IRRIGATION OF EGYPT

And Its Modern Restoration, by Admiral Selwyn.

CONDITIONS OF THE NILE.

Origin of Irrigation in the Long Ago—Recommendations as to the Future.

The Polytechnic society meeting last night was a most interesting and instructive one. Colonel Stevenson occupied the chair and Captain T. C. Bailey acted as secretary. The audience was a large and discriminating one. The principal question was that of the Irrigation of Ancient Egypt and its Modern Restoration, by Admiral Selwyn. The paper is as follows:

About seven years ago my attention was requested to a scheme for making a ship canal from Alexandria to Cairo, by some friends, and I reported that while there were no great difficulties of a physical nature to overcome and the canal might certainly be made, given a moderate expenditure per mile, no modern steamship could be induced to use it on account of the delay involved, and the same cause would operate to prevent any profitable competition with the existing railway. But in the course of the investigation I was led to examine the conditions of the Nile above Cairo, and I was immediately struck with the curious fact that on the most accurate maps the six cataracts from Assouan to near Khartoum were very nearly equidistant from each other along the course of the river. Pursuing the inquiry, I was not long in arriving at the conclusion that this had not been the work of nature, but of ancient and scientific engineering for the purpose of both irrigation and navigation, engineering at once bold in its conception and colossal in its execution. That it had also been most successful in its results was evident from the remains of irrigation channels still stretched over many degrees of longitude on both sides of the river—as well as by the ancient records of flourishing cities, where now only barren wastes are to be found. The channels and these ruins are by no means confined to the valley of the Nile proper, but reach to the confines of the true desert. In latitude also, even Khartoum does not seem to have been an impassable southern limit to the fertilizing influence of this great irrigation scheme. So long as the leading Egyptologists disagree on the question of dates among themselves—sometimes by more than a thousand years—and are unwilling to accept the minute and accurate chronology now attainable from the sacred writings as their guide, it is in vain to expect that we can fix the date of the great work of regulated irrigation, but no doubt it was extended from the first to the sixth cataract in successive conquests gave the power, first to observe the levels and then to compel the labor necessary. If by so doing nomad tribes were forced to become agricultural and settled communities, shall we not approve of such con[illegible] leading to such results—rather than admire the so-called glory of a devastating conqueror, who has no such aims or elevated object of action.

However, we may consider that Wady Halfah and Semneh at the second cataract, 420 feet above the Mediterranean, were regarded as the boundary in the eyes of Thothmes the II and I.I. Semneh and Kumneh on either bank of the Nile having been founded by Usertsen the III about 2000 B. C., ten years after the birth of Abraham (in 1996 A. M. or 2010 B. C.). Thothmes the II succeeded to the throne of Egypt, though an infant, on the sudden death of his father (who had married his own sister, Queen Hatsu,)* in 1659 B. C., a date which can be shown by [illegible] irrefutable evidence to be that of the exodus—though Egyptologists have settled that Rameses II was the Pharaoh of that event, because they have been led away from the truth by the evidently corrupted statement that the stay of the children of Israel in Egypt was 430 years, instead of 124, which is readily proved by the text of the Bible, in not one but [illegible] places, to be the fact. But [illegible] found among the inscriptions that "the Nile watered" vast regions above S[illegible] neh," at a period which one Egyptologist calculates at 1529 B. C., and [illegible] as 1700 B. C. (a difference of [illegible] two hundred years), but "the [illegible] gave way and the Nile ever [illegible] ceased to water the regions above." Consequent on the divisions and distractions in the land (then caused the shepherd kings succeeded in their attacks. For our purpose at present it will be sufficient if we assume that at Assouan was originally established the first curb of the river, a granite, where an island in the midst offered considerable facilities, and at this dam backed the river up 120 miles to Semneh, where later a second dam was made and backed the river again another 120 miles to the third cataract. Did the original designer [illegible] the first dam know enough of the fall of the river and length of course [illegible] from the commencement the height and distance apart of each dam was this an arbitrary decision, [illegible] solely by the local facilities adverse conditions? That is not of great importance, though the total distance to Kartoum from the first cataract Assouan being 720 miles, the division of it so space by six dams would give 120 miles between each, and the fall [illegible] eight inches to the mile would give a second height of each dam so eight or ninety feet, exactly in [illegible] calculation which would now be made [illegible] by any irrigation engineer. [illegible] proof of the dams having existed here there are now only cataracts [illegible] does not, however, [illegible] inferences as these, [illegible] the inscription at Semneh, which [illegible] that at one period the [illegible] was two[illegible] five feet higher than now—but [illegible] on the evidence of ancient irrigation channels [illegible] said, as well as much of what is now desert on the western side of the Nile, from [illegible] (between [illegible] 15 north, [illegible] and [illegible] degrees of longitude, west as well as east of the Nile valley proper. [illegible] but not least, the great granite [illegible] the foundation extending nearly [illegible] thousand[illegible]

*Hatsu—As to Queen [illegible] one of the [illegible] sovereigns [illegible] history [illegible] [illegible] was thus ruined.

