CHAPTER XXX

THE BOSS OF THE JOB

"TELL me something about Colonel Goethals."

My friend was a keen observer who had already given me much information about the life and work on the Canal Zone.

"You want a line on the old man?" he said after a moment's consideration. "Well, the most distinctive picture of him I have is this. I used to live at Culebra. One night I was sitting out on the porch of my quarters, smoking. There were only a few lights here and there in the Administration Building. One by one they went out, all except that in the old man's office. It was getting on toward ten when his window went dark. It was the dry season. A full moon, as big as a dining-room table, was hanging down about a foot and a half above the flagstaff—a gorgeous night. The old man came out and walked across the grass to his house. He didn't stop to look up at the moon; he just pegged along, his head a little forward, still thinking. And he hadn't been in his own house ten minutes before all the lights were out there. He'd turned in, getting ready to catch that early train. The only time the Colonel isn't working is from 10 P.M. to 6 A.M., when he's asleep."

That seems to be the thing which impresses our men down here most of all about the Boss. He is always on the Job.

Just what is the Job?

Strictly speaking, it is administrative, rather than constructive, engineering. The type of the Canal was decided upon before the present Commission was installed. They

Digitized by Microsoft®

have had but few changes of importance to make: widening the channel in the Cut, increasing the size of the locks, and the moving of the Pacific locks inland, beyond the range of a hostile fleet. Their work had been the perfecting of details and the execution of what had been already determined.

Wallace was our first "Boss of the Job." His contribution was the creative imagination to foresee the stupendous proportions of the undertaking. Sent down to a fever-ridden tropical jungle, so dense that one could not penetrate it without constant use of a *machete*, he saw the thing in the large. He signed requisitions for ninety-ton steam-shovels by wholesale; ordered a modern railway; asked for an equipment on such a scale as had never been dreamed of. The first Commission was lacking in similar foresight. One of the causes for Wallace's sudden resignation was the fact that his requisitions were ignored. He could not get the tools he needed—tools the necessity of which has since been realized, and which are now in operation.

Stevens was our next Boss. His is the honor of having recruited and organized the labor force. He established the whole enterprise on a going basis. The engineers now on the Job speak with especial respect of the masterly way in which he solved the transportation problem, for digging the Cut requires not only the breaking up of the mountain barrier, but also the removing of it. And it was during his administration that, after much arguing and infinite study, the type of the Canal was finally decided upon.

But Stevens, like Wallace, was too little of a politician to swing the Washington end of the Job. Different people give different reasons as to why he at last threw it up. Probably, as in Wallace's case, friction with his superiors at Washington was one of the reasons. At all events, he made way for the present Commission. Most of them are army engineers,

Digitized by Microsoft®

who through long government service understand how to take orders and at the same time to get what they need for their work.

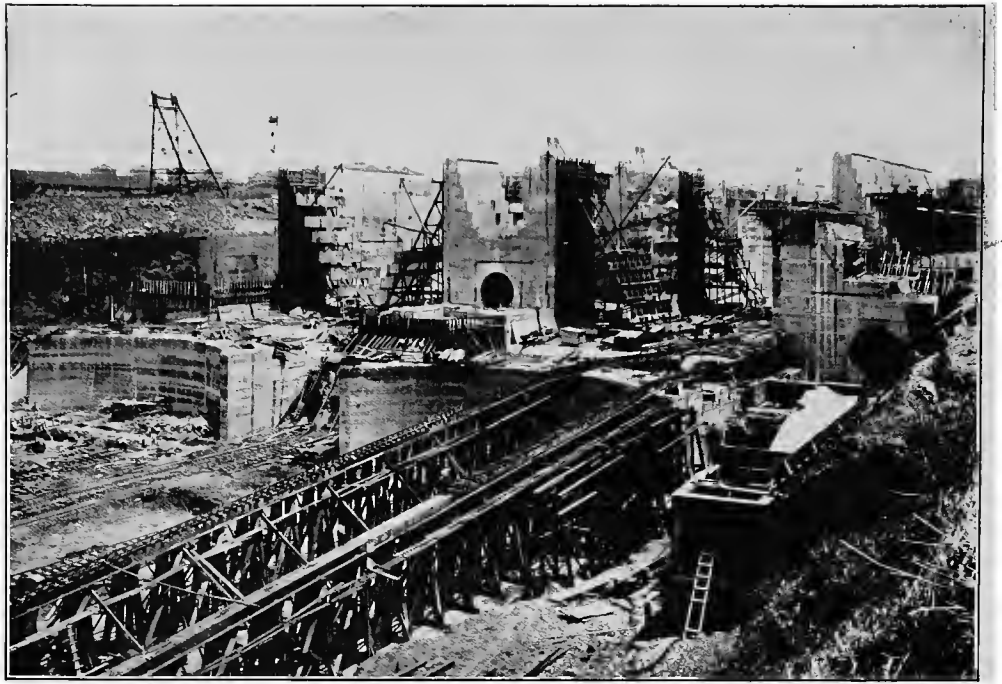
Although the Job is to-day one which is primarily administrative, the carrying out of the work already planned, the maintaining of an organization already installed, it is none the less an affair which calls for a man of more than ordinary stature.

