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“Notes of a Journey through the N.E. portion of the
Delta of the Nile in April 1884.”

By WILLIAM ANDERSON, M. Inst. C.E.

HAVING been commissioned to ascertain why extensive estates belonging to an English Company were wholly unproductive, and indeed incapable of earning the Government land-tax, it is thought that the observations then made may be useful to all interested in the true welfare of Egypt. The district visited was that portion of the Delta lying between Mansoura, a large town on the Damietta Nile, and Lake Burlos, a lagoon connected with the Mediterranean, and thus quite outside the usual track of visitors. The inquiries and investigations were of a definite and practical character, and have produced a profound impression as to the state of the administration, and as to the manner in which the resources of the country are destroyed at their very origin.

The welfare of the agricultural industry, the only source of wealth in Egypt, depends mainly on the efficiency of the irrigation, the drainage, and the means of communication. It soon became apparent, that the estates visited, and many thousands of acres of land around them, were suffering from startling defects in all the three conditions on which prosperity depends.

First, as regards Irrigation. The portion of the Delta inspected, and, indeed, the whole Delta, is intersected by innumerable canals, some used for drainage and some for irrigation. These have been dug at various times, for the most part without reference to any general plan. They are practically devoid of proper locks or sluices for regulating the flow of the water, the method adopted being to throw banks of earth across the canals, leaving gaps of sufficient width to control the water, these gaps being regulated by stakes, planks, or lumps of mud wrapped in rice straw. Owing to the caprice, corruption or laziness of the officials, the water in the irrigation canals is often too low to command the land, even when the Nile is high enough for the purpose, and at other times the water is allowed to pass so freely as to overflow the banks and submerge large tracts of country. In summer time, between the months of May and of August, during low Nile, many of the canals,

for want of proper cleaning and maintaining at the required depth, become quite dry, and thousands of acres of summer crops, such as cotton and rice, perish for want of water. In the district visited, two-thirds of the crop was, last summer, completely lost from this cause: But even when the canals are properly cleaned out, the water is still below the land-level, and every drop required for irrigation has to be raised by imperfect sakiehs, and small steam-pumps. These may be seen dotting the landscape in all directions, and represent an incredible amount of human and animal labour diverted from the more legitimate work of tilling the soil. The cost of this wasteful mode of raising water is at least ten times greater than that for which the same work could be done by large Government pumping stations, or by a better management of arterial canals. This state of things is peculiarly distressing just at this time, when the number of bullocks has been greatly reduced by a formidable epidemic, so much so, that it will be impossible, this season, to cultivate even so much of the land as is capable of being worked.

In the next place, the Drainage-Canals have been much neglected, especially at their lower ends or outfalls. They all require widening and deepening, so as to carry the drainage-waters into the sandy wastes skirting the Mediterranean. The fall of the country is rapid, so that there is no difficulty in securing very efficient drainage. The neglect of the Works Department to attend to this important part of its duties, injures not only the lands depending upon the public canals, but also estates such as the ones visited, which, lying on the edges of the waste, had their own private drainage-canals; for it is in vain that these are kept in proper order, when the water standing on the adjoining lands percolates through the soil, and rises in the better drained portions, bringing up with it the deleterious salts with which the whole subsoil of the Delta is more or less impregnated, so much so, that this salt may be seen lying like snow over vast areas of land. It is absolutely essential to the fertility of the land that the drainage-canals should be constantly kept clear, and that there should be an unfailing supply of irrigation-water all the year round, because it is only by keeping a regular wash of water from the surface downwards that the deleterious salts can be prevented from rising; but when this is done, the fertility of the soil is marvellous, and the richness of the crops is, for the most part, assured. Adjoining one of the estates was a property of 1,400 acres which had been abandoned by its owner for no other reason than that the Government drainage-canal was

choked with mud and aquatic plants. The Government had seized the land for taxes; it had twice put up the property for sale without finding a purchaser, and, of course, had lost the revenue from the lands. A single year's taxes would have sufficed to clean out the canal. This is a particular case, respecting which definite information was obtained, but many thousands of acres of other lands were in a similar predicament, as, for example, of the 100,000 acres belonging to the village of Massara, only 12,000 acres are capable of cultivation, on account of the neglect of the drainage and want of irrigation-water.

