

# YELLOW FEVER BANISHED FROM PANAMA.

## Now on Afloat of 4000 Men Stripped on the Malady and Its Causes.



PANAMA now has a clean bill of health so far as yellow fever is concerned. Medical science and the United States Government have secured a great triumph in stamping out the dreaded scourge.

This splendid result was accomplished in about a year from the time of American occupancy of the canal strip. It was not an easy task, but still one about which clings a romance of successful endeavor.

Native indolence, lack of knowledge among the people regarding sanitary measures, and peculiar local conditions combined to make the work of the health officials peculiarly difficult. They entered upon it with zest, however, and with a grim determination that has borne fruit.

Fully 4000 men were employed in this campaign for freedom from a dread disease, and they had behind them an appropriation of \$2,000,000. Science and money, working together, have proved an all-powerful combination.

It was absolutely necessary to purify the canal strip, to banish yellow fever from the Isthmus, else the value of the canal to the world would be seriously impaired. Ships from all parts of the earth are expected to use that cut-off passage, and, through them, contagion might be spread far and wide.

By stamping out yellow fever so soon after assuming control, and so long before the canal is completed, the American Government not only guarantees a safe habitation for the many thousands of workmen needed, but an unimpeded highway for the commerce of nations.

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 well have the experts the situation 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 the dirt fly" 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.

### FEVER BALKED FRANCE

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 1905, however, the Isthmian Canal Commission and the Panama Railroad Company, employing 19,685 men, lost only 65.

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 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 dealing with the epidemic of yellow fever. When the French Government undertook the work of digging a canal, the cause of the disease and how to combat it were unknown.

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 pest could be fought and the disease eliminated.

### A BIG MAN FOR A BIG TASK

Credit for having rid Panama of yellow fever belongs to Col. W. C. Gorgas, of the Medical Department of the United States Army. When President Roosevelt cast 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 officer 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 Colonel Gorgas—one that seemed to justify the appropriation of \$2,000,000 and the employment of 4000 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, Cristobal and Colon, and all vessels arriving at those 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 this 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 1, 1904, to August 31, 1905. There were 6,338,123

square feet of brush cut and cleared; swamps filled in amounting to 67,100 square yards; swamps and ponds drained, 848,616 square yards; grass cut and burned, 3,304,406 square yards; new ditches dug, 122,873 linear feet; ditches cemented and lined, 12,370 linear feet.

From October 1, 1904, to September 30, 1905, there were 37 deaths from yellow fever among the employes of the Canal Commission. During the same months in 1882 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.

Necessity for this was impressed by a slight outbreak of the fever which occurred later. It was not as extensive nor as alarming as many that had preceded it, 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 Colonel 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 went through a thorough process of fumigation.

These precautions proved so successful that although fire 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 larger bodies of water, but require the protection of buildings, grass or foliage. They are incapable of sustained flights over any considerable distances. 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 mosquitoes 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 innumerable breeding places for mosquitoes in every quarter 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 main from the reservoir which supplies the city of Panama with water was sufficiently extended to permit the partial use of the new hydrants on the street corners, and free water was supplied to all who came, it became possible to begin the wholesale destruction of water barrels, tanks and other household water containers and to fill up wells and other underground cisterns.

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

To prevent the infection of mosquitoes and the consequent spread of yellow fever, it was necessary that all patients should be isolated as soon as the disease manifested itself. For a long time the sanitary officials were dependent for information of new cases upon voluntary declaration or upon the reports of laborers of the "stegomyia brigades."

As a result of this imperfect system, however, many cases were never reported and others remained 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 house-to-house canvass of the two cities, reporting all suspected cases to the authorities.

### PATENTS EFFECTIVELY ISOLATED

Every effort was made to persuade patients presenting symptoms of yellow fever to allow themselves to be taken to a hospital. If the patient refused, preferring to remain at home, he was placed under a mosquito bar, the windows of his room were screened 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 where 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, Colonel 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 or sheets 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 had cleared sufficiently for the laborers to remain in the house, the floors 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 found, 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.

### TWO WHOLE CITIES FUMIGATED

"Since twelve days must elapse after the *Stegomyia* has bitten a patient before it can transmit the disease, it was desired to complete the work within that period, but this proved impossible. The actual time consumed was forty-four days, or from July 1 to August 13. The entire city of Colon was thus 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 fumigating work, and almost every one of them has had some basis of merit.

"The great object of the work, however, has been accomplished. Yellow fever has been banished from Panama, and it is believed that the dread scourge will never again secure a foothold there.



The Fumigating Force in Panama City.



Opening of the Panama Waterworks System.

Col. W. C. Gorgas, Commander of the Yellow Fever Fighters on the Isthmus.

## Some Things We Are Expected to Believe

FORTUNATELY, perhaps, readers are not always compelled to wade through recitals of crime, political gossip or reports of the proceedings of Congress in order to experience the thrills that enliven life or to learn of remarkable happenings.

Some seasons of the year, especially, news often assumes a sprightlier garb; men, animals, birds, fish and even the inanimate forces of nature contribute to the lighter, brighter side of newspaper columns.

AT STROUBSBURG, Pa., for instance, two young men during the last summer saw a bolt of lightning slip down a telephone pole and electrocute a duck. Every feather in its body was loosened.

"If lightning can do that," they thought, "why won't an artificial electrical current do the same thing?"

The men, therefore, were responsible for many surprising items. Those of Robert E. Foster, Jr., of Sussex county, New Jersey, it is gravely stated, have been trained to lay eggs with handles to them—supposedly, of course, for convenience in eating.

