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**THE SCIENTIFIC AMERICAN SUPPLEMENT**

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## SHIP RAILWAYS FOR ISTHMUS CROSSINGS.

The superior advantages of a ship railway for the Isthmus of Darien were considered at some length in the SCIENTIFIC AMERICAN for August 2, 1879, in connection with a forcible paper on the same subject by Captain Eads. Attention was then called to the fact that this distinctively American plan of solving the isthmian difficulty had commended itself to American engineers long before the success of the Suez Canal gave a speculative impetus to canal projects for uniting the great oceans by way of Central America.

And now that M. de Lesseps is urging so vehemently his scheme for a sea-level canal at Chagres, the ship railway project has again risen to prominence. This not solely because of the theoretical favor it commands from capable engineers, but also because of the practical commercial interest called out by the bill before Congress, looking to the actual construction of a ship railway across the Isthmus, and its ultimate control by the United States.

In the current issue of the SCIENTIFIC AMERICAN SUPPLEMENT will be found an extended reply by Captain Eads to the argument of M. de Lesseps, before the House Canal Committee, in favor of the Chagres canal, and a clear statement of the advantages of a ship railway instead. Captain Eads maintained that a substantial and durable ship railway could be built at half the cost of a canal with locks, and a quarter of the cost of a tide-level canal, with a saving of from two-thirds to three-fourths the time required for constructing a canal. The railway would have the further advantage of capacity to move ships of maximum tonnage four or five times faster than would be possible in a canal, thus allowing many more ships to pass each way in a given time; while the cost of maintenance and operation would be less than with a canal. With this superior capacity for meeting the varying demands of commerce, both as to the size and the number of the vessels transferred from ocean to ocean, a ship railway can be built and operated where a canal would not be possible; and, being above ground, it is possible to estimate with great accuracy what it would cost and how long it would take to build it. A canal, on the contrary, is strictly a hydraulic construction, involving the control of water and the execution of works under water, with liability to irruptions of water, making an accurate estimate of the time and cost of construction an impossibility.

Captain Eads illustrated his plan to the House Committee by means of drawings. The proposed railway led into the water to the depth of 30 feet, along an incline having a grade of 1 in 100; a cradle being thereby submerged for the reception of the ship to be transported across the Isthmus. The railway consisted of 12 steel rails, weighing 70 lb. to the yard; the wheels under the ship's cradle being 3 feet apart and bearing a maximum pressure of 5 tons, with capacity to withstand a pressure of 20 tons. The number of rails and the great weight of the ship, he insisted, would make derailment impossible; and the great number of wheels under the cradle would so equalize the oscillation that there would be no perceptible motion in the ship's cabin. Touching ability of ships to withstand the strain of land transportation, Captain Eads said that any vessel thought capable of withstanding the gales and hurricanes of the Atlantic and Pacific oceans, was capable of being carried on this railway with absolute safety—indeed, with as much safety as a child in its mother's arms. His plan had been received with favor by Mr. E. J. Reed, the Chief Constructor of the British Navy; Mr. John Roach, Mr. Henry Steers, and a great number of the most eminent engineers of America.

As in the case of his successful improvement of the mouth of the Mississippi River, Captain Eads proposes to assume all the risk. Having demonstrated the practicability of a ship railway for the Isthmus, by transporting thereon a vessel of maximum tonnage from ocean to ocean, he asks, in the bill referred to, that the United States shall guarantee the payment of an annual interest of six per cent on the cost of construction, and acquire thereby the right to regulate the tariff of tolls.

The well earned reputation of Captain Eads as a practical and thoroughly scientific engineer, and the support he commands from engineers of high rank, furnish the highest assurance that the plan he proposes is feasible; and its manifest economy should have great weight in determining what kind of trans-isthmian route shall be adopted. If, at the cost of one canal, three or four railways of equal capacity can be built along as many different lines, it will be a queer commentary on American thrift and business capacity if M. de Lesseps persuades American capital to invest in his canal.

## EVILS OF NEGLECTING COLD IN THE HEAD.

In a paper read by Dr. D. B. St. John Roosa of this city, at the recent meeting of the Medical Society of the State of New York, he stated that the most frequent origin of chronic diseases of the lachrymal passages, of the conjunctiva, and of the middle ear, is in a neglected "cold in the head." It is generally conceded that no person in perfect health, except under extraordinary circumstance, takes cold, and yet the majority of mankind have, at some time, suffered from cold in the head. The popular idea that a cold in the head is an insignificant affair is founded on the fact that most of the people recover to such an extent that they are able to go about afterward and engage in their ordinary avocations without special notice, at the time, of the consequences of the disease, which may even then be settled upon them. He believed that very many of the maladies which prevented men and women from reaching the allotted period of three score and ten have their origin in these colds; and that many serious affections which act as an impediment to the success of their victim are dated from a cold in the head.