Colonel George Washington Goethals, the Chief Engineer and Chairman of the Commission, is now at the head of this great National Job of ours. A visitor to the Isthmus who has not included "the Colonel" among the sights has missed more than half that there is to see down here.

The Administration Building is a barnlike, corrugated-iron-roofed structure on the top of Culebra Hill. Before entering it you get the impression of a noteworthy lack of fuss and feathers. Through a broad corridor, hung with maps and blue prints of the work, you reach the office, where the Chairman's private secretary and chief clerk reign over a vast filing system. You will travel far before you see a more smoothly running office. Does the Colonel want a copy of the letter to the Spanish Government about contract laborers? Does he want to look over the specifications in the contract for the new unloading cranes for the Balboa dock, or By-law 37 of the International Brotherhood of Railroad Engineers, or the excavation record of steam-shovel 333? Or is it the personal file of employee No. 33,333—the date of his birth, the color of his hair, how many times he has been docked for sleeping overtime, or the cause of his last quarrel with his wife? A push-button starts an electric buzz, and inside of two minutes the desired document is on his desk.

There are few men at the head of as large an undertaking who are so easy of access. If you have to wait a few minutes, you can find plenty to hold your interest. The walls are

Digitized by Microsoft®



THE MIDDLE LOCK AT GATUN, LOOKING SOUTH, APRIL 1, 1911.

Digitized by Microsoft®

covered with maps and blue prints. This is true of every wall in the Canal Zone. There may be private homes along the line where the rooms are decorated with familiar photographs of the Venus de Milo and the Coliseum; but every official wall is plastered with blue prints.

But you will not have to wait long before you are ushered into the Throne Room—more maps and blue prints—and you are face to face with the most absolute autocrat in the world.

Many people have described Colonel Goethals as having a boyish face; but they must have seen him with his hat on, for his hair is white. If, as they say, his face looks twenty and his hair sixty, I could not see it, for his eyes—which dominate—look forty. He is broad-shouldered and erect. He carries his head the way they did at West Point before it became fashionable for the cadets to wear stays. Above everything, he looks alert and "fit." Although he does not spare himself, he has not lost a day from malaria.

Of course the first thing you do will be to hand him your perfectly useless "letter from my Congressman." Useless, because even if you have no letter he will show you every courtesy he can without interfering with the Job; and he will not interfere with the Job even if you bring letters from all the Congressmen.

Like every man who accomplishes an immense amount of work, he is a great believer in routine.

Six mornings a week he is "out on the line," and he takes the early train. He took me along on one of these inspection trips. It was before seven when we reached Pedro Miguel, and we walked back through the Cut to Empire. It was four hours of bitter hard tramping, for the Colonel kept to no beaten track. Whatever interested him he wished to see at close range. So it was something of a luxury to have a few minutes of "good walking" on railway ties. And

Digitized by Microsoft®

Digitized by Microsoft®

dodging the incessant rush of dirt-trains and running for shelter when the whistle warns that the dynamite squad is on the point of shooting a "dobe" charge require no small expenditure of energy. I have often walked through the Cut, but never before nor since at the clip the Colonel sets. They say that a feeling of fatigue is one of the first symptoms of the Chagres fever. As we climbed out of the Cut at Empire—it is an interminably long flight of stairs, and the sun gets hot in the tropics by eleven—I was sure I was in for a severe attack. The Colonel said blithely, "The only way to keep your health in this climate is to take a little exercise every morning." Doubtless it is true, but I had rather die quickly than keep alive at that rate.

His afternoons go in routine desk work, signing papers, approving reports, and so forth. It is part of his system that he discourages oral reports. Everything comes to him on paper. If he wants to talk with any of his subordinates, he generally does it during his morning trips—on the spot. Perhaps the phrase he uses most frequently is, "Write it down."

