

Malaria Fever BANISHED from PANAMA

How an Army of 4000 Men Stamped out the Malady and Its Causes.

The Female Mosquito that Caused all the Trouble.

At present, so far as known, there is not a single case of yellow fever in Panama—at least, along the canal strip. The last case reported was a year ago.

More than that, the sanitary authorities do not anticipate a recurrence of the disease in the isthmus. Should it manifest itself again it is not believed that it would assume grave proportions, so long as the experts in the situation are in hand.

Thus a great barrier to the construction of the canal has been lifted. The removal of this difficulty leaves no hindrance in the way of "making a dirt dyke" on the great ditch that is to link the Atlantic and Pacific oceans, and which will be used in carrying such a vast amount of the world's commerce.

Upon the solution of this problem—whether or not yellow fever could be banished from the isthmus—depended not only success in building the present waterway, but the degree of its usefulness to humanity when finished.

When the Panama commission took up the work to which it had been assigned, this disease problem presented even greater difficulties than those of engineering.

An army of workmen could not be maintained there, and certainly capable engineers and overseers would not be content to remain there should previous conditions prevail.

Because of the ravages of yellow fever, work had to be abandoned on the canal on two separate occasions under the regime of the French government.

In October, 1884, when the French company had on the isthmus a force of 19,234 men, it lost 161. During the same month, in 1895, however, the Isthmian canal commission, and the Panama railroad company, employing 10,685 men, lost only 55.

If yellow fever could not be banished from the isthmus, it seemed probable that the disease would be carried from the canal ports to the ports of the Philippine Islands, those of south China and the other parts of the Orient, as well as the Pacific slope.

The lifetime of the yellow-fever-bearing mosquito is about three months, which is ample time for a ship to reach Asia from the Isthmus of Panama. The stegomyia fasciata mosquito abounds in the Orient, and climatic and sanitary conditions there are favorable to the propagation of the disease.

Once introduced into the cities and towns of China, the loss of life would be enormous and the effects upon commerce disastrous, while the difficulty of inducing the Chinese and other Orientals to adopt modern sanitary methods of dealing with the scourge would be very difficult.

The Panama canal commission had one great advantage over its predecessor, the French company, in proceeding with the epidemic of yellow fever. When the French government undertook the work of digging a canal, the cause of the disease had not been discovered, but it was known.

Through the discovery of the late Major Walter Reed, of the United States army, the causative agent in the transmission of yellow fever is now known to the world. As a result of his scientific researches in Havana in 1900, he demonstrated scientifically the theory that yellow fever is transmitted from one person to another through the bite of the female mosquito, *stegomyia fasciata*. He also showed how the miasm could be fought and the disease eliminated.

A Big Man For A Big Task.

Credits for having rid Panama of yellow fever belong to Col. W. G. Gorgas, of the medical department of the United States army. When President Roosevelt came about to find a man to make the Isthmus a fit place in which to live, he selected Dr. Gorgas as the chief sanitary officer of the canal zone. The office had already demonstrated his fitness for the big task by successfully stamping out yellow fever epidemics in the southern states and in Cuba.

It was a tremendous proposition, however, that confronted Col. Gorgas—one that seemed to justify the appropriation of \$2,000,000 and the employment of 4,000 men. The work was to be something on a larger scale than had ever been attempted before in the history of sanitation or medicine.

When American authorities took charge of the canal zone, they found it in a condition of filth almost beyond belief—yellow-fever-breeding mosquitoes had favorable conditions for propagation. It was necessary to give Panama a good cleaning up and to adopt modern sanitary measures.

As a precautionary measure in preventing the introduction of the disease from outside, effective quarantine regulations were put in force against South American ports. Quarantine stations were established at Panama, Ancon, Colon, and Colon, and all vessels arriving at these ports from southern countries were subjected to the severest inspection.

