CHAPTER XI

THE UNITED STATES AND PANAMA

The fine American battleship whose picture appears opposite holds a splendid record in our navy. When war was about to break out between the United States and Spain in 1898, this vessel was in the harbor of San Francisco, on the Pacific. As Spain’s fleet was expected to attack our eastern coast, and the Oregon was one of the most powerful ships in the navy, she was needed in the Atlantic. Orders were sent to Captain Clark on March 19, to leave San Francisco at once for the long trip around the southern point of South America and north to join the Atlantic fleet in the West Indies. None of our ships had ever made so long a trip or one so full of perils. If she came through it safely, there was no certainty that she would still be in fighting trim. Thirteen thousand and four hundred miles and all at record speed! We all remember the pleasure and enthusiasm that spread over the country when the great ship joined the Atlantic fleet without the slightest damage to her machinery and with her guns and men ready to give battle to the Spaniards.

The trip had required more than two full months. Had there been a Panama canal, the journey would have been
but four thousand six hundred miles. It could have been done in fifteen days and no haste would have been necessary. Americans were more than ever roused to the value of a canal. This remarkable voyage had been an object lesson.

But it was not alone the voyage of the Oregon that interested our people in a canal across Central America. If there were a canal, no nation of the world probably would use it more than we, both in times of war and in times of peace. For more than seventy-five years the United States has been interested in the canal. We read that away back in 1825 Henry Clay
declared it to be his firm belief that the United States should build it. From that time to this hundreds of other public men have expressed the same feeling. Both President Jackson and President Grant urged Congress to consider the matter. Many thorough surveys of the different routes have been made from time to time by American engineers.

But until recent years the rich men of America, and the American government itself, were busy developing our own great lands. Mines, oil wells, factories, railroads, battle-ships, and scores of other necessary things, cost immense sums of money. There was little time or money left for a doubtful enterprise in Central America. So we were obliged to look on, while other nations tried to build a canal and failed. No people were more interested than ourselves in De Lesseps’s plans. When the French failed and England seemed unwilling to try again, it was clear that no canal would be built unless by Americans. And so it finally came about at the close of the Spanish war, that our government decided that a canal must be built and owned by the United States. As President Roosevelt said, "this is the greatest engineering work the world has yet seen, but the canal shall be built!"

Until 1903 American engineers favored the Nicaragua route (No. 4, Map V, p. 94). We cannot here mention all the reasons for this. Questions of climate and floods, of distance and ease of digging, of storms and earthquakes, had to be considered. The canal at Nicaragua would be one
hundred and twenty miles longer than the Panama canal. But one hundred and seventeen of this would be through the great Lake Nicaragua. Then, too, the San Juan river could be used in part; so that only about twenty-seven miles would actually have to be dug at Nicaragua. On the other hand the floods in the San Juan river were as severe as in the river Chagres at Panama, and the frequent storms on Lake Nicaragua presented a difficulty. It was also thought that earthquakes are much more severe in Nicaragua than in Panama, and might damage the canal or even destroy it. At Panama were two good harbors, a railroad from ocean to ocean, a canal already partially completed, and an immense quantity of machinery of all sorts.

In fact, much could be said in favor of each route, and much was said, not only in Congress but also in our newspapers and in private discussions all over the country. Finally, however, President Roosevelt and Congress decided that if the French Panama Canal Company would sell all they had left at Panama for a reasonable price, and if we could buy a strip of land across Panama, the canal should be built at that point.

The French Company wanted $90,000,000 for its property but at last agreed to accept $40,000,000. The Republic of Panama in February, 1904, sold to the United States for the sum of $10,000,000 a strip of land ten miles wide and fifty miles long extending across the Isthmus from the At-
lantic to the Pacific. This strip is now known as the Canal Zone, and it is controlled absolutely by the United States provided we build and operate a canal.

Although an outlay of $50,000,000 was necessary before a shovelful of dirt was moved, the United States was now ready to build a canal at Panama.