This result was not an accident, but, rather, the result of suggestion. Some time ago, when breaking an egg at the breakfast table, Mr. Foster conceived the idea that an eggshell with a handle, which would form its own cup, would not only save a lot of dishwashing, but would be at once a culinary and a scientific triumph.

Accordingly, he had the interior of the henhouse painted white. Food was conveyed to the fowls in large white vessels, each having one handle. Water was provided in similar, but smaller, vessels.

Across the single window, leucopis were suspended on strings, completing the only ornamentation upon which the hens could gaze. Nightly the fowls were sung to sleep to the tune of rollicking drinking songs.

Such persistent and scientific treatment had its effect. It is solemnly declared. Within ten days eggs began to appear bearing slight excrescences on one end, and, after two weeks, the new eggs had well-formed handles.

That suggestion brought about such a useful result is Mr. Foster's belief. During the experiment a rooster escaped from his yard into that of a neighbor. The neighbor's small boy chased the rooster home, and, during the proceedings, threw at it part of a broken white pitcher that bore a large and conspicuous handle.

The incident greatly frightened the rooster, and was witnessed by the hens. From that time there was a

rapid development to handles on eggs. Laying eggs that are turned inside out is the freak which bears the legend—deliberately dog tax, Ohio. She lays one egg a day, and all are inverted.

The outside covering of the egg is the thin white skin usually found just under the shell. Next comes the white of the egg, and then the regulation shell surrounding the yellow yolk.

So strongly does the maternal instinct exist in a hen belonging to Joseph Kern, of Scheidey's, Pa., that sometimes she took possession of seven beagle puppies. The fowl, it is stated, entered the barn shortly after the birth of the puppies, scraped acquaintance with the mother, and then spread her wings over the new arrivals and settled down to snuggle them, while the mother dog walked calmly away.

Since then the hen has endeavored faithfully to fill the position of foster mother to the pups.

A FEW DOG STORIES

Some good stories about dogs have developed of late, too. Among the most intelligent of these animals are the dogs trained by the monks of the famous hospice of St. Bernard Pass, in the Alps.

Almost human are these faithful dogs in assisting and rescuing Alpine travelers. The monks have erected refuge huts in the dangerous places, and installed telephones connected with the hospice.

Some of the dogs have been taught to run to any particular hut when their number is repeated to them.

How a dog is faithful in guarding interests he believes are common to his race is illustrated by the following story, taken from a newspaper of Iowa, Mich.

"On Tuesday a farmer drove up to Page & Co.'s office and sold a sheep pelt and drove away. After he had driven off, Mr. Welch discovered that the farmer's dog remained by the pelt.

"Later he took the pelt to the storehouse and locked it up. As he came out, the dog stood by the door, and Wednesday morning was still there, as though faithfully guarding a companion. The dog is still round the warehouse, refusing to leave."

for him. When telegrams were sent to the place of shipment, it was found that the body had been sent to the funeral home, which the pig he expected had gone to the adjoining relatives of the dead.

Mrs. Margaret Clark, of Baltimore, wrote out a warrant for the arrest of her husband, who had been dead three years, because he had appeared so vividly to her in a dream that she concluded he must be alive.

Not knowing that the man had passed from earthly scenes, the police attempted to find John Clark, but, instead, ran across proofs of his death. When these were submitted to the widow, she acknowledged that she knew the facts.

Her dream had been so real, she said, that she became convinced her spouse was alive again, and, as she was afraid of him, she wished him arrested.

Perhaps she heard about the suspicion of him that Mrs. Louisa Swegles, of Detroit, had of her husband, William Swegles, when the troubles of the couple were all in court, there.

"For twenty-two years," she asserted, "I lived with him, and in all that time 5 cents was all he spent on me—5 cents for witch hazel."

"He never bought me even a handkerchief; never paid a woman to help me with the housework, and made me work in the fields with the men."

Mrs. Swegles had some property of her own, it was explained, and from that source was able to meet her personal needs.

Some persons crave newspaper publicity, others are honest in their opposition to it, but here is a case where mention of a man's name in the papers brought him a fortune.

John Spiess, of Sayre, Pa., an engineer on the Lehigh Valley Railroad, had a nail blown into his neck at a Fourth of July celebration twenty-six years ago. The wound healed, and he did not know the nail was there until some months ago, when sharp pains caused him to submit to medical examination.

The lawyer wrote to the engineer, who established his identity satisfactorily, and was informed that a legacy of \$25,000, left him by an aunt in England, was at his disposal.

Only two other instances of curiosities that crop out in the dirty floozie and jargon of news may be mentioned. One is the case of a baby at Des Moines, Iowa, which changes color three times each twenty-four hours and is a puzzle to medical men.

The child is the son of a Hindoo, who married an American girl. When it awakens at sunrise it is a pretty pink, fair-complexioned boy. By noon he has changed to the dark ginger color of his Oriental ancestors, and at night becomes white again. Mixture of bloods is thought to be accountable for the strange phenomenon.

Another curious case is that of a child of nervous origin attacked six members of a family of twelve children. One of the boys had manifested dread of a kicking mule, and it is said the drive on the animal, thinking to cure the boy, locked him in the stable with the mule, leaving him in the dark.

The strange thing was that five other members of the family, all younger than the boy, became smitten with the same trouble. They had what the physicians termed sympathetic nervous attacks.

When one went into convulsions, others followed; at times all six, including the original sufferer, were in fits at the same time.

In order to restore the sympathetic sufferers it was necessary to separate them and keep them away from each other, with new and cheerful surroundings, for several weeks.