Karnak.
Amenoph III.; "Memnon."
Horus.
- 1400.** 19th DYNASTY. Theban.
Seti I.; Abydos, El-Kurneh, Tombs of
the Kings, Thebes.
Ramses II. the Great (Sesostris); Aby-
dus, Thebes, Abû-Simbel, Figure
Head, &c.
- 1200.** 20th DYNASTY. Theban.
Ramses III. (Rhampsinitus); Medinet,
Habû, Tombs of the Kings, Thebes.
- 1100.** 21st, Tanite; 22nd, Bubastite (*Shishak*);
23rd, Tanite; 24th, Saite; 25th,
Ethiopian. (3rd Dark Period or
Chasm).
- 666.** 26th DYNASTY. Saite.
Psamtik (Psammetichus) I.
Neko; conqueror of Josiah of Judah.
Aahmes (Amasis).
- 527.** 27th DYNASTY. Persian.
Cambyses.
Darius Hystaspes.
Xerxes; Visit of Herodotus.
- 406.** 28th, Saite; 29th, Mendesian; 30th, Seben-
nytic; 31st, Persian.
- 332.** 32nd, Macedonian.
Alexander the Great; Alexandria.

- B.C.
 305. 33rd, Ptolemaic.
Ptolemy Soter, Philadelphus, Euergetes I.
&c., Auletes, Cleopatra.
30. ROMAN CONQUEST by *Octavius* (Augustus).
- A.D.
 82. *Domitian*; Juvenal banished to Aswân.
 117. *Hadrian*; founds Antinoe.
 408. *Theodosius II.*; Cyril at Alexandria; Hypatia.
 610. *Heraclius*, last Emperor to possess Egypt.
 641. ARAB CONQUEST by 'Amr, builder of El-Fustât.
 661. Lieutenants of Ommiade Khalifs of Damascus.
 751. Lieutenants of 'Abbâsy Khalifs of Baghdad (at El-'Askar).
 868. *Ahmad ibn Tûlûn* founds TÛLÛNY DYNASTY (El-Katai).
 905. Lieutenants of 'Abbâsy Khalifs of Baghdad.
 955. IRSHÎDY DYNASTY.
 969. FÂTIMY DYNASTY.
El-Mo'izz; Cairo built.
El-'Azîz; Azhar University.
El-Hâkim; Mosque.
El-Mustansir; Walls and Gates of Cairo.
1171. *Saladin* founds AYÛBY DYNASTY; Citadel of Cairo.
El-Kâmil defeats Jean de Brienne at El-Man-sûrah (1219).
 St. Louis captures Damietta, but is defeated and taken prisoner (1249).

- A.D.
 1250. *Eybek* founds DYNASTY OF BAHRY, OR TURKISH MAMLÛKS.
Beybars.
Kalaûn, Mosque and Mâristân.
Khalîl, Khan El-Khalîly.
En-Nâsir; Mosque.
Sultan Hasan; Mosque.
1382. *Barkûk* founds DYNASTY OF BURGÛ, OR CIRCASSIAN MAMLÛKS; Mosque and Tomb-Mosque.
El-Muayyad; Mosque.
Kart-bey; Mosque in Eastern Cemetery.
Kansûh El-Ghôry; Mosques.
1517. TURKISH CONQUEST. Egypt governed by Pashas.
'Aly Bey, 1763-1772.
1798. FRENCH OCCUPATION.
 Battle of the Pyramids (July 21).
 Battle of the Nile (August 1).
1801. ENGLISH EXPEDITION.
 Battle of Alexandria (March 13).
1805. I. MAHOMET ALI founds his Dynasty.
 Massacre of Memlûks, 1811.
 Wahhâby Wars, 1811-1824.
 War with the Porte, 1831-33.
 Syria acquired by treaty, 1833.
 Syria re-ceded by Convention, 1841.
 Imbecility, 1848. Death, 1849.
1848. II. *Ibrahîm Pasha*.
1848. III. *'Abbâs Pasha*.
1854. IV. *Sa'id Pasha*; Suez Canal and National Debt begun.