On May 4, 1904, President Roosevelt, in behalf of the American Government and people, took possession of the Canal Zone and all it contained, except the cities of Colon and Panama. These are in the Zone but are still a part of the Republic of Panama. The area of the Canal Zone is about five hundred square miles or about one quarter the size of the little state of Delaware. As we shall see, the canal is to run directly through it from end to end. An Isthmian Canal Commission was appointed and the Hon. William H. Taft, then Secretary of War, was directed to supervise the work. Major-General George W. Davis was made Governor of the Canal Zone.

A new and interesting piece of land was thus added to the territory of the United States (Map VII). It is, as we have said, 50 miles long and 10 miles wide. In it is a population of over 50,000 persons. There are twenty-five small towns and a number of camps for workmen. The American port of the city of Colon is called Cristobal, of the City of Panama, Ancon. Between these two ends of the Zone the principal towns are Gatun, Gorgona, Bas Obispo, Empire, Culebra, and Pedro Miguel.
It was no small task to establish a good government for all these towns and people. There must be courts, prisons and police, a fire department, post offices, schools, and all those things that would add to the safety and welfare of those who were to dig the canal.

Colombian money, for instance, was still (1903) in use on the Isthmus. The standard was the peso (pa’so). In name, at least, it was the same as our American dollar. But its value was less than one cent. Imagine taking a Colombian $5 bill to a bank and getting in exchange for it an American nickel. An amusing story is told by a gentleman from New York, who invited the United States consul to a dinner at a hotel in the City of Panama. When the meal was over he found that it had cost him $1,400 in Co-
"First-class Fire Station—Cristobal."
lombian money, and was not much of a dinner at that. Our gold dollar is now the standard money in the Canal Zone, though coins of the Republic of Panama are also used. The Balboa is the standard Panama coin. It is of silver, about the size of our own silver dollar, and worth fifty cents.

When writing letters home from Panama we may now use the American post offices of the Canal Zone, but the letters will carry the Panama stamps, with the words Canal Zone printed across the face.

Before the Americans came to Panama fires were very
common in the towns, especially in Colon and Panama City. There were no regular fire departments, and the volunteer fire companies were of little value. The firemen could not afford to leave their regular employment and when the fire bells rang they were, of course, scattered about in various parts of the town. Nor did they at once run to the scene of the fire, but seemed more interested in first exchanging their working clothes for the gay, red suits of which they were very proud. Meanwhile the fire had done much damage.

In Cristobal we perhaps saw one of the first-class fire stations established in the Zone by the Canal Commission. It is in every way as good as we have at home. Safety from bad fires is now assured.

One hundred and sixty policemen keep order in the Zone. We are told that they are as "soldierly and efficient" as any on American territory.
CHAPTER XII

CONQUEST OF DISEASE

After the United States took possession of the Canal Zone, as we have just described, the American people expected to see the canal begun at once. "Make the dirt fly," demanded our newspapers. There was so much impatience and disappointment that for two full years little digging could be done. Yet plain American common sense tells us that an immense amount of preparatory work was necessary. The more we know of it, the more we shall admire the patient, careful way in which the Commission made ready for the great work.

The lessons of past efforts at Panama were not forgotten. First of all, disease must be conquered. No canal work could hope to succeed until this was done. In the second place, a large force of workmen must be assembled and houses and food provided for them. Then, in the third place, plans and surveys must be most carefully made and a vast amount of powerful machinery secured. And while all these preparations were going on, waste and theft must be absolutely prevented. Our government expected to pay its workmen generously and to provide in every way for their comfort, but beyond that every dollar of American
money must go toward building the canal. When all these things had been accomplished, the dirt might really "begin to fly."

One morning in the City of Panama, not long before the United States took possession of the Canal Zone, Dr. Amador met the American consul. Amador was at that time Chief Health Officer of the City of Panama. Some-

thing serious was evidently troubling him, for his face showed great anxiety.

"Consul," said he, as the two men shook hands, "we have six cases of yellow fever in the city."
At this bad news the consul was equally troubled and the two men discussed what could be done to stop the spread of the disease. Like most Panamanians, Dr. Amador seemed to feel helpless in the presence of this old enemy.

By chance the same men met upon the following morning. "Well, consul," said Amador, now smiling and happy, "it gives me pleasure to report that we now have no cases of yellow fever in Panama."