If a contagious disease was found aboard, vigorous steps were taken to prevent its further spread. If necessary, the vessels were fumigated and

disinfected, and persons who showed suspicious symptoms were detained under observation until the disease developed or the period of incubation had been completed.

But the great work of the crusade resolved itself into exterminating the mosquito carrying the infection, and in removing the conditions favorable to its propagation. It was also essential to put the Isthmus on a thoroughly sanitary basis.

In the war against the stegomyia fasciata mosquito the sanitary experts directed their efforts to destroying the insect and its places of propagation. This species can live only where there is standing water, so that it was necessary to drain stagnant pools and ponds, receptacles around houses containing standing water had to be covered, and every house was thoroughly fumigated.

Wet marshes, where there is a deep growth of grass, are also favorable to the growth of the mosquito, and these had to be cleared away.

Some idea of the stupendous task it was to give Panama a thorough housecleaning may be gained from the following statistics, which cover the period from July 1st, 1901, to August 31st, 1905. There were 6,359,131 square feet of brush cut and cleared; swamps filled in amounted to 67,100 square yards; swamps and ponds drained, 948,616 square yards; grass cut and burned, 3,304,406 square yards; new ditches dug, 122,573 linear feet; ditches cemented and lined, 12,370 linear feet.

From October 1st, 1904, to September 30th, 1905, there were thirty-seven deaths from yellow fever among the employees of the canal commission. During the same months in 1883 and 1884, when the French had at work approximately the same number of men, they lost from yellow fever sixty-six men, or almost twice as many. But even this checking of mortality was not satisfactory. The disease had to be stamped out, or work on the canal would be delayed and its value afterward impaired.

Necessarily for the success of a slight outbreak of the fever which occurred later. It was not as extensive nor as alarming as many that had preceded it in the years gone by, but it caused almost a panic among the 25,000 workmen employed in canal construction. Many of them left and returned to the United States.

A vigorous campaign was then undertaken by Col. Gorgas, consisting of first, the prevention of the propagation of mosquitoes; second, the isolation of the persons afflicted with the disease in order to prevent the spread of the infection; and, third, the destruction of all mosquitoes capable of transmitting the fever.

Orders were issued requiring that all screens on windows in the administration building be closed. Guards were stationed at the spring-hinged vestibule doors to prevent them being propped open and to see that persons entering and leaving were not allowed to loiter on the sill. On each alternate Sunday the building was cleaned through a thorough process of fumigation.

These precautions proved so successful that although five buckets filled with water were allowed to stand in the building, no mosquito eggs or larvae were found in them.

Yellow-fever-bearing mosquitoes do not breed in the open swamps or other bodies of water, but require the protection of buildings, grass or foliage for any considerable distance. The sanitary authorities recognized that the danger arose from mosquitoes bred in and around the houses of the towns. The work of preventing the propagation of these pests was done by "stegomyia brigades" working under the health officers of Panama and Colon.

These towns were divided into districts, and each district was assigned

to an inspector, who visited each house once or twice a week to see that no mosquito larvae were breeding on the premises.

In the past this work was exceedingly difficult, owing to the primitive water supply of Panama and Colon, which compelled the inhabitants to rely on water barrels, cisterns, and other small and stagnant tanks for sufficient water for ordinary domestic use. These stagnant tanks offered insuperable breeding places for mosquitoes in every nook and corner of the city.

Efforts of the "stegomyia brigade" for a while were confined to covering all water receptacles with wooden covers or wire netting, in order to exclude mosquitoes from the surface of the water.

When the rains from the reservoir which supplies the city of Panama were permitted to be efficiently extended to permit the normal use of the new hydrants on the street corners, and free water was supplied to all who came, it became possible to banish the stagnant water from the city.

The destruction of water barrels, cisterns and other water receptacles, and the filling of all open wells and other underground cisterns.

All of these receptacles and breeding places were destroyed. The only water in which domestic water in now allowed to stand are the large cisterns, sewers and coolers in use by the inhabitants of the Isthmus.

