

ANCIENT AND MODERN EGYPT;  
OR,  
THE PYRAMIDS AND THE SUEZ CANAL.

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A LECTURE

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It gives me, I assure you, very great pleasure to meet you again in this hall. Since we last met, I have endeavoured to imitate the good example of my friend Professor Roscoe, by inaugurating a series of Science Lectures for the People in London; and, I am happy to say, upon even a greater scale than these. For last night I addressed an audience of about two thousand in the Town Hall of Shoreditch, giving them the second of two lectures on the Researches recently made into the Physical Conditions and Animal Life of the Depths of the Sea, which, you will remember, formed the subject of one of my lectures to you last year. I was encouraged in this undertaking by the great interest and attention manifested by the large audiences I addressed here; for I ventured to believe that the same subject would be interesting to a similar audience in London. I began with some misgivings; for I found that at this north-east end of London there never had been any lectures of the kind; and these doubts were shared by my friend Mr. Hansard, the Rector of Bethnal Green, who has taken so active an interest in the great Museum recently established there, of which you have all heard, and who kindly undertook the local arrangements for these lectures. We scarcely ventured to expect an audience of above 500 on the first evening; but we had above



2,000; and this number has steadily maintained itself through the course,—thus giving encouragement to those amongst us who are desirous to place the results of high scientific investigations within reach of our working brethren. I say “working brethren,” because *we* work in our way. I think I may say that addressing an audience last night of 2,000 persons in London, after a long day’s work—coming down to Manchester, and giving a lecture at the Royal Institution this afternoon—and coming here this evening to address this large audience—is a pretty fair twenty-four hours’ work. I say that this appreciation of our efforts on the part of the people is a great encouragement to us, who, occupying such positions as I have the honour to hold at the present time, may call ourselves without arrogance the leaders in science. It is a great encouragement that we can count on this sustained interest and attention, amongst the very intelligent class who have hitherto been in a great degree debarred from receiving that culture which is to be derived from the addresses of men who have made scientific subjects their special study.

In my previous lectures to you on “Researches in the Deep Sea,” and in the “Depths of the Human Mind,” I spoke upon subjects which had been my special study. To-night, I have chosen a subject, with the concurrence of Dr. Roscoe, which is not so strictly *scientific* in its character, although by no means destitute of scientific interest. The matter to be treated is rather one of current knowledge, relating to scenes with which we are all more or less familiar by description, but which came under my personal observation during a few days’ visit to Egypt. My remarks will be illustrated by a series of photographic views of the ancient monuments of Egypt, which convey a most faithful representation of them.

I was very strongly impressed in the course of my short visit with the different feelings conveyed to the mind by the two great works of modern and of ancient times—the Suez Canal and the Pyramids of Egypt. Taking the Pyramids as the type of the great ancient monuments of Egypt, the contrast was great between them, both in point of utility and picturesqueness. The utility of the Suez Canal is, I believe, only just beginning to be appreciated; but, as regards its appearance, it is about as ugly a thing as can be imagined; for nothing can be more ugly than a long and broad ditch, perfectly straight for thirty miles; so that when we came at last to a slight bend in it, I found the change quite refreshing. The contrast was heightened when, on the next day, I saw that remarkable city, modern Cairo, and those wonderful ancient monuments,



the Pyramids; and the impressions produced by this contrast between two of the most ancient and modern remarkable products of human labour, is one that will not be easily forgotten to the end of one's life. My object to-night is, to convey to you some of the impressions I myself received.