[illegible] years across the Nile (in my recollection there was one, at the second cataract) are still visible at very low Nile, and will enable the work to be restored with great advantages whenever such a course is decided on. I wish here to be permitted to read the words of Sir Samuel Baker as to the great results to be gained by resorting to such a survey of expenditures in Egypt, not only in view of the commercial returns, but also as the most effectual method of reducing all the savage tribes to settled and civilized condition, while enormously increasing the revenues by the wise investment of capital at more than compound interest.

No more favorable opportunity than the present could be found for the obtaining of money at low interest for such a work. I have none of the calculations which I made in considerable detail, when I first studied the subject now at hand, but I remember that the conclusions I then reached were briefly as follows: Each dam would have to be from eighty to ninety feet high and eight feet wide at the top. The base ought to be 270 feet wide exclusive of piers, perhaps, revetment, slow and above the dam in the river bed. The contents (assuming a width of river of 1100 yards as at Khartoum and Cairo), but in several instances it would be much less, I calculated at 2,130,000 cubic yards. The cost, if built with concrete blocks, of each dam, $5,000,000. The revenue derived from irrigation, dues and commerce at present charges for water and light sale at locks, $15,000,000 per annum. Reclaimed lands to be leased so as to pay two rents, one to the cultivator and one to the government or landlord, the usual practice being to consider that a third of the returns from land cultivation must go to the soil (which in Egypt can be dispensed with), a third to the cultivator and a third to the landlord. In this instance of course the lenders of the capital have a primary lien for their capital and interest, until paid off, and the ground landlord takes the balance, to be strictly devoted to similar purposes, till the irrigation system is complete; after the cultivator has in every case received his fair half of the proceeds of his crops and has paid the water rent.

Now the whole evil of a nomad and uncivilizable population can by this means be checked first and eventually be rooted out. The population of the Soudan is not more addicted to wandering or war than any others of their congeners in Africa, but they are under the fatal necessity of wandering in search of new water, pasture and shade. When these are obtainable they will settle down and turn their spears into pruning hooks—own property and pay taxes, choose or accept governors, and buy manufactures. The ever advancing boundary of irrigation will also be the boundary of civilization and comfort, and expensive armies will no longer be required to keep in order contented populations. It must be remembered that manufactures are nowhere so prosperous as in those localities where the raw product is to be found in close proximity to cheap labor, which is largely a result of cheap food—and that the nearer we approach the tropical and intertropical countries, the less does man require of clothing or animal food. But what is an absolute necessity is shade and water—and the shade, while it cannot be had without water—retards the evaporation and economizes its own primarily necessary supply of moisture in the soil. As we follow up the course of the great river, of which we have been considering the value to man or a small section only, we find in the torrid zone a magnificent example of the rich natural vegetation due to rainfall economized by shade. In other sections of the equatorial belt, sandy deserts and a stunted vegetation reduce the traveler to despair, but near the great inland waters of Central Africa it is the endless forest and its rank vegetation that make the chief complaint of Stanley and his band of explorers. In the Nile sources—we see, however, for the Nile irrigation every encouragement as to the future. The Albert Nyanza alone, out of which the Nile directly flows, 1900 feet higher than Khartoum above sea level, gives assurance of a permanent water supply of a magnitude unapproachable by any of man's reservoirs, if ever it is needed for the country above Jondo Koro.

To show how, not only agricultural manufactures and commerce, but also mining, may be affected most favorably by irrigation, I may first advert to the fact shown by the deciphered inscription that the first care of one of the Egyptian monarchs who desired to develop the copper and turquoise mines in his country was to sink a well, which has been called artesian, but was probably scarcely entitled to that appellation, to supply the miners' wants, but no Western miner is ignorant of the value of a "miner's inch" of water, and many a flume has been built in this Western country with better results as to profit than many a claim supplied by it. It is scarcely necessary to say that as to the distribution of the water of the Nile stored by dams at each cataract, nothing could be more simple, for the ancient channels everywhere exist, and are thirsting for the renewed supply which they will no doubt transmit to the old centers of agricultural fertility. Neither need I say what a wealth of tropical products would pour down through the locks, which must be an adjunct to each dam, or the return cargoes of manufactured goods to pay for them. But I may conclude by saying that since my arrival here in September I have heard that the good work has begun, and that the restoration of the Assouan curb to the Nile has been seriously entertained. I have now only to regret that I cannot supply fuller and more valuable information on the subject in the absence of my detailed notes and memoranda, and [illegible] thanking you for your patience, hop[illegible] at the discussion will fill up the [illegible] which I am compelled to apologize.