"How is that?" said the consul.

"They are all dead," replied the doctor.

This story is often told to illustrate the way in which
the people of Panama had come to look upon the tropical diseases so common upon the Isthmus. Here, as in many other parts of the tropics, the people felt that nothing could be done to prevent the dreadful loss of life. They were either ignorant of the causes of the diseases or if they did know, they were too lazy to remove them. The whole history of Panama, even from the days of Columbus, was one long record of human lives cut off by malaria, bubonic plague, and yellow fever. It is true that the natives were accustomed to the climate and did not suffer so severely as those who came to Panama from other lands, but the death rate was always high. The number of deaths among the French laborers shocked the whole world. Everywhere Panama had an evil reputation for unhealthfulness.

As we walk about during our stay in Panama City, we find many parts of the town that are still neither clean nor healthful. But, as a whole, the place is today as clean as many of the better cities in our own country.

It is now almost impossible to believe that Colon and Panama City were once about as dirty cities as could be found in the world. But let us look at some pictures in order to see what the old conditions were. Here is a street in Panama as it looked a few years ago. Imagine attempting to cross it. Would you care to live on such a street? Do you see any signs of sewers or hydrants? Probably not, for there were none. Not a good sewer nor drain nor water pipe in a
North Avenue, Panama—"As It Looked a Few Years Ago."
city of 30,000 people! Not every street was as bad as this, but there were many of them, and some much worse. If you think the street itself is filthy, suppose we pick our way around behind the houses. We should not care to stay there long,—just long enough to see that all the refuse from them found its way into the back yard. From there the waste water slowly ran out into the street. So much rainfall kept the whole mass soaking wet. The hot sun beating down on clear days could not dry out such places. Foul odors and disease must have been common. President Taft said of the streets of Panama City: "They were muddy in rainy weather, dusty in dry weather, and full of disease in all weathers."

But what were those curious looking barrels and tanks behind the houses? Take a careful look into one of them. Do you see those odd "wigglers" on the surface? They are little wormlike bodies and out of each a mosquito will soon hatch and fly away. Among these mosquitoes are, no doubt, some of that much dreaded sort that carry the yellow fever. And this dirty barrel certainly cannot contain drinking water,—and yet it does, for there is no other to be had in Panama City! Perhaps these barrels and tanks that catch the rain water on which the city depends, may explain why so many of the poor of Panama seem never to have taken a bath.

A picture of a Colon street shows even worse conditions. Colon was built upon ground so low that there simply could
North Avenue, Panama—After Paving.
be no drainage. The houses of the well-to-do were kept fairly clean, but of the houses of the poor, the less said the better. And all about Colon were the swamps and jungles, poisonous air, and more mosquitoes.

If the two best cities of Panama were as unhealthful as this, what must have been the condition of the twenty or more miserable little towns along the line of the canal?

It was clear to the Canal Commission at the very beginning that no canal could be built as long as filth and disease continued. So they advised that a man be appointed to clean up the Canal Zone and the cities of Colon and Panama. He must be a man who knew about tropical diseases and had had experience in fighting them. He must have unlimited courage and patience. And he must be given all the money, men, and time necessary.

The man chosen for this important task was Colonel William C. Gorgas of the Medical Corps of the United States Army. Experience has shown that the choice was a good one. Colonel Gorgas had stamped out yellow fever in eight months in Havana, Cuba, where it had been epidemic for more than one hundred and forty years. But the task at Panama was much more difficult and would surely have discouraged a less determined man. When Colonel Gorgas completed his first inspection of the Canal Zone and declared that he would make it a fit place for white people to live in,—practically the whole of Europe laughed. Let us see how near he has come to making good his promise.
Street in Colon Before Paving.
At Colon and at Panama City the French Canal Company had built expensive hospitals. Both were large and finely situated, especially the one at Ancon, the suburb of the City of Panama. Colonel Gorgas enlarged and improved these hospitals and put them in charge of a corps of expert doctors and trained nurses. We can see for ourselves that they are as well equipped to care for the sick as are any in our own country. Smaller hospitals and camps for the sick were built also at convenient points along the canal line.