In the first place, let me direct your attention to the Physical Geography of Egypt; because, to understand what Egypt is, and the part it has performed in the history of the world, you must have a general idea of its local peculiarities. You all know the geographical position of Egypt—that it forms the junction between the two great continents of Asia and Africa, and is at the mouth of that wonderful river, the Nile, as to whose source we are still in a great degree of doubt—doubt which we hope will be resolved by the further researches of Dr. Livingstone. Now the Nile runs for a very long course indeed between ranges of hills. Here is a large map of modern Egypt, showing the Red Sea, the Isthmus of Suez, the Peninsula of Sinai, and the course of the Nile, the southern boundary of Egypt being at about the first cataract, above which is Nubia. From Assouan (the ancient Syene) down to Cairo, a distance according to the course of the river of nearly 500 miles, the river runs between two ranges of hills which are seldom more than ten miles apart; and it is between these ranges of hills on either side of the river, that the cultivation of the land is carried on under circumstances most favourable to extraordinary productiveness. I shall presently advert to this when speaking of the Delta. During this long passage of the river Nile between these hills, there is not a single stream running into it. Why? Because there is no rain, or next to no rain, through the whole year round in Egypt. There has been a little more than usual this season, which you know has been an exceptionally wet one. I have now a son in Egypt, who has been up as far as Thebes; and he reports that they have had a much colder winter than usual, with occasional showers and a good deal of wind, which sometimes brought dust-storms from the desert. But as a general rule there is scarcely any rain in Egypt from one year's end to another; therefore, you will see that there can be no rivers excepting the great river Nile which flows from sources very far south. Instead of rain, however, they have the fertilising influence of fresh water, derived from the Nile in a manner of which I shall presently speak. At Cairo this ridge of hills comes to an end—"tails out," as we say; and it is just on the end of the ridge, on one side, that the upper part of Cairo, including the great Mosque and the Citadel, is built; whilst on the other side of the Nile, on the end of this ridge, are built the Pyramids. Now here



was a fact for which I was not at all prepared. I had a notion that the Pyramids stood on the general level of the desert. They do not. They are built upon the tail of this ridge, which is there from 120 to 150 feet above the Nile; therefore, after coming along the causeway which is built as a passage over the overflowed country (for when I was there it was still partially inundated), we had to go up the hill to get to the Pyramids, and there was a sort of cliff from the base of the rocks down to the river. Now, below Cairo, the country is a perfectly dead level all the way to Alexandria and Port Said; there is no hill the whole distance, and scarcely any undulation of the ground. [Dr. Carpenter again referred to the map, to show the position of the Suez Canal.] There is the Gulf of Suez, and there is Cairo, and there you see an extensive tract of what we call "alluvial" land; that is, land made up of the fine particles washed down by the water of the river, which gradually settle down, constituting what is called the Delta, from its resemblance to the Greek letter D turned upside down, thus  $\nabla$ . This same term is applied to similar formations at the mouths of other rivers, as for example the Ganges, the Amazon, the Mississippi, &c. An ancient writer on Egypt says that the portion of land below Cairo—that is, the Delta—is the "gift of the Nile." In order to give you an idea of the way in which the land grows and changes, I shall direct your attention to the difference between the ancient and the modern mouths of the Nile. Here is a map of ancient Egypt, which is exactly the same, in all its great physical features, with modern Egypt; but there is a marked difference in the distribution of these mouths. In ancient times, one of the principal mouths was called Pelusian, from the ancient town of that name. This mouth was an important feature in the ancient geography of Egypt, and its existence led to the earliest attempt to connect the Red Sea through the Nile with the Mediterranean. You will see marked here a canal which was cut by one of the Pharaohs—the canal of Necho, leading from the modern Suez into this Pelusian branch of the Nile. This seems to have been sufficiently large for the ships of those days; for it is recorded that after the defeat of Antony and Cleopatra at the battle of Actium, it was proposed that the Egyptian portion of their fleet should take refuge in the Red Sea, by making use of this channel of communication from the Mediterranean. The Alexandria mouth of the Nile was very small in comparison. I want you to observe the great size relatively of the Pelusian mouth of the Nile in this map of *ancient* Egypt; whilst, when you cast your eyes over the map of *modern* Egypt, you see that in the



position of the ancient Pelusian mouth there is a very narrow stream. In fact, there is no harbour here at all, it is entirely "silted" up; that is, closed up by the earthy accumulations brought down by the river, and washed back from the Levant. Then, on the other hand, the Damietta and Rosetta mouths have increased, and the main stream of the Nile finds its way into the Mediterranean by those mouths. The Alexandria mouth is not much increased. This shows that the Delta is undergoing changes in its physical features, in consequence of changes in the flow of the water in different parts; the blocking up of one mouth causing an increased rush of water to pass through the others, which enlarges them and keeps them clear.