The afternoon office work is much interrupted by callers. The stream of tourists grows steadily, and the Colonel realizes that it is we, the people of the United States, who are doing this Canal Job. Any one of us who is sufficiently interested to come down and look it over is welcome.

"Whenever I have anything to study out, work which requires uninterrupted attention," he said, "I go back to the office at night." This happens generally three or four, and often seven, nights a week.

The most remarkable part of Colonel Goethals's routine is his Sunday Court of Low, Middle, and High Justice. Even as the Caliphs of Bagdad sat in the city gate to hear the plaints of their people, so, in his very modern setting—principally maps and blue prints—the Colonel holds session every

Digitized by Microsoft®

Sunday morning One of the Isthmian bards has reduced the matter to verse, which, if somewhat weak in prosody, is strong in local color:

TELL THE COLONEL

If you have any cause to kick, or feel disposed to howl,
If things ain't running just to suit, and there's a chance to growl,
If you have any ax to grind or graft to shuffle through,
Just put it up to Colonel G. like all the others do.

See Colonel Goethals, tell Colonel Goethals,
It's the only right and proper thing to do.
Just write a letter, or, even better,
Arrange a little Sunday interview.

Casey is an engineer and treated awful bad,
Eight minutes overtime they worked the poor defenseless lad,
So Casey sees the Colonel, with tears in his eyes, and says:
"I cannot stand for this no more without lay-over days."

"Dear sir, the commissary here," writes Mrs. Percy Jones,
"Is charging me for porterhouse which ain't no more than bones,
And, I assure you, Colonel, that the pork chops what they sell
Is rotten. I enclose herewith a sample, just to smell."

Mrs. Hobbs and Mrs. Dobbs are neighbors in a flat,
And Mrs. Hobbs calls Mrs. Dobbs a dirty this and that.
Then Mrs. Dobbs reciprocates, and maybe both are right,
But in the end the Colonel has to arbitrate the fight.

Don't hesitate to state your case, the boss will hear you through;
It's true he's sometimes busy, and has other things to do,
But come on Sunday morning, and line up with the rest,—
You'll maybe feel some better with that grievance off your chest.

See Colonel Goethals, tell Colonel Goethals,
It's the only right and proper thing to do.
Just write a letter, or, even better,
Arrange a little Sunday interview.

I had the good fortune to be admitted one Sunday morning to the audience chamber.

Digitized by Microsoft®

The first callers were a negro couple from Jamaica. They had a difference of opinion as to the ownership of thirty-five dollars which the wife had earned by washing. Colonel Goethals listened gravely until the fact was established that she had earned it, then ordered the man to return it. He started to protest something about a husband's property rights under the English law. "All right," the Colonel said, decisively. "Say the word, and I'll deport you. You can get all the English law you want in Jamaica." The husband decided to pay and stay.

Then came a Spanish laborer who had been maimed in an accident. The Colonel called in his chief clerk and told him to help the unfortunate man prepare his claim. "See that the papers are drawn correctly and have them pushed through."

A man came in who had just been thrown out of the service for brutality to the men under him. This action was the result of an investigation before a special committee. The man sought reinstatement. The Colonel read over the papers in the case, and when he spoke his language was vigorous: "If you have any new evidence, I will instruct the committee to reopen your case. But as long as this report stands against you, you will get no mercy from this office. If the men had broken your head with a crowbar, I would have stood for them. We don't need slave-drivers on this job."

Then a committee from the Machinists' Union wanted an interpretation on some new shop rules. A nurse wanted a longer vacation than the regulations allow. A man and his wife were dissatisfied with their quarters. A supervisor of steam-shovels who had two or three "high records for monthly excavations" to his credit came in to ask advice about applying for another job under the Panama Government. The end of the Canal work is approaching, and the far-sighted men are beginning to look into the future. "Of

Digitized by Microsoft®

course I can't advise you," the Colonel said. "You know I would hate to see you go. But, if you decide that it is wise, come in and see me. I may be able to give you some introductions which will help you." (And, as every one knows that a letter of introduction from the Chairman of the Commission would look like an order to the Panama Government, there is another man who will want to vote for Goethals for President in 1916!) Then a man came in to see if he could get some informal inside information on a contract which is soon to be let. His exit was hurried.