To prevent the infection of mosquitoes, the most important of which is the yellow fever, it was necessary that all patients should be isolated as soon as the disease manifested itself. For a dependent for information of new cases were voluntary declaration or upon the reports of laborers of the "stegomyia brigade."

As a result of this imperfect system, however, many cases were never reported and others remaining for several days unreported before they were brought to the notice of the authorities.

To remedy this condition, eight local physicians were appointed in Panama and five in Colon, to act as medical inspectors and to make a daily household canvass of the two cities, reporting all suspected cases to the authorities.

Patients Effectively Isolated.

Every effort was made to persuade patients presenting symptoms of yellow fever to allow themselves to be taken to a hospital. If a patient refused, preferring to remain at home, he was placed under a mosquito bar, and a double vestibule attached to the door, which was locked and guarded by an attendant instructed to admit only the doctors, nurses and a limited number of immune relatives or friends. Because of this precaution there has not been a single case of yellow fever contracted from sufferers.

In every instance when yellow fever was reported to the health authorities, the house where the patient had been staying was thoroughly fumigated, as was also the adjacent property. In addition to this every effort was made to trace the movements of the patient during the days immediately preceding the contraction of the disease, and if it seemed probable that he became infected in any other house or building it went through the process of fumigation.

In discussing the manner and methods used in the fumigation work, Col. Gorgas says:

"The occupants of the house were given a few days' previous notice, and then at the appointed time a brigade, in charge of an inspector, would make the place as nearly smokeproof as possible. All cracks and openings in the building were sealed with strips of paper of sufficient size, attached with paste.

"Iron pots or brick supports containing pyrethrum powder of sulphur were placed in each room ignited, and left to smoulder from two to four hours. The doors and windows were then opened, and as soon as the smoke cleared sufficiently for the laborers to remain in the house, the doors were swept and the sweepings, containing the dead and stunned mosquitoes, were taken into the street and burned.

"It became apparent in June that the fumigation of only those houses in which cases of fever had been traced, or to which they had been traced, would not be sufficient to check the epidemic. It was, therefore, determined to fumigate the entire city of Panama within the shortest possible space of time.

"Since twelve days must elapse after the fumigation of only those houses in which cases of fever had been traced, or to which they had been traced, before it can transmit the disease, it was desired to complete the work within that period, but this was impossible. The actual time consumed was forty-four days, or from July 7th to August 19th. The entire city of Colon was then fumigated in like manner.

"The people of Panama, themselves immune from yellow fever, have submitted patiently and uncomplainingly to the annoyance and inconvenience of fumigation. The few complaints which have been made have related rather to the time of fumigation than to the fact of the fumigation itself. Few claims have been filed for compensation for damages resulting from the fumigation work, and almost every one of them has had some basis of merit."

Rheumatic Virus Expelled.

In any established case of rheumatism the action of the kidneys and digestive organs is perverted. Poisons are created and allowed to remain in the system when they should be expelled. Any effective rhumatic cure must cause a general housecleaning of the system. The proper functions of organs must be restored and they must be set to work. This is what Dr. Hall's Rheumatic Cure does. It completely cleanses and revitalizes the system. It does this thoroughly and so doing cures all acute or chronic cases of rheumatism, neuralgia, sciatica, etc. Price 30c. Ten days' treatment at Wade's drug store.

The Righteous Farmer.

Some six months ago there came from England, in answer to an advertisement, an Englishman and his wife, and took employment with a Frontenac farmer. The stipulation was made that he was to buy his provisions from the farmer. The man was made work from sunrise to sunset, and was housed with his wife in a sugar shanty, the month being March. At the end of the first month he found that his wages totaled quite a bit less than fifty cents. At the end of the second month he was in debt to the farmer for provisions. His Irish wife, feeling that this couldn't go on, tramped eight miles to the village of Live, where she was in a "live" shop, getting ten dollars was saved, and with that she came to this city, where the man has found good employment, and is at work steadily. An example of a few farmers of the class would benefit generally.