A feature that struck me as we coasted along from Alexandria to Port Said, was that even in a vessel of no very great size (drawing about sixteen feet of water) we were obliged to keep several miles out to sea; because the water deepens so very slowly, that at four or five miles from shore there was not a depth of twenty feet. This, it was thought by Robert Stephenson, would prove an insuperable obstacle to the success of the Suez Canal. Stephenson believed that the quantity of muddy deposit continually accumulating would prevent the mouth of the Suez Canal from being kept open; as there is, of course, no flow of water as in the bed of the Nile. That danger of the choking up of the mouth of the canal by the back-wash from the Levant was pointed out, but it was not deemed insurmountable by other engineers. The manner in which they have attempted to prevent such accumulation is this: they have carried out from the harbour of Port Said two long breakwaters or piers, to a considerable distance seaward, hoping that by the accumulation of the deposit on the *outside* of these piers, which are nearly parallel, the waterway between would be kept open; and up to the present time certainly that hope has been realised, for there has been no trouble in keeping this centre way clear. It strikes one as remarkable that vessels have to keep four or five miles from the land, before they can enter the mouth of the canal. The line of entrance is marked by lighthouses and guide-towers, for guidance by night and by day. It is only in this line, which has been excavated by powerful dredges, that entrance can be effected; and this excavation of the sea-bottom is really a continuation of the canal.

When we come to enter the canal, the prospect is by no means charming. You see a long, low, level spit of land, on which Port Said is built; and all the rest of the shore merely encloses a



shallow lake—just covered with water—the land not being quite high enough to prevent the sea overflowing. It is, in fact, a great sandy swamp, through which the canal has to go for a considerable distance. Another apprehension was, that where the canal passed through this mass of alluvial soil—partly sandy and partly clayey—the sides of the canal, when excavated, would come together, and the bottom would rise, from the weight of the loose earth on either hand; just as happens when you cut into a peat bog. It is commonly supposed that this results from the *growth* of the peat—the plants which form the peat continuing to grow, and filling it up. This is not so, or is only so in a very small degree; but happens simply because the peat has a certain viscousness, something like thick treacle; for it is not a solid substance; and hence there is no sufficient resistance to prevent the sides from coming together; and it was apprehended that this would be the case with the Suez Canal.

Now it happened to me to go through the canal with the officer who surveyed it for our Admiralty at its opening—Captain Nares, who is now the commander of the “Challenger” expedition. As we went along, he took soundings of the canal constantly, to determine its depth. There was a very large troop-ship about to follow us, and we knew that it was just a question of a foot—no more—whether this ship could get through the canal or not. He found that the bottom had not risen in the least degree during the two years that the canal had been open. (It was a year and a half ago that I visited the canal.) If in those two years the bottom of the canal had surged up to the extent of only one foot, that great troop-ship would not have been able to go along it; therefore the depth was an important point to determine. He found, to his great satisfaction, that there was not the slightest change in the depth of the canal; and the troop-ship followed us safely.

I now come back to Port Said, where we saw a long low strip of land, almost on a level with the water, with a number of wooden buildings, one of which bore the grand title, “Hotel de l’Europe.” Well, I suppose it *is* the Hotel de l’Europe, in the sense that the natives of every country in Europe occasionally stop there; but it is not at all an inviting place. We had only to take in a little coal, and I had not the curiosity to go ashore, the place looked so uninviting. There was not the least appearance of a garden or vegetation of any kind. We then entered this long ditch, extending 30 miles in a straight line. The whole canal is about 90 miles long from Port Said to Suez; but part of the canal runs



through a series of lakes about midway; especially the great Bitter Lake, through the deeper part of which it was not necessary to make any excavation, because the water was already deep enough, the level of this Bitter Lake having been previously a good deal below that of the Mediterranean and the Red Sea. One of the first points in laying out the canal was to determine whether there was any difference of level between the Mediterranean and the Red Sea, which had been reputed to be the fact. But this was found not to be the case; any small difference of level now and then observable being due very much to prevalent winds. Thus, when there is a strong westerly wind, the water will be driven up into a corner of the Levant, and will therefore rise at the Mediterranean end of the canal; and if there is a strong southerly wind the water will rise in the north at Suez, and then the Red Sea will be a little higher. Excepting these variations, there is no difference between the level of the water in the Mediterranean and the Red Sea. But this Bitter Lake had a level considerably lower, for it was like the Dead Sea in the fact that the evaporation was very much greater than the water it received. And how it received water it was difficult to say, unless by a sort of percolation of the water of the Nile through the loose soil of the bed of the lake. The water of this Bitter Lake is excessively salt even now, though the canal has freely admitted the sea water into it. I may mention that I found the sea water along the coast of Egypt to be very much *less* salt than usual, in consequence of the large quantity of fresh water brought down by the Nile. But although the canal has brought in fresher water from the Mediterranean as well as the ordinary water of the Red Sea, still the water of the Bitter Lake contains nearly twice as much salt as ordinary sea water.