Another thing that had to be done at the very outset was
to clear away the filth in the cities and towns,—the untouched accumulation of years. In the early reports of Colonel Gorgas we can read of tens of thousands of loads of rubbish and filth carted away each month.

But to give to the cities of Colon and Panama a thorough scrubbing and afterwards to keep them clean, required that the streets be paved, that there be good sewage systems built, and a plentiful supply of good water. These three things required many months of labor by several thousand men. But we can see now that the work has been well
done. Everywhere are well-paved, dry streets and plenty of drains and sewers. Out in the hills behind Colon and Panama City excellent reservoirs were built. If we chose to do so, we could go to see for ourselves that the water is abundant, pure, and good. It is piped into the cities and towns in such large quantities as to give to each inhabitant at least fifty gallons each day. Certainly that quantity should be sufficient to keep one person clean.

The result is that Panama City is now the best paved, best seweried, and best watered city in all Central America or the northern half of South America.
But this work met much opposition among the Panamanians. Too many were satisfied with the old conditions. They did not want to be clean. They saw no reason for disturbing their houses either inside or out. They opposed the use of clean water. Colonel Gorgas, therefore, selected a number of men, mostly intelligent natives, and sent them about day by day among the poorer classes to teach the value of keeping their houses, their streets, and themselves clean. Slowly these health inspectors succeeded. And we now find all classes assisting in the work of getting clean and keeping clean. As for the water, it is now used freely by all. It is a common and an amusing sight to watch
the negro children enjoying the cool water from the hydrants.

The three diseases that are most deadly to those who come to Panama from other parts of the world, are plague, malaria, and yellow fever. The first is usually brought in by rats with fleas or other parasites in ships from infected ports. The diseased rats on these ships carry it to other rats about the wharves, and thus the germs are carried into the houses and plague breaks out among the people. If plague were to go, the rats must go first. All incoming ships are thoroughly inspected
THE RAT BRIGADE

and the rats are killed. Tons of rat poison were placed each week where the animals could easily reach it. A considerable number of men were organized into a "Rat Brigade." Their only business was to destroy as many as possible. So thorough has been their work that the rats are practically exterminated and the Canal Zone is now free from the danger of plague.

The same thorough measures were taken to prevent malaria and yellow fever. Both are diseases common in a tropical climate like Panama's. The danger lies in the fact that mosquitoes that sting patients who are sick with
either disease carry off the poison to those who are well. From one patient many may thus be made sick. Not all die who have the malaria but few recover from the dreaded yellow fever.

The mosquito that carries the fever is called the Stegomyia. Having bitten a person who has the fever, the Stegomyia may carry the poison in its stinger for several months. Anopheles is the name of the variety that carries the malarial poison. Though it carries it for only a few days, it can fly faster and farther than the Stegomyia, and often bites by day as well as by night.

To conquer malaria and yellow fever the mosquitoes had to be destroyed throughout the Canal Zone and in Colon.
and Panama City. This seemed like an impossible task, but Colonel Gorgas and his men went bravely at it. An “Anopheles Brigade” and a “Stegomyia Brigade” were formed. The people laugh in Panama today and say that all of Colonel Gorgas’s men could be seen at times running after one poor little mosquito. At any rate it was no joke for the mosquitoes. They were attacked everywhere. Kerosene and “mosquito oil” were poured over stagnant pools, rain barrels were screened, miles of ditches were dug and swamps drained, great areas of jungle were cut down and burned, and all sorts of methods were used to destroy the breeding places. Then the homes were frequently fumigated and most carefully screened, and cases of fever were separated from those who were well. Indeed, it would be impossible to tell here all the various methods that were
taken to free the Zone of these deadly little pests. And not only was it necessary to kill those already there, but others had to be prevented from coming in. Constant watchfulness by several thousand men was necessary.

We must remember, too, that all this work had to be done at the same time that thousands of ignorant laborers were flocking to Panama to work on the canal. It was difficult to get these men to take even the simplest ways of protecting themselves.