A.D.

1868. V. *Ismail Khedive.*

All Public works advanced ; National Debt raised to 80 millions ; change in succession, title, and powers of Khedive. Deposited 1879.

1869. THE SUEZ CANAL OPENED.

1875. England purchases £4,000,000 of Suez Canal shares.

1879. VI. *Mahomet Tewfik Khedive.*

Under Dual Protectorate of England and France. England claims her powers, 1880. Mutiny in Khedive's army 1881. Turkish Envoys, and English and French ironclads recalled, 1881. Europe acknowledges England's rights, 1881. Lord Granville's celebrated non-intervention Despatch, 1881. Market value of England's Suez Canal shares are worth £12,000,000, January 1882.

EGYPTIAN MINISTRY,

January 1882.

President of the Council, and	
Minister of the Interior	. Cherif Pasha, G.C.S.I.
Minister for Foreign Affairs	. Mustapha Pasha Fehmy.
„ of Justice . . .	. Kadri Pasha.
„ Finance . . .	. Haidar Pasha.
„ Public Works	. Ismail Pasha Ayooob.
„ Instruction . . .	. Mahomet Pasha Zeki.
„ for War and Navy	. Mahmûd Pasha Sâmî.
Agent and Consul-General:	H.B.M.'s Minister Pleni-
	potentiary, H.E. Sir Edward B. Malet, K.C.B.

PROVINCES OF EGYPT.

Lower Egypt Provinces	Chief Towns.
Boheyrâh	Demenhûr.
Menûfiyeh	Shibin.
Sharkiyeh	Ez-Zakazîk.
Dakhaliyeh	El-Mansurah.
Gharbiyeh	Tanta.
Kalyubiyeh	Benha.
Gîzeh	Gîzeh.
Upper Egypt Provinces.	Chief Towns.
Beny Suweyf	Beny Suweyf.
Fayyûm	Medinet-el-Fayyûm.
El-Minyeh	El-Minyeh.
Asyût	Asyût.
Girga	Suhâg.
Kinë	Kinë.
Esnê	Esnê.

The army is raised by conscription from these provinces, and consists of 28,756 officers and men.

The navy consists of eight vessels of war and many torpedo-boats.

The army estimates for last year were £460,000, and the navy £68,417.

The *corrected* chief exports were : grain £1,147,950, beans £779,000, cotton £7,700,000, sugar £760,000, skins £108,000, feathers £104,000.

The chief imports were : coals £264,000, textures £2,785,640, drugs, &c. £108,714.

WEIGHTS, MEASURES, AND COINS.

Weights.

Habbas

(Barleycorns)

48 = 1 dirhem (48 grs.).

576 = 12 „ = 1 wukfyeh (576 grs.).

6,912 = 144 „ = 12 „ = 1 ratl (about 1 lb. avoird.)

19,008 = 416 „ = 33 „ = 2 $\frac{3}{4}$ „ = 1 wukkah (2 $\frac{3}{4}$ lbs.).36 „ = 1 kantâr
(99 lbs)*Square Measure.*

14 kasabehs (rods) = 1 kîrât.

330 „ = 24 „ = 1 feddân (1 $\frac{1}{10}$ acre)

The cubit, of variable length, is the standard of lineal measure.

Capacity.

24 rubas = 1 weybah.

144 „ = 6 „ = 1 ardeb (= 5 bushels)

*Coins.*40 paras = 1 piastre (2 $\frac{1}{2}$ d.)

or faddahs 500 „ = 1 kis (purse = £5 2s. 6d.).

Exchange · 94-97 $\frac{1}{2}$ (par) for English pound.

Public Revenue Budget for last year (1881)	£10,524,270
„ Expenditure	£10,386,080
Consolidated Debt	£80,364,140
Imports	£7,500,000
Exports	£14,150,000
Imports from England	£3,865,986
Exports to	£10,017,412

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