An American negro introduced some humor. He was convinced that his services were of more value than his foreman felt they were. The Colonel preferred to accept the foreman's judgment in the matter. The dissatisfied one pompously announced that he was the best blacksmith's helper on the Isthmus and the he intended to appeal from this decision. The Colonel's eyes twinkled. "To whom are you going to appeal?" he asked. For the fact is that the verdicts rendered in these summary Sunday sessions will not be revised before the Day of Judgment.

The procession kept up till noon—pathos, patience-trying foolishness, occasional humor. "Once in a while," the Colonel said, "something turns up which is really important for me to know. And, anyway, they feel better after they have seen me, even if I cannot help them. They feel that they got a fair chance to state their troubles. They are less likely to be breeding discontent in the quarters. But it is a strain."

One sees the Colonel at his best in these Sunday morning hours. You see the immensely varied nature of the things and issues which are his concern. Engineering in the technical sense seems almost the least of them. There is the great human problem of keeping this working force in good order, of caring for the welfare and contentment of this community

Digitized by Microsoft®

of exiles—exiled to what was once the most unhealthy jungle in the world. And he sits there, week after week, the paternal authority to which all may come with their unofficial troubles. English, French, American negroes, Spanish and Italian peasants, coolies from India, with all the complications which come from their varied languages and customs—Mrs. Blank, whose husband drinks too much; diamond-drill operator No. 10, who has an abscess of the liver and wants a word of encouragement before he goes to Ancon Hospital for the operation. It is as remarkable a sight as I have ever seen to watch him at it. He is a good listener until he is quite sure he has got to the nubbin of the matter, and then, like a flash, the decision is made and given. And I think there are very few indeed who go away thinking that they have been denied justice. But, as he said, it must be a strain.

This routine of Colonel Goethals is followed week by week, year after year. It is broken only by occasional trips to Washington. And every one knows that the political end of the Job is more wearing than the regular grind. He has not had a real vacation since he took up this Job of ours.

For a journalist Colonel Goethals has one formidable fault: it is impossible to get him to talk about himself or his achievements. He will discuss the Job willingly with any one. He even had the optimism to try to make me understand the geological formation of Contractor's Hill. But the skill with which he turns the conversation away from himself excites admiration which is only equaled by vexation.

"Who's Who" makes the following statements about him. Whether or not they are true I do not know—although I tried to find out:

Goethals, George Washington, army officer; born Brooklyn, June 29, 1858; grad. U. S. Military Academy, 1880; 2nd lieut. engineers, June 12, 1880; 1st lieut. engineers, June 15, 1882; capt. Dec. 14, 1891, lieut. col. and chief of engineers, volunteer army, May 9, 1898; hon.

Digitized by Microsoft®

discharged from vol. service, Dec. 31, 1898; major engineer corps, Feb. 7, 1900; grad. Army War College, 1905; lieut. col. engineers, 1907; instructor in civil and military engineering U. S. Military Academy several years until 1888; in charge of Mussel Shoals Canal construction, on Tennessee River; chief engineer during Spanish-American War; member of the board of fortifications (coast and harbor defense); chief engineer Panama Canal since Feb. 26, 1907. Address: Ancon, Canal Zone, Panama.

The only record I can find of his ever having talked of himself is in the report of the Congressional Committee which investigated the affairs of the Commission in 1909. Mr. Stevens asked: "What has been your professional and official experience in this line of work?" Under this compulsion, Colonel Goethals summed up the thirty years of Government service since his graduation in exactly 167 words!

The fact of his life which has the greatest interpretative value is that he is an army engineer. In other words, he is a National product. He graduated from one of our schools; he stood at the head of his class; and since his graduation he has always been employed in Government service.

His military training has accustomed him to act under orders— a valuable asset in such a work. Mr. Roosevelt, while President, came to the conclusion that the Canal could not be built by civilian engineers—men trained in private enterprise. There was no way to make them stick to the Job. Successful construction men can always command high salaries. And men like Wallace and Stevens, who are used to being their own masters, find the Government service, with its inevitable red tape, irksome. It is impossible to establish a permanent working force if the Boss is likely to throw up the Job any minute. Under such circumstances no man feels sure of his position. For the spoils system, so much decried in politics, is the ordinary practice in railroading and construction work. What was needed was not only engineering genius, but executive stability. Mr.

Digitized by Microsoft®

Roosevelt appointed a Commission of army officers, men who would stay on the Job till they were ordered home.