As we went along the canal, we passed between mounds or banks, higher than the ordinary level. These banks were composed of material which had been excavated from the canal and thrown up on either side. As we steamed along the canal very slowly (for no vessel is allowed to go more than about four miles an hour for fear of injuring the banks of the canal), I mounted the "bridge" of the steamer so as to be able to look over this bank, and there I saw this interminable barren waste on the Egyptian side covered with water, and on the eastern side a sandy desert extending to Palestine. One of the first features of interest was to come upon a "floating bridge," thrown across the canal by steam, at the point which I was told was the track of the caravans. Now here was a most curious conjuncture of modern and ancient civilisation. This caravan track is one of the most ancient of all



roads, leading from Egypt into Palestine and Syria, on the very line along which Jacob's sons may have gone down into Egypt to buy corn; and there we found one of the appliances of modern civilisation in the shape of this "floating bridge," which consisted of a large vessel, connected with two chains which lie along the bottom of the canal, and which are wound and unwound upon large drums by a steam engine, causing the large flat-bottomed boat to cross and re-cross the canal. This contact of ancient and modern civilisation is one of the most remarkable features in Egypt. I mentioned just now that my son had been ascending the Nile as far as Thebes; and he reports a fact which I was not aware of—that a railway now runs a good way up the Nile, so that, to our surprise, we received letters from him posted from time to time as he ascended the river. He tells us that he saw steam ploughs, made in Leeds, working side by side with the plough that has been in use for at least 4,000 years. He also saw sugar factories with the latest improvements in the machinery for making sugar direct from the cane, by means of the centrifugal apparatus, such as is employed at Bristol, where the beautiful white crystal sugar is made from the imported brown sugar; but in Egypt it is made direct from the sugar-cane juice. The culture of the sugar-cane was probably introduced into Egypt from India long before the Christian era, and the primitive Egyptian sugar-making apparatus worked by the natives carries one back at least 2,000, and perhaps even 3,000 years. The native Egyptians, Arabs, and Turks, may be seen squatting down at their prayers on their little carpets in the middle of the boiling-house, while the operations are going on, according to the Mohammedan custom.

This contact of ancient and modern civilisation was one of the first features of interest which struck me. But there was another noticeable feature. There are stations all along the canal, at which the officers reside, as well as the men who keep watch over the canal, and are ready to help if any vessel gets into trouble by grounding, also to insist that the regulations of the canal are maintained. For instance, no vessel is allowed to go on at night, but has to be fastened to posts fixed in the banks of the canal. At certain points there are sidings, where vessels pass each other. These things have to be looked after by the guardians of the canal. At every one of these stations I noticed that there was a garden, generally with a gay show of flowers, and a great cultivation of esculent vegetables. Now what was the meaning of this? How could these gardens be made out of this sand and mud? The secret is, that every one of these places is supplied with



fresh water. Now where does that fresh water come from? It is brought all the way from the Nile; for the first thing necessary before the construction of this canal was to bring *fresh* water in a canal from the Nile, there being no fresh water to be got from Port Said to Suez—nothing but brackish water, obtained by digging. This was very unpleasant to drink, as well as unfit for the boilers of the locomotive engines on the railway; for the use of which a reservoir was made at Suez, and filled by “water trains,” carrying water all the way from the Nile at Cairo. Well, the present arrangement is this: a *fresh-water canal* has been cut from the Nile at Cairo to a place called Ismalia, a sort of half-way house along the Suez Canal, at one end of a pretty lake about three miles long, surrounded by slight hills—altogether a very interesting place after you have been passing through this monotonous straight ditch. At Ismalia this fresh water canal joins the salt water canal. The fresh water canal is not much used for vessels, and those only small ones. But pipes convey the fresh water to the railway which runs from Suez to Ismalia, and thence along the line of the fresh-water canal to Cairo. This, as you see by the map, is a great distance for the railway to go round; but the detour is made instead of crossing the desert, where there would be no water to be got, and no passengers to pick up. At these railway stations, by the aid of this supply of fresh water, anything can be grown in luxuriance; nothing being wanted for the soil in that sunny clime but water. At Ismalia, Mons. Lesseps, the head engineer, has a villa, with the most beautiful plants of all kinds, those of tropical as well as of temperate climes, growing luxuriantly in his garden. The other officers of the canal have also villas and gardens, less elaborately cared for, but very pretty. Then all around this little town of Ismalia there were patches of cultivation, resembling very much what we call “allotment” gardens in the neighbourhood of our towns. I suppose that anybody may go and take a piece out of the desert, and turn it into a garden, if he chooses to take the trouble; all that is required to bring the desert under cultivation being to dig a little extension of the ditch to bring fresh water from the canal. The effect was very curious. I could trace the successive stages of cultivation, from the first and rankest kinds to the most cultivated. At first, merely reeds would grow, then plants of a less inferior kind, but requiring nothing but sand and mud. These rougher and fibrous kinds served by their decay to make a vegetable mould; so that in a few months the ground would be ready for a crop of beans, or some other esculent plant, which would leave a good deal



