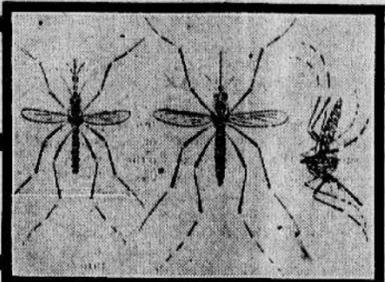


# The Peril of the PANAMA CANAL

By FOREES LINDSAY



Fumigating Force, Panama



Stegomyia Cellipus Fabricius, Female, Side View, Magnified about 20 Times



General View of Ancón Hospital



Bottle Alley, Colon, before Paving, An Ideal Breeding Ground for Mosquitoes

The most dreaded of all tropical diseases have exacted a terrible toll from the white man whenever he has ventured to make a settlement in the new world below the equatorial line. Columbus had hardly founded the city of Isabella, in Hispaniola, than yellow fever almost wiped out its garrison. Thereafter, the same dread scourge made its appearance at the birth of every new settlement. It caused the abandonment of many a colony and frustrated many an expedition. During Admiral Vernon's operation against Cartagena, in 1741, more than three-fourths of a force of 12,000 men succumbed to it. It made the Panama canal impossible to the French, and it is practically certain that the American enterprise could never have been carried to a successful conclusion but for the discovery, in the very nick of time, of effective means of combating yellow fever.

In the past the theories regarding the origin of the disease embraced every conceivable source from divine visitation to influence of the Gulf stream. But every explanation advanced fell to the ground when subjected to strict investigation, and, until recent years, the cause of the disease and the manner of its conveyance remained a baffled mystery. The non-contagious character of the disease was thoroughly established and the miasmatic theory of origin had the greatest number of advocates among scientists. It was observed that "yellow jack," as it came to be called in consequence, broke out in practically every ship that anchored in the West Indies, or off the shores of South America, but no one ever thought of connecting that peculiar circumstance

with the open water casks that were invariably kept upon the decks of vessels in port. The hospitals were generally hot beds of the disease, as we can understand how, knowing that their veranda usually contained numerous potted plants which stood in large dishes of water. These and other strange manifestations of the scourge, which were profoundly perplexing to the physicians of former generations, are susceptible to the clearest explanation today.

It is only within the present decade that the world has had positive knowledge of the source of yellow fever. All the efforts of our surgeons to effect a decrease of the disease in Cuba were unavailing until they worked upon the theory, which had long before been advanced by Dr. Carlos Finlay of Havana, that a certain species of mosquito is the agency for the conveyance from man to man of the infecting virus. This was proved beyond question with the aid of a number of young Americans, who heroically submitted themselves to be experimented with.

This discovery reduced the task of eradication to a comparatively easy matter. In a few years Havana, which had been during a century and a half, one of the principal centers of yellow fever, was entirely freed from it. A similar result was secured in the canal Zone, where a case of the disease has not originated in the past four years, notwithstanding the fact that many thousands of non-immunes have entered the territory during that period.

The cause of yellow fever is thoroughly well understood, and the most effective methods of prevention have been ascertained. A certain kind of

mosquito contracts the virus of yellow fever by feeding on the human being afflicted with the disease. The insect may then transfer the infection to any non-immune person by merely biting him. Only one species of mosquito—the stegomyia—is capable of these functions, and by this process only is yellow fever communicated. Two factors are essential in its propagation—a yellow fever victim and a yellow fever mosquito. Neither alone can be effective.

A single insect is capable of infecting an unlimited number of beings and of exercising its malignant activity over a course of eight weeks, and probably longer under favorable circumstances. The chief means of prevention is the segregation of victims, and the removal or destruction of the insects' breeding places.

One of the most pronounced results of the increased facilities for travel and the freer movement of populations in modern times has been the spread

mainly a difference in sanitary surroundings. The whole nation reaps a vast economic gain, aggregating billions of dollars for every year that is added to the average life. Supposing that only 30,000,000 of our population are bread-winners, and that the net earning power of each of them is \$100 a year, that one year of added life is worth \$3,000,000,000 to the nation. When we think of adding five years to the human life it means a growth in economic wealth sufficient to replace all our railroad investments or to substitute all our bank deposits.