This new Commission, installed April 1, 1907, did not run very smoothly at first. It requires some time for a seven-headed executive to shake down to an equilibrium of power. Several of the Commissioners seemed to think that most, if not all, of the responsibility rested on their own shoulders. They felt much as the other two members of the French First Consulate did before they became entirely acquainted with the character of Napoleon. The struggle was tense while it lasted. But now that the dust has settled, almost every one on the Zone agrees that the best man won.

In January, 1908, Colonel Goethals persuaded the administration at Washington to issue an executive order which, whatever it may seem to say, gave him absolute control. The other six Commissioners are subordinates, most of them cordial, all of them docile. Certainly modern times have never seen one-man rule pushed to such an extreme. The Colonel, with his immense capacity for work and the restricted area of his domain—about four hundred square miles—succeeds in the rôle of autocrat after a fashion which must cause no little envy to Nicholas II.

How free-born American citizens accept this condition of things is at first a matter of wonder. One is used to thinking that if we were deprived of jury trials and the right to vote, we would begin to shoot. But down here the only right which has not been alienated is the right to get out. There are two or three steamers home a week. Then of course every one looks on this condition as temporary and necessitated by the unusual circumstances of the Job.

But with all these things which make for submission, such an absolutism would not be endured except for the almost universal feeling that Colonel Goethals is just. He has made enemies, of course, and here and there I have heard men

Digitized by Microsoft®

declaiming that they had not been treated fairly, and that they were "going back to the States to live under the Constitution." But the men down here who take an intense interest in the work, whose imaginations have been caught by the immensity of the Job—the real men—would protest in a body at any talk of removing Goethals.

The criticism about him which I hear oftenest is that he works too hard. It is pretty generally believed that he could spare himself much of the strain if he would delegate more of his authority.

There is another phase of Colonel Goethals's administration which to me is the most impressive of all. It is the elimination of graft. I doubt if this old world has ever seen so clean a job as this Canal of ours.

I do not mean that the Colonel has been able to eliminate human nature. A foreman here and there will extort a bribe from a laborer who wants a job. No doubt some minor officials sometimes send messengers employed by the Commission on private errands. There is a man breaking stone in the chain-gang now who tried to get the best of the system of bookkeeping in the commissary stores. A gentleman of the old school—a Colonel of the G. A. R.—was found to be shaking down some West Indian negro laborers for petty graft; he was retired to private life. But there is no big graft.

When I was down here two years ago, I looked into this pretty carefully. I had had some experience in tracing the hidden threads which lead into the political muck-heap at home. I could find none here on the Canal Zone. But back in the States I found almost every one incredulous when I said that this vast Government job was being done on the square. Some railway men explained to me at length how it was impossible to run a big construction job—private as well as public—without the purchasing agents getting sud-

Digitized by Microsoft®

denly rich. They initiated me into a whole new technique of the gentle art of grafting—explained industrial as distinct from political "easy money."

During this visit to the Zone I have given especial attention to this department. A few weeks ago four men dug a very elaborate tunnel under the vault of a large bank here in Panama City. It was a remarkable piece of engineering. They ventilated it with electric fans and had imported an expensive up-to-date oxygen-acetylene plant to cut through the steel. They were on the job about six months, and got away with less than $20,000. The general verdict is that it was not worth the trouble. By the time they have definitely escaped arrest—if they ever do—they will not have more than a couple of thousand dollars apiece to "blow in." But my advice to any one who wants to acquire gold which is not his is that he will get better returns from bank-robbing than from trying to—in the slang of the profession—"put anything over" on the purchasing department of the Commission.

This, I am glad to say, is not only my opinion. There have been many graft charges against the Commission, most of them as wild as the story that the Gatun Dam had fallen over. The more serious ones have resulted in Congressional investigations—not the whitewashing kind, but conducted by men hostile to the Canal. Even more conclusive is the fact that the endless stream of newspaper men who have come down here—some especially sent to find fault—have failed to substantiate any serious charge. No department of our Government has been so continually under fire as the Isthmian Canal Commission—and none has come through with fewer scars.

Any one who has dug deeply into the corruption of some of our municipalities is impressed with the fact that much—perhaps most—of the graft is a matter of habit, of venerable

Digitized by Microsoft®

tradition. A young man gets some post and hears on every side how much his predecessor got out of it. He knows that his colleagues are "getting theirs." It would be an unconventionality—comparable to eating green peas with one's knife—not to "take his" also. It is the same in much of our industry. The man who accepts a position where it has long been part of the day's work to juggle with the Custom-House scales finds it hard not to follow the beaten path. The custom, once formed, becomes a "vested interest." It is hard to break such a habit.