How anxiously Colonel Gorgas must have watched the daily and monthly health reports! As the filth and mosquitoes departed, would King Disease go too? Slowly, month by month, the death rate came down. Fewer and fewer cases of yellow fever were reported. At last none could be found. That was in May, 1906. None are likely to occur again while the canal is being built. With the fever went also much malaria. Cases of the latter are now very mild, often scarcely more serious than a severe cold in a northern climate.
The great fight has been expensive and will continue to be so. The United States may spend as much as $20,000,000 in this fight before the canal is finished. But no one now doubts that it is money well spent. As Americans we can today feel proud that we have at last made it possible for a laborer to work in the Canal Zone with as much safety as in most parts of the United States. There is at present no higher death rate in the Canal Zone than in New York City. When King Disease was thus conquered, the battle for the canal was half won.
CHAPTER XIII

ASSEMBLING A WORKING FORCE

To make the Canal Zone a fit place to work in was a difficult task. To secure a sufficient number of good workmen was another almost equally difficult. The American laborer is the most efficient workman in the world. If enough of such laborers could have been persuaded to go to Panama and to stay there and work, the labor problem would have been easily solved and the canal built in the shortest time. But this was soon found to be impossible. Though the wages offered were high, large numbers of laborers did not care to leave their homes in the United States and go away off to Panama. There were plenty of good opportunities for work nearer at hand. The Canal Commission was, therefore, obliged to secure the best laborers it could get in lands whose climate was similar to that of Panama.

We shall find about 40,000 laborers of all sorts at work on the canal and on the Panama Railroad. The latter is now owned by the United States and run by the Canal Commission. Of the 40,000 men about 5,000 are the skilled workmen and are mostly Americans. These 5,000 are trained engineers, draftsmen, clerks,
steam-shovel men, powder men, surveyors, foremen, etc. Many people believe that no finer force of men than these Americans was ever gathered together for a great work.

They are, indeed, a splendid lot. Without their brains and energy no canal could be built. For this reason they are well paid and well cared for. The pay received is about one and one half times as much as for similar work at home. Their wages are paid them in gold and they are, therefore, known in Panama as the "Gold Men."

The contrast between these American workers and the natives of Panama is very striking. "You see the Pana-
manians idling out of windows and in the shade of doorways watching our driving work. They are thin, slow-moving, impassive, often solemn. There is no glow in the dead yellows and browns of their flesh. But when you look at

our engineers, mechanics, and foremen, you see full-blooded health shining in their faces. They are boisterous, hard-working, ingenious, quick to lay hold of a pick or drive a spade, to show how it should be done. Their good humor is almost unfailing, but it never enfeebles the sharp word of command, as the dull Jamaicans have learned.”

Because the “Gold Men” do not fear disease in the Canal
HOMES OF THE "GOLD MEN"

Side Street, Cristobal—Showing Dwellings of Gold Men.

"Comfortable, Dry, Well-built Houses."
Zone, many of them have brought their families with them. In towns like Cristobal, Ancon, and others we can see their comfortable, dry, well-built houses. Their children attend good American schools in the Zone and are as bright and happy children as could be found.

In recreation hours these "Gold Men" are a jolly company. We shall find them engaged in baseball, basket ball, tennis, and other sports, or reading and loafing in the club houses provided by the Canal Commission. There are many of these club houses along the line of the canal work. They are conducted by the Young Men's Christian Association. There are libraries and women's clubs too; and fishing parties and picnics and other pleasures make life agreeable for both men and women.

The 35,000 common laborers are paid in the silver money of Panama or its equivalent, and are known as "Silver Men." The usual wage amounts, on the average, to about $1 per day in our money or about $2 in Panamanian money.

We remember that when the Panama Railroad was built, it was found very difficult to secure laborers who could endure the climate of Panama and do any real work. The De Lesseps Company had the same difficulty. The French found that the negroes from the islands of the West Indies, especially Jamaica, were the best all-round workmen that could be had in large numbers. This, too, has been the experience of the United States.
Comission Clubhouse at Empire.

Bowling.
At Panama these negroes receive higher wages than they have ever known before and are provided with hospital treatment when sick and with clean dwellings and good food. We shall see their houses and camps all along the line. Those of us who know what wretchedly dirty huts they are accustomed to, will understand better why they are glad to stay and work on the canal. A prominent American of long experience with these men says,—"These West Indian laborers have never known, and in their most pleasant dreams have never hoped for, the splendid care and liberal treatment they are receiving from our government on the Isthmus of Panama."