of stalk to bind the soil together; thus preparing it for a still better crop.

This suggested an analogy in human life—that it is the duty of all of us to cultivate our life-soil in the best way we can, so as to leave it better for the next generation; the life of one generation producing that which gives greater *thinking power* to those who come after us.

These were some of the most interesting features which I witnessed in this short journey through the first part of the canal, and then across the desert into the cultivated portion of Egypt. I should mention that all these maps are coloured, so that the yellow shall represent the desert, and the green the cultivated portion; and you see how exceedingly narrow is the strip of green above Cairo; but then you must remember it is 500 miles long, and that the land is about the most fertile on the face of the earth. For thousands of years these branch canals have conveyed fresh water from the Nile to fertilise the land of this long narrow strip, as well as of the Delta, to which it has been applied by primitive machines worked by men, donkeys, or oxen. Thus by the aid of the constant sunshine, and of the natural and artificial irrigation two or three crops a year are obtained from nearly all the land of Egypt. You see in this map the network of canals over the Delta, which dates from an early period of the Egyptian monarchs. It is partly by the annual inundation of the Nile, and partly by the system of artificial irrigation, that the land is made to possess this extraordinary fertility.

In the Delta of the Nile, sugar, cotton, and various grains grow in luxuriant abundance. What struck me was the miserable dwellings of the poor; but since, owing to the climate, the poor spend little time in their dwellings, and often sleep outside, that might account for their very fragile and unsubstantial character. I was not struck with any apparent wretchedness or squalor in the appearance of the people. They seemed to be comfortable, and looked well-fed, and were not so unhappy as they had been described to me. There was no doubt these poor people were kept down in the most extreme poverty; but we must also bear in mind that a little food goes much farther in a climate like that of Egypt than in England. When I was at Malta, the year before, I took pains to inquire as to the earnings of the men, and found that those employed in discharging the coal ships into barges—which is very hard work—might earn 2s. per day, or 12s. per week. Upon that they had to keep a wife and family—and the Maltese generally have very large



families. I accounted for the men being able to support their families on this sum, by the circumstance that in a warm climate less food is required than in a cold one—a large part of our food being required to keep up the heat of the body. I have been assured by engineers engaged in constructing Indian railways, that a Hindoo on a pound of rice daily, and now and then a little bit of fish and butter, will do two-thirds of the work of an English navvy, with his six and eight pounds of beef a day, with bread and cheese besides. (Loud laughter.) I do not pretend to say that I have had an opportunity of going carefully into the subject; but my impression was that there was not as much surface appearance of great physical misery as I expected to see. You must not understand me to be defending the system of enforced labour. There is no doubt that system is a most terrible thing. The Khedive takes any quantity of men from their families, merely giving them something to eat, and does not give them wages; so that their wives and children are left to get a livelihood as best they can. This is a most abominable system. The land is in the possession of the Khedive, and has been in the hands of the Ruler through all changes of sovereigns, from the time of Joseph, when the Pharaoh of that time got the land into his possession. There is no middle class in Egypt—no class of landed proprietors. There are only the Khedive and the cultivators of the soil, and the necessary overlookers.

One word more in regard to the Suez Canal. There is, I believe, no question amongst those who have studied the subject carefully, that this route (if the company, to use a common expression, do not “cut their own throats” by imposing rates too high) will become, in the course of eight or ten years, the regular highway to the East for all our commerce. The distance through the canal to Point de Galle, for instance, the most southern part of India, is very little more than half what it is round the Cape of Good Hope. Of course no *sailing* vessel could take this route with advantage, because the uncertain winds in the Mediterranean and the Red Sea would be almost sure to cause a long detention; but *steamers* that can make their way against all winds, unless extraordinarily violent, can make the Suez passage with great certainty. What is necessary is that steamers should be built of such dimensions as to fit them, as it were, to the canal; and that is now being done upon a very extensive scale. Those who are likely to know best, say that in a few years there will be very few ships going round by the Cape of Good Hope, unless the price of coal should remain so high as to destroy the profit of the shorter route.