Lastly, mismanagement has practically destroyed the means of communication. The canals, if properly maintained, would be wide and deep enough to carry cargo-boats as large as those in use in England. These arteries of communication intersect the country in all directions, and yet it costs 26s. a ton to bring the produce from the estates visited, a distance of only 33 miles, to the Damietta Nile, and even that can only be achieved during the dry season, because rain makes the towing- and bridle-paths impracticable. This state of things could be remedied at a most insignificant cost.

The impediments to cheap communication in a country so highly favoured with what may be termed natural roads are the following:

When the canals are cleaned, the mud is thrown up on to the towing-path, and allowed to harden in the sun, without the least attempt to level it or remove it altogether from the path. The consequence is, that the animals using the bank of the canal tread a bridle-path on a slope. This at all times is difficult foothold, and in wet weather, when the mud gets slippery, becomes dangerous, and even impracticable. Trees are allowed to grow between the towing-paths and the canals, so that in many places towing is impossible, and from the opposite bank trees overhang, so that the towing masts cannot pass. Naturally all these obstructions should be removed. The banks thrown across the canals for the purpose of regulating the flow of water render trans-shipment necessary, and in this way, in the 33 miles of canal specially visited, there were no less than four dams or weirs, necessitating four trans-shippments. The difference of level between the two sides of the dams is never more than a few inches. It would be very easy and inexpensive, in the tenacious soil of the Delta, to construct wooden dams, with lock gates and sluices, which would allow of the barges being locked through, and dues, which would amply cover all expenses, would be cheerfully paid, as they are in other countries. Again, no control is exercised over the cutting

of the canal-banks for irrigation- or drainage-branches. The people cut through the banks, and neglect to make them good again, thus intersecting the roads with innumerable pitfalls, which render travelling in the daytime fatiguing, and at night impossible. Surely a very moderate amount of supervision would put an end to this nuisance.

Egypt depends for its prosperity on its agricultural produce; but the competition of the whole world, the immensely improved ways of communication in America, in India, in Russia, have had the effect of reducing the price of all the products which Egypt can send into the market, more especially that of cereals, and the price is never likely to rise permanently again. How is it possible that those portions of Egypt which lie at a distance from Alexandria can hope to export their produce when the means of communication are so defective? The inevitable result will be that the country must relapse into a state where just enough is raised to feed a miserable population, and no taxes will be paid, because, there being no sale of produce, there can be no money.

Whatever neglect there may be in the maintenance of the canal-system, there is no slackness in collecting the land-tax, and defalcation is quickly followed by seizure and forced sales, entailing ruin, misery, and discontent among the agricultural population.

The conduct of the Administration is inexplicable, because it would entail very little more than the present expenditure to keep the canals in proper order, while it would improve the revenue by making a greater breadth of land cultivatable, and would restore to the land the human and animal labour now lost in raising water in a wasteful manner, and in overcoming the difficulties of transport.

The people do not object to forced labour on their own canals. They have sense enough to know that by no other means can the life-giving streams be maintained, and it is possible so to distribute the work, and so to select the season for doing it, that the task would not press seriously on the people. At any rate, it would be an infinitely smaller infliction than that which now exists as the consequence of neglect and mismanagement, by which the poor struggling peasants see the fruits of their labour disappear year by year, for want of irrigation and of drainage, or, if the harvest be haply secured, rendered valueless by the cost of carriage.

Many distinguished men have, from time to time, been sent to Egypt to set right its finances. Many ingenious schemes have been proposed, but it is doubtful if any who have attempted the regeneration of the finances of the country have turned their

attention to the root of the matter. Measures should be adopted to place the cultivatable portion of Egypt in a condition to produce the wealth latent in its lands, in its river, and in its laborious peasantry, and further to provide cheap and expeditious ways of communications, which can alone enable the produce of the lands to be converted into the gold which the financiers thirst for. It would be a worthy task for England to step in and remove the terrible drawbacks under which the fellaheen suffer. In her Indian engineers and their subordinates she has an admirable and experienced staff of administrators. The same men, the same system, and the same honesty of purpose introduced into Egypt would make a garden of a country which is now almost a wilderness.