He described the suffering incident to an acute attack of cold in the head, and of the impossibility of having repeated attacks without producing serious local changes—not only local change, but a permanent impairment of nutrition. To correct all this, special attention must be paid to *individual* hygiene, and if the evil consequences of neglected cold in the head were to be abolished, the abolition must come through a public sentiment properly educated upon this as upon all other sanitary questions. The family physician must warn the people everywhere, as opportunity offers, of the danger in this direction, and of the means by which it is to be avoided. The first great precaution to be taken by each individual is to keep himself in a good general condition, and to do that he must studiously avoid all that tends to disorder the skin and the functions of all the organs of the body. Children must be clothed in flannel all the year round, and must be made to know that the staples of diet are milk, bread, meat, vegetables, and fruit, and that tea, coffee, and pastry of all kinds are to be used only as the greatest of luxuries, and therefore in small quantities and at long intervals. The community can only become healthy as individuals become healthy, and all the reforms necessary to make Memphis and Granada places in which yellow fever never comes may be adopted; but if the control cannot be obtained of the bodies of, and the modes of living of the individuals in those and all other places, evils not so suddenly fatal, but none the less in the end dangerous, and all the time injurious to their well being, will certainly exist.

## A PLAN TO MAKE NEW YORK A FRESH WATER PORT.

Mr. James Cochrane, "formerly of the U. S. Navy," gravely proposes to convert New York harbor into a mill-pond, for the benefit of commerce and the improvement of public health.

His plan is not very coherently presented in the pamphlet he sends us, but it is possible to make out several of the changes he wishes to effect.

In the first place, he would build at the Narrows, and at Throgg's Neck, on the Sound, artificial dams with locks, which would shut out the ocean tides and convert the bay and the waters communicating therewith into a many-armed fresh water lake, with a level five or six feet above the present level of the water at high tide.

Among the benefits promised by the change are these:

The vast area of flats along the Jersey shores would be permanently flooded, putting an end to their malarious exhalations.

The depth of water could be regulated, and would be uniform, thus saving that portion of the large expenses involved in handling freight at the wharves, due to rising and falling tides.

The danger and cost of ferry bridges would be obviated, with much of the difficulty and danger now attending the navigation of ferryboats.

The water of the port would be fresh, and fatal to barnacles and ship worms, making the port a desirable one for shipping awaiting freight.

The flow of the river would be steadily toward the sea, so that the tedious anchor watch might be dispensed with.

The surplus water could be used as the source of mechanical power.

The aggregate saving promised for the plan proposed amounts to millions of dollars every year, and millions of lives in time not stated. But the greatest benefit is modestly withheld. In comparatively few years the vast areas of waste water from Newark Bay to Throgg's Neck would be filled up by river silt, and under proper cultivation would furnish all the garden truck required by the surrounding cities. The value of such reclaimed land would be enormous; while the narrow channels that would carry off the inflowing fresh water would probably be ample for the needs of all the commerce that would seek New York as an inland port.

## A ZOOLOGICAL NOVELTY.

The first elephant born in this country made its appearance, March 10, in the elephant house of Cooper & Bailey's circus in Philadelphia. It was a female, 4 feet 6 inches long, 35 inches high, and weighed 213½ pounds. The event was not unexpected, though the period of gestation—twenty months and twenty days—was somewhat briefer than was anticipated.

The mother, Hebe, sometimes called "Baby," is one of the five performing elephants whose tricks have been witnessed by circus-goers in every large town in the country. She is 23 years old, weighs 8,000 pounds, and was imported from Ceylon in 1865. Her keeper suspected her condition over a year ago, called the attention of several Philadelphia scientists to the fact, and arranged for examination, which was made by Professor Joseph Leidy, of the University of Pennsylvania; Professor Penrose, of the University of Pennsylvania; Dr. Brinton, of Jefferson College; Dr. F. F. Maury (now deceased), of Jefferson College; Professor Allen, of the University of Pennsylvania; Dr. Henry Chapman (coroner's physician), of Jefferson College, and a number of other eminent physicians. It was then decided that the period of gestation would be complete about the middle of the present month. Naturally the event has not lessened the interest which physicians and naturalists have taken in the case, and it is probable that a paper on the subject will