If there ever was a specific for any one complaint, then Carter's Little Live Pills are a specific for sick headache, and every woman should know this. Only one pill a dose. Try them.

Purity tea. Crawford's.



Opening of the Panama Waterworks System.

Col. W. G. Gorgas, Commander of the Yellow Fever Fighters at the Isthmus.

The Fumigating Force in Panama City.

RIVER TO LIGHT PARIS.

44,000,000 to Be Saved by Employing Water Power.

A colossal scheme of power development is said to be on the point of realization in France. It is proposed to utilize the River Rhone for the development of electricity for the City of Paris. Light, heat and motive power are promised at the cheapest rate in the world.

The originator of the idea is an engineer named M. H. His plans have the endorsement of the National school of highways and bridges and of the Society of Electro-technicians. The enterprise is so assured that contracts for the delivery of current in Paris at an early date are already being negotiated.

The water is to be drawn from the Rhone at Grasse, not far from the famous Porte du Rhone, or Falls of Bellevue, where the river, already of great volume, draining as it does Lake Geneva, plunges for 300 yards or more through a chasm which it has scored for itself in the solid rock.

The water directed through a sluiceway will be impounded to the amount of 2,000,000 cubic metres, or about 25,000,000 cubic feet. The lines to Paris will be as direct as possible; the distance is between 250 and 300 miles, but no special difficulty is expected. Some long lines of delivery in America and one in Sweden, supplying Stockholm from a distance of 600 kilometers, or 360 miles, have been studied in the preparation of the plans, and are quoted as showing that the entering price is entirely possible.

It is calculated that the delivery of the net electric power from these works in Paris, as compared with the development of the same energy on the spot by coal consumption will effect a net annual economy of about 20,000,000 francs, or \$4,000,000.

STEADY IMPROVEMENT

The Foes That Are Busy With Attacks.

Review of Reviews.

Uncle forests three foes are concentrating their attack. First is the small farmer, who, crowded from the rich valleys, is endeavoring to live for himself and his dependents a living out of the mountain side. To do this he clears a space, farms it in rough fashion and, in five to twenty years, exhausts it; he now moves up the mountain side and repeats the process. Erosion follows his operations, and the land becomes a series of worthless gullies. Next may be mentioned the professional wood-cutters, including tan-bark men, pulp men and lumberers. The first seek only the bark, but like the hunter of flamingoes or buffalo bison, they leave behind them to rot, after collecting their tribute, a huge but worthless residue. The pulp man cuts clean, good, bad, large, small, old and young, thus making natural reproduction of the forest impossible. The lumberman takes what he wants, much or little, but by methods that destroy almost as much as he takes, and practically insure fire, which completes the work of denudation. The corresponding final touch is given to the mountain slopes by the rains. While the forests remain, these regulate the run-off, holding back the water, passing it into the underground circulation, and insuring throughout the year, a substantially equal stream flow, greatly to the advantage of agriculture, commerce, manufactures and all other interests concerned. But the forest gone, and the very soil—a vegetable mold—eaten away by the flames, this conservative influence no longer operates. Torrents rush down the mountain sides, filling streams and harbors, producing overflows, denuding farms of their soils or burying them with sand, destroying water powers, and sweeping away railroads, bridges, factories, houses, even villages. In this way, as by the Faelet disaster, property valued at four and a half million dollars has been destroyed in a day, while, as in 1901-02, eighteen million have been carried away in a year. The continuation of this process in America means, as in vast areas in the old world, the rapid transformation of the region affected into a desert.

NEW RACE OF NOMADS

Are Different From Their Polar Tribes.

Liverpool, Dec. 8.—A new race of people has been discovered on Prince Albert and, in the Arctic, who had never previously been seen, who lived under most primitive conditions and who were armed with copper knives and bows and arrows.