A step in the right direction has already been made in the appointment of Colonel Scott Moncrieff, R.E., to the post of Under-Secretary of State for Public Works. He has earned a high reputation in India, and will assuredly, if properly supported, do much towards the regeneration of the country entrusted to his care.

Unfortunately, long neglect and mismanagement have rendered large expenditure necessary, while that very neglect and mismanagement have crippled the revenue.

Colonel Moncrieff has already been ordered to retrench in every possible way, even when it is certain that expenditure such as he contemplates will yield enormous returns. He is perfectly alive to the importance of the reforms alluded to. In two "Notes" addressed to the Financial Advisers of the Government, one dated February 13th, 1884, on the communications throughout Egypt, and the other dated March 1st, 1884, on the Public Works which he deems essential to the good administration of the country, he points out in terse and vigorous language the real barriers interposed to prosperity, in the absurd and oppressive taxes on navigation, the impediments offered to it by bridges over the main channels, the defects of drainage and irrigation, and the total absence of roads.

It is satisfactory to be able to state that recently in Egypt one great concession was announced, namely, the river and canals were set free for steam-navigation, a privilege till then reserved to the Government. It cannot be doubted but that this has been one of the results of the improved administration of the Public Works Department, and it is to be hoped that many other reforms will soon follow.

The uncertainty which surrounds the intentions of the British Government is stopping all public and private enterprise, and

the poor farming population, that is to say, the bulk of the people of Egypt, is sinking deeper and deeper into a hopeless condition of poverty and debt. This is not a mere statement of opinion; on the contrary, the existing political situation had to be taken into consideration. The canals and drains on the estates visited had long been neglected. An expenditure of £1,500 in cleaning out was absolutely necessary, if advantage was to be derived from the expected improved irrigation and drainage service; and could the company have felt sure of the intentions of the British Government to continue steadily in the course they have entered upon, the work would have been commenced at once. The probabilities are, indeed, in favour of a prolonged occupation, because a great number of British officials have entered the Public Works Department, replacing some able and experienced men, such as Rousseau Pacha and his chief engineer, and it is hardly credible that the British Government would make such appointments if their sway was to be only of a temporary nature. But still the Government assurance is wanting, and it is impossible to advise expenditure of capital which would be fruitless in the event of the withdrawal of the British, for in that case the Government of Egypt would relapse into its original state of inefficiency.

In 1883 the Ministry of Public Works in Shereef Pacha's Government published a most able paper entitled "*Exposé du Ministère des Travaux Publics sur les Irrigations d'Égypte, et examen d'une proposition y relative.*"¹ It is signed by Ali Pacha Moubarick, then Minister of Public Works, and by Rousseau Pacha, their Director-General. These gentlemen are both men of long experience in the department over which they presided, and Rousseau Pacha, especially, is an engineer of great and varied information. The "*Exposé*" treats first of the general systems of irrigation and drainage in vogue in Upper and Lower Egypt, discusses the capacity of the Nile at low water, and demonstrates that its volume is barely sufficient for the wants of the existing summer cultivation, and those of navigation. The long-standing question of the Barrage is carefully considered, and the conclusion is reached, that even supposing by an expenditure of very large sums of money the Barrage could be repaired, or, as they point out, more properly rebuilt, and the banks of the arterial canals raised to a proper height, to convey the waters pent up behind it, Government might well recoil before the enormous risk of so

¹ An abstract of this will appear in the Minutes of Proceedings, vol. lxxvii.

powerfully altering the regimen of a river such as the Nile, and incurring the consequences of injury to a wide extent of productive land brought on by the infiltrations which would be sure to supervene. In addition, they draw attention to the enormous cost of keeping the arterial canals clear, and the absolute necessity of employing for that purpose forced labour in its most odious form, that is, at a distance from the homes of the labourers, and employed on works in which they have no direct interest. The height to which the banks of the arterial canals have risen from centuries of cleaning, renders the labour more and more severe each successive year, and more and more land is being covered by the mud excavated, and by that means rendered valueless. The Rayah of Khatatbeh, in the western margin of the delta, for example, which used to bring the waters of the main Nile from above the Barrage to the Khatatbeh canal, which irrigates the Province of Behera, though only 26 miles long required annually the labour of 20,000 men for fifty days to clean it. The bare cost of feeding this army used to amount to £12,000, and if to this the labour lost to the farms and valued at only 6*d.* per head per day be added, there was a further loss to the country of £25,000, making £37,000 per annum for 26 miles of one canal!