The Reign of the Bicycle.

Hail to the bicycle, if the boys and girls would only sit up straight upon it and not hump over and flap together their lungs and stomach and make their backs look like a barrel!

The bicycle industry of this country amounts to $20,000,000. Since the day when the native who first saw it described it as "a buggy wheel running away wid a man on it" the number of riders has increased till they now number 300,000 in America, and it is mounting up every day. To our friends, the wheelmen, we owe almost altogether the recent movement in favor of improved country roads in the United States. Before the advent of the bicycle the country roads of this Union would have been a disgrace to the Esquimaux of Greenland's icy mountains. Sylvester Baxter, writing in The Arena on the "Social and Economic Influence of the Bicycle," says that he recalls a prominent western city where a few years ago the streets were in a wretched condition, with not a half dozen wheelmen in the place. On a late visit he found beautiful asphalt streets with bicycles gliding like a gleam of light hither and thither, their wheels glinting in the sunshine.

Mr. Baxter mentions also that the bicycle has given to us an idea of a strong, light vehicle, which is being utilized rapidly in the construction of wagons and carriages. He believes that between the bicycle idea and electrical traction horses as draft animals will disappear altogether from city streets. It is impossible as yet to even prophesy the full development of the bicycle idea in its application to human life and industry. Bicycle riding begins with gentlemen, and with gentlemen it has mostly remained—that is, with men of social habits. Mr. Baxter says:

[illegible]

The Military Drill.

At a parade in which some regiments of the national guard took place a number of cadets from West Point joined the procession and brought up the rear. If the militia boys had been wise they would never have permitted the West Point boys to appear with them, for the contrast was not flattering to the home drilled soldiers. By comparison with the cadets the militia looked round shouldered, loose jointed and shambling in their gait. Their knee joints bent and tumbled about awkwardly; they did not even walk erect. On the other hand, the slim, lithe cadets, straight as arrows, stepping out from the hip joints, advancing with firm, even tread, excited universal admiration.

Yet naturally the militia boys were just as graceful, good looking and gentlemanly as any of the West Point youths. Before the cadets had been licked into shape by constant drill and athletic exercises they were fully as shambling and stoop shouldered as the national guard boys. The whole difference was in the attention to military drill. A famous English actress, noted for grace and dignity of bodily movement, tells us in her autobiography that in her childhood she lived in a garrison town. Her mother was determined on making the daughter graceful and erect, and therefore the drillmaster from the garrison was employed to come and give the girl regular lessons. For several years exactly the same drill exercises employed with the soldiers were practiced by the young lady, and to the day of her death she maintained that all girls should be trained by military drill as they grow to womanhood.

It is of course not possible for young men who work on farms and in offices daily to spend the time that West Point cadets do in drill, but it is possible for them to do much better than they do at it. For their own credit and good looks they ought to take themselves seriously in hand.

A Columbus Shirt Collar.

It is a good time to immortalize the Columbian year by adopting some new fashion in dress suggestive of Christopher when he raised his eyes to heaven, a cross in one hand, the Spanish flag encircled by the other, and took possession of the New World in the name of their majesties Ferdinand and Isabella. The possession did not stay put, but that does not signify now.

It will be observed in most of the portraits of the discoverer that he wears a low necked collar. A loose, soft snow white garment of fine material is simply gathered into a band at the base of the neck, leaving the massive head room to draw from the heart all the blood needed to nourish it. Why should not men adopt the Columbus neckwear? A firm neck rising like a column from the body is a feature of manly beauty unsurpassed. The picturesque and imposing appearance of the great discoverer is added to not a little by the fact that his collar ceases where the modern one begins. Of course we do not refer here to the portrait in which he is represented with the stiff and heavy neck ruff.

A handsome neck is far more agreeable to the eye than the stiffest, whitest collar ever starched by a Chinese laundryman. Besides, when the throat is thus open to the air and sun the man is not nearly so apt to take cold or suffer from bronchitis. Who will start the fashion of the Columbus collar? If some man with a handsome neck will do so it will be a go, and the scraggy necked fellows will be the first to follow it. With the freer circulation of blood, which the Columbus collar would permit, moreover, many a scraggy neck would disappear.

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