And so it seems very wonderful to me to think of all the young men down here who, under the tutelage of Colonel Goethals, are learning the other habit. The men who are being "formed" under this custom of rectitude will never be able to believe it when their friends tell them that "everybody grafts." Quite a large army of young men have been on the Job down here; have had their first experience under Goethals. They are going to boast of it all the rest of their lives. Many of them are back in the States now. All of them will be within a few years. They will surely be a noticeable leaven in our national life.

It is doubtful if Mr. Roosevelt, in all his administration, made a happier appointment than this of Colonel Goethals as Boss of our Big Job.

Digitized by Microsoft®

CHAPTER XXXI

PULLING THE TEETH OF THE TROPICS

Of all the sights on the Canal Zone there is none more worthy of note than a dilapidated galvanized iron ash-can in the hills back of Paraiso.

Half an hour's stiff climb from the village will bring you to where it stands in a little hollow in the side of the mountain. If you look up hill, you see a dense wall of tropical jungle. It is a tangle of unbelievable vegetation—a felt-like fabric of green; palms, mahogany, cocobolo, and lignum-vitæ for the woof, and countless varieties of vines and creepers, great ferns, and many-branched grasses for the web. It is embroidered with bizarre patterns in scarlet and yellow blossoms and ghostly orchids. It takes a sharp *machete* and a strong arm to penetrate it. It stands there untouched by civilization—primeval—just as it stood when Balboa tore his way through it to fame four centuries ago. The life which spawns within its dense shade is not only vegetable. Strange beasts are there—tapirs, sloths, iguana, the giant lizard, and snakes. It is the home of the boa, and many lesser but more venomous breeds. More innumerable even than the varieties of plants are the species of insects. With acute ears you will hear the faint murmur of their life, the never-ceasing rustle of myriad microscopic feet on the rotting leaves; of myriad minute and filmy wings beating the dead, sodden air. The tropical jungle has a sinister aspect, an evident menace, which is unknown in the North.

Turn about, and you will look down into and across the

Digitized by Microsoft®

valley of the Rio Grande. In the bottom is a haze of murky smoke, shot through with flashes of white steam. Through rifts in those man-made clouds you get glimpses of rushing dirt trains, of straining monsters of steam and steel, of an army of active, hurrying men. The clang of iron on iron, the shriek of steam-whistles, perhaps the roar of a dynamite blast, beat up against your ears. On the sides of the hills you see villages—clusters of homes, well-kept lawns where all that is beautiful in the jungle has been separated from what is noxious and brought under cultivation: noble groups of palms, red and yellow and green shrubbery, flaming bushes of hibiscus; you see mothers in crisp white dresses playing with their babies; and if it chances to be the right hour, you will see a rout of children, as husky youngsters as you could find in East Orange, tumble out of the school-house.

Now look down at your feet. Two or three little threads of water trickle down the sides of the hollow in the hill where you are standing and join forces in a little brook. The hand of man is as evident here as in the bottom of the valley. All the vegetation is close cropped on either side the rivulet—the jungle has been pushed back several yards. The banks of the little stream are no longer covered with dense moss and fern, as they were when the Spaniards came—as they were thirty years ago when the French started a colony in Paraiso. They are black and barren—smeared with unsightly grime. Just at the spot where the three threads of water join there is a rough plank across, and on it the ash-can. Just such an unattractive affair as the men of the Street Cleaning Department empty into their carts every morning in New York City. Only this one is uglier still, as it, like the banks of the stream, is smeared with the black oil. A piece of lamp-wick hangs out near the bottom, and from it there falls every few seconds a drop of the blackness. Splashing into the

Digitized by Microsoft®

water, it spreads out—wider and wider, till it touches each bank—into an iridescent film. It looks like the stuff they use for oiling automobile roads. It is a compound of crude carbolic acid, resin, and caustic soda, called larvacide. These disreputable-looking ash-cans—there are many of them all through the hills at the head-waters of each stream—have a very intimate connection with the mighty work down in the valley and with the healthy bloom on the cheeks of those village children. They are outposts—frontier stations—in the war against the mosquito.

As is the case in most great discoveries, there are several claimants to the honor of having propounded the mosquito theory. Our doctors give the credit to Dr. Ronald Ross, a Scotchman in the Indian Civil Service. Thirteen or fourteen years ago he carried on his very valuable experiments. However, some Italians were close on his heels. And once the theory was published, investigators sprang up on all sides who claimed to have been working on the idea these many years.