In addition, the mud deposited in the arterial canals is the fertilising essence of the Nile water, and should be deposited on the lands irrigated, and not in the canals. Too much importance cannot be attached to this point. The canals should be as short as possible, and then their currents can be so regulated that the least possible deposit shall take place.

On all these grounds the Exposé strongly advocates the use of powerful steam-pumps, under Government control, in preference to attempting to patch up the Barrage, or make use of long arterial canals. The system would abolish the most oppressive kind of forced labour, would avoid all risk of infiltration, would assure abundant water at all times at a height to command the land irrespective of the level of the Nile, and last, but not least, would save the Government for some years to come, in a great measure, from the very heavy annual outlay in cleaning canals used for the summer water, which now have to be maintained at a great depth, but which, if pumping be resorted to, may be allowed to silt up permanently to a very considerable extent. The Government of Egypt before the rebellion had already acted on the principles laid down in the Exposé, and had established a powerful pumping-station at Khatatbeh, and increased the existing one at Atfeh, so as to save the expense and oppression involved in cleaning the

Rayah of Khatatbeh. The Government of Shereef Pacha took up the good work, and all but made a contract with an English company to utilize its powerful pumps at Cherbine, which would have supplied the district visited, and invited tenders for the erection and working of another similar station for the Mansourah district. Unfortunately the troubles in the Soudan broke out, Nubar Pacha replaced Shereef, and the arrangements made by the Government of the latter were in a great measure set aside. Colonel Scott Moncrieff (who was appointed about this time) was forced to reduce his budget at the expense of many salutary reforms, and unfortunately with respect to the water-supply of the district, which forms the subject of these remarks. At first Colonel Scott Moncrieff seemed favourable to the views advocated in the *Exposé* of the late ministry; but after the Soudan troubles, driven, perhaps, by pecuniary necessity, he unfortunately determined to make an attempt to raise the waters of the Nile by means of the Barrage, and that work is now being strengthened in a manner which he expects will enable it to perform the office for which it was designed. Most experienced engineers, native and foreign, believe that the attempt will end in failure. Mr. B. Baker's graphic description of the work¹ is of a very discouraging kind, especially as it is known that when the Barrage was being examined with the view to converting it into a railway bridge, a diver was actually able to make his way right under and across a portion of it! Colonel Moncrieff is very frank about his attempt, and is quite prepared for a failure; but a failure may prove very disastrous indeed, because, as Rousseau Pacha points out in the *Exposé*, the Barrage now serves an invaluable purpose in regulating the amount of water passing down the Damietta Nile. Mr. Baker mentions the tendency of the river to follow the shorter, or Rosetta branch, hence, if any serious failure of the barrage were to occur, the lands depending on the Damietta Nile would suffer severely. Colonel Scott Moncrieff and his assistant have been but a short time in the country; they have not yet seen the Nile through all its phases. It would surely have been more prudent to postpone the dangerous experiment of dealing with the Barrage to a future time.

Although, on the present occasion but a small portion of the country was visited, yet at other times the Author has traversed many miles of the canal-system both in Upper and Lower Egypt, and everywhere the same neglect of the vital interests of agri-

¹ Minutes of Proceedings Inst. C.E., 1879-80, part ii.

[THE INST. C.E. VOL. LXXVI.]

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culture exist. Nothing but a strong Government, served by capable and honest officers, will be able to achieve the reforms which will place the irrigation, drainage and communications of Egypt on a par with those of the other civilized countries with which it has to compete. The grand schemes which have from time to time been broached for the construction of regulating reservoirs on the Upper Nile are, as Rousseau Pacha points out, works requiring long years and large sums of money. But the immediate necessities of the cultivatable lands can be satisfied with but moderate outlay, and the returns will be immediate and abundant if the expenditure is controlled by capable and honest administrators; but the work must be done at once if the revenues of Egypt are to be maintained. The Ministry of Public Works has declared emphatically that "the country cannot wait."