What I have to say with regard to the *Ancient* Monuments of Egypt will be best said in connection with the individual illustrations ; and to these, therefore, we will now proceed.

The photographic pictures were then thrown upon the white screen. The first had nothing very picturesque about it, but was of interest, as showing the entrance to the Suez Canal and the dredging apparatus for excavating it and piling up the banks, just as in making a railway embankment. The second view showed the lighthouse at Suez, with the two long piers running out to the sea. No. 3 represented the starting of the fleet at the opening of the canal. One portion of the fleet went up the canal from Suez, and another portion came in from the Mediterranean ; and they met at Ismalia, where the rejoicings took place. Dr. Carpenter said he saw the villa, with its splendid ballroom, which the Khedive built there, but which was now going to ruin. Another view was shown of the marine procession ; and this was succeeded by a view of an Arab encampment ; numbers of Arabs and Bedouins of the desert, who never come near a town under ordinary circumstances, having gathered from all parts to witness the opening of the canal.

Cleopatra's Needle at Alexandria was next shown. This remarkable monument was strikingly depicted in the photograph. It is believed to be one of the most ancient monuments in Egypt. It stands in a builder's yard at Alexandria, as though no value were attached to it—a strange place for so interesting a monument. On one side the sculpture is in a remarkable state of preservation ; but on the side exposed to the prevailing wind of the desert, the inscriptions are almost obliterated by the abrading action of the fine sand through countless generations.

A view of Cairo showed how rapidly it is becoming modernised by the present sovereign, who seems to be ambitious to make Cairo as much like a French city as possible. The Pyramids were visible in the distance. The view, Dr. Carpenter said, was exactly like the one visible from his hotel. The Pyramids were about eight miles distant. Even then their height impressed him very strongly, not only because they stood upon an elevation of the ground, but because the slight haze of the atmosphere, or aerial perspective, still further magnified their proportions and altitude. The Citadel of Cairo, with the Great Mosque or Moslem church, was shown next. The mosque was adorned with two lofty and graceful minarets, of which those at the Alhambra, in London, are feeble imitations.

The next view was a street in Cairo, a very effective picture, the Eastern architecture being thoroughly characteristic, particu-



ially the projecting balconies, which are usually painted of a bright colour. The balconies have lattice-work outside, to prevent the street passengers perceiving the ladies within. From the gallery of the minaret is uttered the call to prayer, in the loud, ringing voice of the muezzin. A picture of one of the tombs of the early Caliphs gave occasion to Dr. Carpenter to remind his auditors of the poor lunatic mentioned in the New Testament who had his dwelling among the tombs; the explanation being that it was customary to erect buildings over the burial places of distinguished persons, and these were not unfrequently turned into houses by the destitute. Other views of mosques and the city of Cairo were shown, the flat tops of the houses presenting a curious appearance. Dr. Carpenter mentioned that he had lately seen a photographic picture of Jerusalem, which appeared to have been taken just after a washing day; for on the flat roof of almost every house clothes were hanging out to dry and bleach. The next picture showed the interior of a curious old mosque, called the Fountain of Ablutions. On a certain day in the Mohammedan year, the Khedive and all the great officers of State proceed to this fountain to wash away the sins of the past year. The building exhibited some interesting features of Arab architecture, being one of the oldest Arab buildings in Egypt. The Arabs have superseded the ancient Egyptian population, who are only represented by the Copts, a poor, down-trodden people. More pictures of mosques were shown, exemplifying different styles of architecture. The Pyramids were then shown and described. Dr. Carpenter praised the views for their fidelity to nature, a quality which photography possessed to perfection. These pictures brought the Pyramids before him exactly as they appeared when he saw them. He described their construction, appearance, size, and the character of the limestone rock of which they are made. Last year he had spoken to them about the chalk now being formed at the bottom of the Atlantic, by minute animals developed in countless numbers. The whole of the rock *upon* which the Pyramids are built, and *of* which they are built, with the exception of the granite casing which at one time existed, and which only exists in part on one of them now—is formed by what geologists call Nummulitic Limestone. This is newer than the old chalk, and is made of the shells of animals called Nummulites—like little pieces of money about the size of a shilling. There were vast beds of this rock where the Pyramids were built; and out of this rock was also formed the Sphinx, which seems to have been carved out of a mass of living rock left standing where the



enormous mass of stone had been taken away from around it for the construction of the Pyramids.