At the mess-kitchens for the negroes the Commission furnishes them three good meals per day for about thirty cents. It is said that at first they objected to the strengthening American food because it made them feel too much like working. "It consists of rice, beans, onions, fresh and salt beef, codfish, lard, bread, sugar, and coffee, varied with occasional potatoes and bananas."

Despite good care and good food these negroes are not good workmen. Some are expert loafers. Many study to do just as little as possible. Nearly all are dull, stupid, and ignorant. Their movements are slow and their efforts lack energy and intelligence. Moreover, they object to working in the rain and run for shelter when the first drops fall. Theodore P. Shonts, at one time Chairman of the Canal Commission, relates the following story to show how
"Clean Dwellings."—Common Laborers' Quarters, Colon.

"Three Good Meals per Day for Thirty Cents."
they work. A heavy piece of machinery was being unloaded from the hold of a vessel. The tackle got caught in the rigging on the deck above; the foreman in charge of the gang of laborers sent one of them above to free the tackle. The laborer went to the place to which he was sent and did what he was told to do. The foreman, paying no attention to him after he started on his errand, missed him a few minutes later, and, looking around for him, discovered him sitting peacefully at the spot to which he had been sent. "What are you doing there?" yelled the foreman. "You told me to come here, Sah." "Well, why didn't you come back?" "You didn't tell me to,
Sah.’” Altogether these men probably do not accomplish more than one half as much as such laborers in a cooler climate.

Better than the negroes in the value of their work are some East Indians. There are not many of them on the canal. They have come chiefly from Asia to the British West Indies and thence to Panama. What odd-looking fellows they are! The curious turbans on their heads and their foreign faces make them seem quite out of place on an American canal. How much larger and more energetic than the negroes they are, and how slowly but quietly and
steadily they go about their work! The Commission would be glad to get more of them, for they are thoroughly good workers, peaceful, sober, and industrious. We shall usually see them carrying the 50-lb. boxes of dynamite from the powder houses to the other workmen. They are proud of their race, remain closely by themselves, and even in Panama keep many of their native customs.

Of all the "Silver Men," the Spaniards and Italians are the best. They will do twice as much work per day as will the negroes, and they receive much more pay. There are about 8,000 of them at work in the Zone. Nearly all come directly to Panama from Spain or Italy. The Spaniards are perhaps less likely to suffer from the climate and, therefore, accomplish more. They are small in size but muscular, willing to be taught, and anxious to be promoted to better positions as subforemen or foremen of
their work. Where strength and intelligence are needed, these men can be depended upon. No amount of rainy weather can keep them from the work.

There are laborers of many other nationalities here and there on the canal work, but they are few in number.

Taking the “Silver Men” as a whole, we shall find them of mixed race and language, poor workmen, and hard to handle. And yet, under the leadership of the “Gold Men,” we feel sure that in the end they will build the canal.

One more thing remains to be considered in respect to the working force. It is the problem of feeding them and
of providing them with clothing and other necessities. Over 40,000 persons to be fed and the markets 2,000 miles away! Certainly this is no small matter. But here, too, the same careful plans were laid as for other parts of the work and the same satisfactory results followed. At Cristobal and at twelve other villages stores were built, in which food and all other necess-

![Typical Labor Train.](image)
sities can be purchased at prices only slightly above cost. An ice plant was erected at Colon and with it a cold storage plant, so that meat and vegetables and other perishable food can now be kept in as good condition as in any part
of the United States in summer time. Early each morning a special train with cold storage cars is rushed out over the railroad to carry supplies to all points on the canal line. So it has come about that quite as good food is served in the hotels and mess-kitchens as is provided for men in similar work in the United States.
CHAPTER XIV

MACHINERY AND THE PANAMA RAILROAD

It is an old saying that a poor workman puts the blame for his poor work upon his tools. It is equally true that a good workman cannot work well with poor tools. The United States government determined that whatever the quality of the laborers at Panama might be, the tools and machinery should be the very best.