Reduced to its simplest terms, this theory is that certain diseases are transmitted by, and only by, the bite of mosquitoes. Ross worked this out for malaria, demonstrating it first on birds, then on man. This fever is caused by the presence of bacteria in the blood. These minute organisms go through the ordinary cycle of birth, mating, and death. If a female of certain species of mosquitoes (*Anopheline*) bites a human being at the period when the malarial germs are mating in his blood, she sucks in some of them along with the blood. After they have developed within her for nine days, she becomes infectious and, if she bites another human being, inoculates him with malaria.

The demonstration of these facts gave a new impetus to the study of entomology. It was soon discovered that other diseases are spread in much the same way. The story of

Digitized by Microsoft®

how our army commission in Cuba worked out the connection of another brand of mosquitoes (the *Stegomyia*) with yellow fever, and how some of them voluntarily had themselves infected and died to prove the theory, has been so often told that it needs no repeating here. It soon developed that mosquitoes were not the only offenders: the sleeping sickness of Africa was traced to a biting fly, and the bubonic plague is now known to be spread by fleas who have gathered the virus from infected rats.

It would be invidious to try to determine what nation has contributed most to this new knowledge—a so vital part of modern sanitation. All over the world observers have gathered data, until to-day the credit of it, as well as its value, is truly international. But certainly we in the Canal Zone have gone the furthest in the practical application of that knowledge. Our men have been especially prepared for this job by their own experience and that of their colleagues in Cuba and the Philippines.

At first relatively little was known about the varieties and habits of mosquitoes; an immense amount of information is now at hand. Our men have collected and studied over fifty varieties on the Canal Zone. And Mr. A. H. Jenning, the Entomologist of the Commission, can give you interesting gossip about all of them—how they court and how they are born, and what they eat at three days old, and what dessert they prefer after two weeks, how and where the mother lays her eggs, and so forth. Of these fifty-odd varieties eleven species are *Anopheline*—all of which are under suspicion as malaria-bearers. The three commonest species are the *Anopheles albimanus*, *A. pseudopunctipennis*, and *A. malefactor*. The white-handed variety is known to be the most active in spreading disease. There is no direct evidence against the *A. malefactor*, despite his ill-sounding name.

Digitized by Microsoft®

Of the *albimanus*, the most dangerous, as is true of other species, the female alone bites. She does it because a meal of blood facilities the development of her eggs. It is doubtful if she can lay without having gorged herself. She seems to prefer red blood. But she has been caught in the act of biting reptiles, and even fish. This duty attended to, she begins a search for a suitable place to deposit her eggs. More study has been given to this phase of her life than any other, and Mr. Jennings can tell you just what she will do and just what she won't in this matter. She prefers stationary or slow-moving water, well screened from the sun, where there is plenty of green scum for the youngsters to feed on. The swampy pools, such as the jungle abounds in, seem to be her ideal. The eggs in due course of time hatch out into tiny tadpolish larvæ. They spend their time feeding and breathing. Every two minutes they have to come up to the surface to get fresh air. This, as we shall see later, is the fatal weakness—the Achilles heel—in their scheme of life. Having passed safely through their larval stage, they hatch out into full-fledged mosquitoes. They mate, the female starts out after blood, and the cycle has recommenced.

An adult mosquito is a lively proposition to deal with—almost as elusive as a flea. So our sanitary men try to get them before they mature.

The fight against malaria falls into three divisions. First of all, our men try to reduce the number of places where the female can lay her eggs. In a dry Northern climate it might be possible to eliminate such places. But nine months out of the twelve it rains down here nearly every day. And if a cow leaves a deep foot-print in the soggy ground, a couple of inches of water will ooze into it, and behold! a very fine place for *Anopheline* to breed. The main work of this division is in draining and filling swampy ground. Also they cut the underbrush and grass in the neighborhood of settle-

Digitized by Microsoft®

Digitized by Microsoft®

A certain number of mosquitoes will lay eggs in spite of all this first division can do. Our second attack is on the larvæ. Every stagnant pool, every backwater in a brook, is swarming with them. The larvacide in that ash-can—as its name implies—is aimed in their direction. And there is a whole troop of Jamaican Negroes—allies of the ash-can—who carry the same prescription in tanks on their backs and shoot it with a hand spray into every puddle and body of standing water they can find. As I said before, the larvæ have to breathe. Every two minutes they must wriggle up to the surface for fresh air. This makes thirty times an hour, or 8,640 times in the twelve days of their larval life. If at any one of those times they get a lung full of larvacide, they never come up again.