The Pyramids are nearly solid; there being only a few small chambers in them, used as burial places. According to Herodotus, each king began to build a Pyramid at the commencement of his reign, the centre or core of the Pyramid being built as a sepulchral chamber, and covered with one layer of stone, and a fresh layer of stone being added for every year of his reign. The great Pyramid of Cheops was, therefore, the sepulchre of the king who reigned the longest. There are 300 or 400 of these pyramids in the valley of the Nile, the largest being of enormous and surprising magnitude. The base of the great Pyramid covers an area as large as Lincoln's Inn Fields, in London; and it towers far above the top of St. Paul's Cathedral. The original height was 480 feet; but the top has been removed, and it is now about 450 feet high. There are 150 courses of stone, each stone being, on an average, three feet high. At a distance of two or three miles these courses of large stones look like courses of bricks; but on getting nearer the gigantic size of the structures is very impressive. Unfortunately, he had not time to make the ascent. It is said that some of the Caliphs removed great quantities of stone from the Pyramids to build their mosques; there being good reason to believe that the sides of the Pyramids were formerly "faced" with a smooth layer of granite, brought from a long way up the Nile. There is no longer any trace of this covering on the Great Pyramid; but it is still perfect on the upper portion of the second Pyramid—that of Cephrenes.

Other views of the Sphinx were shown. Dr. Carpenter stated that an Arab offered him a bit of the Sphinx, which he had broken off. Of course he refused it, and thought such depredations should be punished. A fine series of monumental views were next shown from the temples of Philæ, Abou Simbel, Dendera, Edfou, and Karnac. These stupendous and beautiful erections were intended to immortalise their founders. There appeared to have been a superfluity of labour in ancient Egypt, which the kings employed in the erection of these gigantic pyramids and temples, the vastness and beauty of which were still impressive after the lapse of thousands of years. The sculptures on the massive columns were often in a remarkable state of freshness, and these sculptures depicted, not only the histories and military exploits of the kings, but the daily life of the people. Dr. Carpenter pointed out the great size of the blocks of stone used in these temples, and the admirable character of the work-



manship; the stones in most cases being fitted together with astonishing nicety, so that a knife could hardly be thrust between the joints. Then there was a dignity and repose about the sculptured figures which was very impressive; and so thick were the massive columns in some of these temples, that their gloom must have been appalling. There was nothing in history more interesting than to trace the life of this remarkable people from the sculptures on their monuments. These sculptured representations give us not only the language of the Egyptians, and the occupations of their ordinary life, but also their ideas of a future state. There is thus preserved what they call the "Book of the Dead," which gave the history of the soul and its judgment.

It is extraordinary, added Dr. Carpenter, to see how large a part of the *later* Hebrew ideas on these subjects is derived from Egyptian sources. You know that the Mosaic dispensation put aside altogether the idea of a state after death. There is no trace in the law of Moses of any future judgment. We only find doubtful references to it in the middle period of the Hebrew monarchy; but it came to be a current idea among the later Jews before the time of Christ.

Now it is most singular to observe that the Egyptians should have held this idea of a future state so strongly, and yet that Moses should not have introduced it as a part of his religion. Mr. Zincke, one of Her Majesty's chaplains—a man with a large amount of liberal culture and a deeply religious spirit, has applied himself to these great problems in an honest and true manner, and fully recognises the circumstances I have mentioned. That clergyman says: "How was it that, with this striking recognition of the future state by the ancient Egyptians, Moses did not introduce it into his religious system? Why was it so completely ignored in what we are accustomed to call the Mosaic economy?" Mr. Zincke comes to the conclusion at which I know many sagacious thinkers had previously arrived, that Moses felt that here was a people trodden down by slavery, without any higher culture, for four hundred years. They were nothing better than children, and it would be generations and generations before they would grow up into anything beyond the gratification of their immediate desires. If we read the whole of that singular history of the Jewish commonwealth, we should see that what was always on their minds was this: that because they had done *this* ill they were punished, and because they had done *that* well they were favoured. Their feeble ideas could not range beyond the present; and therefore Moses, with the judgment and wisdom of a great man—learned in all the



culture and wisdom of the Egyptians—refrained from presenting that which he knew they could not take in, and presented to them that which they would take in. History shows us how constantly national transgression was followed by national punishment; and we may feel sure that will be the case with us. Ill-doing is always followed—at some time or other, and in some way, in the great dispensations of Providence—by punishment in this world; and every good and well-directed effort has in the end that success which it deserves. That success may come in ways we do not dream of, but the result of good influences which he knew to have been sown fifty years ago by very humble individuals, has been seen in the end. He had the greatest faith in the progress of humanity, if each would only seek to do his duty in that state of life in which it had pleased Providence to place him.