We have spoken of the American laborer as the best in the world. He does the most and in the shortest time. This may be so in part because he has better machinery with which to work. American inventors and machinery lead the world. All over our broad land, on the farms and in the factories, in the mills and quarries, on the railroads, and hidden in the unseen parts of great buildings, ships, and mines, is a vast amount of wonderful machinery. It does easily, cheaply, and swiftly, work that no number of human hands could do.

Perhaps the most interesting to watch are those great machines that accomplish the heavy tasks of cutting, lifting, or carrying. We shall see many of this sort at work on the canal. Indeed, it would be safe to say that without the splendid American machinery that our government has
been able to secure, no canal could be built at Panama. Human hands alone could never do the work.

When our government purchased the property of the French Canal Company, it came into possession of an immense amount of machinery of all sorts, scattered along the line of the canal. That was in 1904. Much of the French machinery had been at work as far back as 1889, and so, of course, was out-of-date. Much also had been ruined by rust and neglect. Some, however, could be used. For instance, it was found that more than one hundred and twenty-five of the old French locomotives could be repaired and put to work again. Some old dredges, scows, tugs, dump cars, etc., with many miles of track, were still ready for service. What work the Canal Commission accomplished during the first two years of preparation was in large part done with this old machinery. We can still see some of it at work on the canal. It has been said that the old French machinery was worth fully $2,000,000 to the United States.

In general, however, an entirely new outfit of tools and machinery was necessary. Here again the distance of Panama from supplies of this sort added tremendously to the difficulties. Locomotives and dump cars, dredges and steam shovels, barges and rock crushers, and a vast amount of hand tools were purchased and shipped to the Isthmus. In the Zone itself docks for handling machinery, coal, lumber, etc., were built. Long
lines of track were laid to carry the machinery and supplies to the scene of work. The largest cement-mixing and handling plants ever built were here constructed. Compressed-air plants to furnish power for the drills, and great
general repair shops were erected. We shall surely be astonished, as we travel along the line, to see the splendid equipment for work that the Commission has secured.

At Empire, for instance, is one of the two greatest repair shops. It is close to the line of the canal. Notice how the railroad tracks are arranged so that even the largest pieces of machinery can be brought directly to the shop. In this
one place we can see 1,000 men at work. The shops are modern in every way and equal to the best railroad repair shops in the United States. Here is a foundry and a lumber mill and everything necessary to repair or rebuild any piece of machinery on the canal.

Near the repair shops is the great storehouse. Let us step inside. See the great rooms with shelves on shelves of all sorts of articles neatly labeled and laid away! We are told that here are over 10,000 different articles used in the canal work. Suddenly in rushes a workman with a note from some engineer or foreman out on the canal. A steam shovel has broken down or a drill is out of order
and a new part is needed at once. Immediately the men in charge of the storehouse can pick out the exact article, and before we know what has happened, the workman is out again on the canal and the broken machine will soon be in order. This is the American way,—no confusion, no lack of materials, no delay. Time is as valuable at Panama as in New York.

Around the shops and storehouse at Empire has grown up the largest town in the Canal Zone, exclusive of Colon and Panama City. It is a pleasure to see how clean and neat the whole place is. It is more
like a park than a town. The ground has been cleared of jungle for a long distance away from the houses. Here, as in all the canal towns, the Commission has done everything to make living comfortable and healthful.

When the United States purchased the French Company's machinery, it also secured the Panama Railroad. Like almost everything else left by the French it was in need of repair. Its docks, yards, warehouses, tracks, locomotives, and cars were not fit for the great increase in business which at once came to the Isthmus. The road had been in the habit of doing everything in the most expensive
way. The unloading of coal from steamers is a good example. It was done almost entirely by the hands of negro laborers and cost $1.30 a ton. The Commission put in a modern coal-hoisting machine and did the work better and quicker for 12 cents per ton. In the same manner the road was improved by heavier rails, by double track for nearly all of its length, by new and better wharves, and by larger yards and cars. Eighty-two powerful locomotives were also added. Now the road is in first-class condition.

But all this work required many months of labor and much money. Real digging was still delayed.