The information was brought south to British Columbia by the crew of the British revenue cutter Thetis, who learned the facts from the discoverer of the people, Capt. Klinkenberg. He went 250 miles in a northwesterly direction over the snow, finding traces of people, and finally overtaking his crew, and finally overtaking his crew, and finally overtaking his crew.

One advanced alone, and the captain laid down his rifle, the native putting down his weapons. They became friendly, and by means of signs Capt. Klinkenberg learned from one old woman, who came from Prince William Land, that they had never seen white men previously. He visited the village, and found about 200 people, all of whom lived by hunting and fishing.

Their winter houses were of sod, with a lining of skins, and different in shape from those of other known tribes. They are nomadic. The only article seemingly brought from civilization seen by Capt. Klinkenberg was a piece of steel—evidently from some ship—which had been converted into a spearhead.

Down At Zero.

Portland, Dec. 4.—The thermometer has registered zero for the last few days. The shop windows are arrayed in beautiful Christmas decorations. Francis Healy has sold his hatching business to Edward McEwen, Westport. Mr. McEwen intends moving to the village early in the spring. He wishes him every success. Mrs. H. McKenn is on the sick list. Dr. E. Condit is able to be out again after a severe illness. His many patients will be pleased to see him. Mr. Morris and Ripley brothers are setting out a large quantity of wood this season. Mrs. T. K. Scovil is on the sick list. Hoses are entertained for her recovery. Mr. and Mrs. W. Singleton, Crosby, were the guests of Mr. and Mrs. J. McDonald, this week. The Conway and Tolley suit has been settled for \$100. The revival meetings held in the Methodist church have come to a close. They have had a great many converts. W. Clements has moved to his home on Water street. He spent the summer at Fafara in large work. H. S. Foster made a flying trip to our town on Monday. Miss Estella Rose is learning dress-making with Mrs. H. Howe. Miss Mattie Heath, Emma DeWille, went a few days, last week, with friends in Athens. A number from here attended the high school commencement in Athens on Wednesday.

Purity Tea, Purity Tea.

Sold in tin boxes, at 30c., 40c., 50c. the finest flavored tea grown. J. Crawford.

Skates, pucks and hockey sticks, of all kinds at Strachan's hardware.

Carving Set \$2.00 to \$7.00; also dozen from \$1.00 to \$2.00.

Agate Tri-use Ceramic cookers pans in one quality blue.

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QUIET THOUGH FOR SUNDAY

REV. N. T. FERRY

In St. Catharines Standard.

A searchlight on a river-bank is a startling thing. When its flash is directed on the bank it sets a light which searches him and he tries to be at his best. This was unimportant to him, he walked and talked in the snow, now becomes full of interest. How he looks in that light is the criticism from those who know him. In the blaze of that light he knows that every spot and no blind is clearly seen. He is used and inspired, he appears as he is. The secret which the Palmist speaks known to the man until they are in the radiance of the face of the sun. The Scottish poet, Robert Burns, once uttered a poetic prayer for power to give us the gift to ourselves as they are honest to things to startle us and we would often give us a "too bad" that he does not do himself, which injures him. Truly a peevish narrowing experience might be we could openly hear the criticism ourselves as they are honest to other people. There would be things to startle us and we would our secret sins under a searchlight. Such an experience harden us; it should humble man often knows everything than himself. He is like a glister who visits every place between our country and his own home read the biography of men, to the lesson to other lives than our own. If we study society as which are a close fit for other not for ourselves. If we listen most we find that they have for others, but none for us, easy to go away unchastened touched, because our sins are secrets to us.

It is the indifferent goddess who does not see his secret sins in like the animal that food sleeps and becomes contented his own fate. Such men say to as good as others and as good as others, but when we begin to care own with a wash of pallid ignorance, and to interpret in mere eccentricity, then we are in a fool's paradise, bound and frothed by one secret sin. This earnest testimony was given about the consciousness of sin.