It would have been of no use to try and influence the Hebrews by motives connected with a *future* state; and the only religious motive which was capable of influencing them, had reference to *present* rewards and punishments. What the Ten Commandments say as to rewards and punishments, has reference to the temporal prosperity—"Honour thy father and thy mother, that thy days may be long upon the land which the Lord thy God giveth thee." The more carefully we examine the history of the Jewish people after they got into the Promised Land, the more distinctly does it appear that they were entirely destitute of any distinct notion of a future state.

Now it is most remarkable to see, that not only this belief, but the language in which it was expressed in the ancient Egyptian times, anticipated that of the Christian Revelation. For in this "Book of the Dead" there are used the very phrases we find in the New Testament in connection with the day of judgment. The whole proceedings of the Judgment are distinctly set forth; and when an individual spirit makes his claims to merciful judgment, he is represented as saying: "I fed the hungry; I gave drink to the thirsty; I clothed the naked; I visited the sick." Now these phrases are unquestionably made use of in the "Book of the Dead," which was engraved probably two thousand years before the time of Christ. There is a curious addition put in by one claimant, who says—"I did not make long speeches." I am afraid I have made you a very long speech to-night. I thought it well to close my lecture with these remarkable statements, because there is no doubt about them. All who have studied the Egyptian records are perfectly agreed that these are the simple facts of the case. Nor do they in any way detract from the value or authority



of the Christian dispensation ; but they show that similar ideas were entertained by a great people two thousand years before. How that idea came to fade out is a very remarkable question. How that great Egyptian civilisation came to pass from the earth, and to leave no trace behind but these monuments and sculptures, is a question which has puzzled the wisest heads. But there is the simple fact.

I may mention just one other—that on the roof of the temple of Dendera there is a most curious picture of the Creation, which clearly embodies very much of the idea conveyed in the first chapter of Genesis. The sun is shining down ; the waters are disappearing from some parts, so as to make a separation between land and water ; the striking of the fervent rays of the sun on the land makes plants to spring up, and there are numerous animals appearing in different parts ; so that, altogether, it gives that kind of pictorial representation that many very good critics have regarded as the source of the narrative given in the first chapter of Genesis.

Many of what may be called the liberal school of Biblical critics have come to suspect that this record was a sort of translation of pictures into verbal language ; so that it expressed the early Jewish ideas, based upon the pictorial records of the Egyptians among whom they lived. That I believe is a very probable account of the origin of the narrative of the Creation. All unprejudiced Biblical critics have now come to accept these narratives, not as truthful historical statements, nor, on the other hand, as forgeries, but merely as expressions of the early belief of the people whose sacred literature they constituted. The form and mode of creation there expressed is all subordinated to the one great idea—"In the beginning God made the heavens and the earth ;" and whatever we may think as to the precise historical value of these records, we must agree that the more they are investigated by scientific minds the more we come to feel that they cannot be received as more than what I have said—a record of the early ideas of this very ancient people. When we trace that record back, we find it reaches much further than the origin of the Jewish people ; for there can now be scarcely any question that the ancient Egyptian civilisation carries us back thousands and thousands of years before the time that the Jewish people came into Egypt. Thus, you see, we have in these wonderful records a clue to the growth of Mind among the most ancient civilised people of whom we have any knowledge.

These are a few of the thoughts to which the contemplation of



these remarkable works leads us ; and I have placed them before you as my own free and independent convictions, without, of course, in any way binding or pledging any one else to them. But I can assure you that they are the views which intelligent and able thinkers in all religious denominations are now arriving at ; and my firm belief is that they will come to be generally diffused in the next century. The revelations of science as to the history of the earth and its successive inhabitants can no longer be screwed and twisted into conformity with a set of writings, which, however ancient, can only be taken as representing the beliefs of the ancient people whose sacred literature they constituted ; and it is not by the beliefs of a people so low in the scale of culture as not to be able even to apprehend the doctrine of a future life, that the beliefs of the highest intellects and most religious natures of the present time are to be trammelled.