But if the nation as a whole is the gainer in that direction, not less so are the insurance companies. Insurance rates are made upon the basis of the expectation of human life. The tables of this expectation are prepared from the experience of years gone by. Naturally, with the death rate constantly diminishing, and with the necessity of basing insurance premiums on past experience rather than upon present conditions, the expectation rates are always higher than those in realization. Consequently, when the mass of insured persons do not die as soon as the expectation tables say they should, the insurance companies reap a corresponding reward.

So important is this as a factor of profit in the insurance world that one of the probabilities of the future is that all insurance companies will pool their interests and create a big fund for the financing of a nation-wide campaign in behalf of the public health. Already one of the big companies has established a welfare system, and has arranged for a campaign of education through its 15,000 agents scattered throughout the country. It distributed in one year 1,000,000 little textbooks of health, printed in 10 different languages.

Those insurance companies which insure the lives of negroes feel themselves handicapped by the fact that they have no experience tables of the negro race upon which to base their premiums. Some of them are using their best efforts to induce the negro to live up to the standard of the white man, and others are trying to create an experience table especially for the negro. But in the meantime, the insurance companies are profiting from the lack of such tables. In order to be on the safe side they charge the negro a higher rate.

While women outrank men in the matter of longevity, and also in the rate at which their span of life is increasing, they are not as highly regarded as insurable risks. It is said that this arises from several causes. In the first place, for reasons of delicacy, the examinations are not as thorough, and experience has shown that they are not as careful of the truth in answering questions as men.

(Tomorrow—The Fight of Steam)

### PERVERSION.

No wrong can work you such an ill. No other sophistry so hurt you. As to repress your conscience till it reasons like the virtuous.

—Boston Monitor.

Sporadic outbreaks must, however, be expected so long as the territory is in communication with countries which are free of the disease. Such outbreaks will doubtless be quickly suppressed, but after the opening of the canal every case of yellow fever in the zone must necessarily involve the danger of transmitting the disease to countries at present free from it.

The experience of our surgeons in Havana and Panama has demonstrated the practicability of sternly banishing yellow fever from the earth in the course of a few years by extending scientific sanitation to the entire region subject to its visitations. The only obstacle to such a course is found in the indifferent attitude of the countries in which the work must be carried out. Their populations are more or less immune to yellow fever, and their commerce so insignificant that the detrimental effects of quarantine are of little consequence to them. Furthermore, the small republics, which are the principal seats of the disease, declare that their revenues are unequal to the expense of the proposed sanitation.

However, the matter is one of such intimate concern to the United States that it cannot afford to allow it to rest in the present condition. As the creator of the agency through which this grave danger threatens the orient the American government has incurred an unavoidable obligation to make every effort to remove the menace. Action is prompted not only by the demand of duty, but also by considerations of self-interest. If the canal region remains subject to the introduction of yellow fever its traffic must suffer in consequence.

The opinion is expressed by experts that, with concerted action on the part of all the governments interested, yellow fever can be entirely eradicated from the American continent and the adjacent islands in two or three years' time. Combined effort will not only hasten the result, but will also render its accomplishment much less expensive than it would be otherwise. It would obviate the necessity of separate administrative machinery in each affected country. Colonel Gorgas, the chief sanitary officer of the canal zone has devised an admirable plan of organization for joint use. His suggested corps of experienced surgeons, inspectors, etc., would be mobile and available for service at any time, as necessity might arise. An outbreak of yellow fever anywhere would be promptly suppressed, and the scene of it put in a condition of preventative sanitation. The adoption of such measures would, most assuredly, result in completely wiping out yellow fever before the date of the opening of the Panama canal.

## Prolonging Human Life

By Frederic J. Huskin.

It is expected that the forthcoming returns of the census bureau will show that the life of the average American citizen is several years longer now than in 1900. The span of human life has been lengthened in America during the past half century at a remarkable rate. The many agencies that are engaged in arousing the public conscience to the dangers of contagious disease, together with the successes that are attending the ministrations of preventative medicine, give hope that by 1925 the average American will have 20 years more of life than his grandfather had a century before.

A table of the expectations of human life recently compiled in the "Healthy Districts" of England and Wales, where the death rate is practically the same as that of the United States, is full of food for thought and shows the transitory status of human life in a remarkable way. The statistics give a moving picture of an imaginary nation of 100,000,000 souls, all born in a given year. As the film reels off, one beholds the great battle for survival, hears the funeral marches and sees the unnumbered falling out of the ranks as the years go by.

In the first year of the life of this imaginary nation death takes its most tremendous toll. Nearly 11,000,000 fall in the great battle for existence. One-fifth as many die in that great first year of carnage as die in all the following 64 years. If 10,000,000 of the babies which die could be saved through their first year, more than five out of every nine would live until they were 65. In other words, when infant mortality is cut down so low as childhood mortality, medical science will be able to offer to the nation the finest army that ever marched under a battleflag, recruited from the lives it saves in that dread first year of babyhood.

As the picture moves on we see the great nation of two-year olds taking a firmer grasp on life. Each year thereafter, until the twelfth year, the mortality becomes less. There are fewer victims, both relatively and absolutely, in the twelfth year, than at any other period up to the time when senility begins to set in and old age becomes the ally of death. In the twenty-first year humanity seems to be catching its second wind. When this one-age republic becomes 65, nearly one-half of the original 100,000,000 are dead. The succeeding 25 years are more fatal in their consequences than the preceding 64. During this quarter century about 48,000,000 die.

In 90 years after the birth of this imaginary republic only 2,000,000 people are left to maintain it. By the time of its centenary all but 19,900 will be gone. At 105 years there still will be 500 left. At 107 there will be only 100 hoary-headed survivors, but the ensuing year will see the last of these.

The United States is now a nation of approximately a hundred million souls. Based on the England-Wales mortality table, only a few hundred of these will be here when the census of 2010 is taken. By 2017 the last person now living will have gone to his reward, and the children of the third and fourth generations will be the makers of the nation.

What is being accomplished in promoting the longevity of the race is shown by the statistics of mortality in the various countries of the globe. In 1908 the mortality rate in the United States, as disclosed by the census returns for the registration area, was 153 out of every 10,000. In 1900 it was 173 out of every 10,000. In another way we get a fine picture of what medical science is doing for the American people. In 1890 the average American lived 21.1 years. In 1900 his lease on life had increased to 35.2 years. At that ratio of increase the span of life would be doubled in 100 years. In Austria and Spain, where ignorance is the rule among the masses, the death rate is nearly double what it is in the United States and Denmark. In Hungary, another country of ignorant masses, it is far greater than in England or in Sweden or Norway. The average American lives nearly twice as long as the average inhabitant of India.

We commonly think that people in the days of our grandfathers and great-grandfathers lived longer than we of this bustling era, but vital statistics show this supposition to be the very opposite of the facts. In the middle of the seventeenth century there was only one person out of each 100 in London who had reached his seventy-sixth year. In the middle of the eighteenth century there were four out of each 100, and in the middle of the nineteenth century 11 out of every 100 reached that age. In a single quarter of a century London cut its death rate to two and increased the span of the average life full 50 per cent.

Throughout the civilized world the length of human life has practically doubled in 350 years. And yet sanitarians and other students of public health conditions declare that America is barely starting through the open door of opportunity. When one hears the progressive medical man declare that a half million American lives could be saved every year if the nation at large would only heed the lessons taught by preventative medicine, he is inclined to be skeptical. But if he will consider what this science of preventative medicine already has done and reflect how much more it is doing today in communities where it is best applied, he will conclude that the man who seemed to be a visionary dreamer is after all conservative. According to insurance statistics the mortality rate among industrial policy holders is from 70 to 80 per cent higher than that which obtains among the well-to-do. It is



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