Even without our interference a large number of the larvæ perish. Some are eaten by fish, some die from lack of proper food. Sometimes a freshet washes them down into the sea, or an extra high tide floods them with salt water. And sometimes the sun dries them out. But our larvacide corps immensely increases "infant mortality" among the mosquitoes.

But some of the *Anopheline* break through these two lines of attack and reach maturity—a very small number compared to the old days, but enough to make trouble. The Mosquito Brigade is held in reserve to deal with them. This division of the sanitary army might be compared to the coast artillery, for they fight behind fortifications—very elaborate fortifications of fine meshed copper screens.

"Mosquito netting" sounds simple. But just as in every other detail of this campaign, so here an immense amount of careful experimenting and expert knowledge have been utilized. Various brands of mosquitoes were captured and put into cages made of netting of different material and different sized meshes until the very best kind for this climate and work was discovered. A skillful architect worked out

Digitized by Microsoft®

the problem of house planning so as to combine the most effective protection with the greatest economy of netting. Only copper wire will stand this climate. Even a few feet of waste on each house would mount up rapidly in cost. Such little details as the best springs and latches for the door and how to guard the screens from the toes and elbows of romping children have been given searching study.

Nine days must elapse after an *Anopheline* female has bitten a malarious person before she becomes infectious. Every morning the Mosquito Brigade sallies out from headquarters on its murderous duty. If the enemy has been reported in any building, the brigade makes a careful reconnaisance, discovers how they made an entry, blocks it up, and then commences the slaughter with the skill and implements perfected by long experience. Nine mosquitoes out of ten go to sleep after a meal of blood somewhere on the wall between nine and five feet above the floor. They seek out a dark place. Sometimes they hide in a closet or in the folds of hanging garments. But our men have nine days to get the mosquito in before she becomes dangerous—and they generally do.

There is one feat of which the mosquito-killers boast. It was necessary at one time for some construction men to occupy one of the old French houses. The work in that vicinity would not last long enough to warrant the expense of screening, so the mosquitoes had free access by doors and windows. So deadly was the work of the Mosquito Brigade that the malaria rate in this temporary camp did not rise above the normal.

In the permanent quarters the screening is so thorough that the buzz of a mosquito is a rarity. If a person's sleep is disturbed, he notifies the Sanitary Department, just as you would call up police headquarters if you heard a burglar in your house.

Digitized by Microsoft®

There is one more important point in the plan of this campaign against malaria. No mosquito is dangerous who has not previously fed on a malarious person. And the minute a man is infected he is rushed to the hospital, where extraordinary care is taken to prevent any mosquitoes getting access to him.

First of all, they try to prevent the mosquitoes from laying their eggs, then they try to prevent the larvæ from hatching, then they screen all living-places and attack the adults, and, finally, they isolate all infected persons.

This elaborate campaign, from draining swamps to trained nursing in the hospitals, has resulted, not only in greatly reducing the number afflicted with malaria, but, what is more marvelous, it has also greatly reduced its virulence. The explanation of this change in the type of the disease goes too deep into the theory of bacteriology for me. But the unexplained fact is striking enough. Probably more of the Frenchmen died from malaria than from yellow fever. At first our men died of it. To-day a fatal case is a rarity. What they used to call "black water fever," a form of malaria which attacks the kidneys, and which is still common in the other lowlands of Central America, is almost unknown on the Canal Zone. Nowadays malaria means a couple of weeks of discomfort in the hospital and a week more of lazy convalescence.

And this anti-malaria campaign, of which I have spoken at length, is only part of the many-sided work of the Sanitary Department.

The war on the *Stegomyia* mosquito, the yellow-fever bearer, has been even more successful. This mosquito differs from the *Anopheline,* and is more easily exterminated, in that it is a domesticated animal. It lives and breeds only in or near human habitations. The water systems and sewers which we have built in Panama City and Colon did

Digitized by Microsoft®

away with most of the rain-barrels and small artificial water containers in which their eggs are laid, and wholesale fumigation of dwelling-houses destroyed most of the adults. No cases of yellow fever have originated in either city or among our employees since May, 1906. Vaccination has wiped out smallpox, and the Rat and Flea Brigade has practically exterminated the carriers of the bubonic plague.

The Isthmus used to have the name—and deserved it—of being the worst pesthole in the Americas. Here is an excerpt from the report of the Chief Sanitary Officer, issued in November, 1906. It deals with the preceding month: "Of our six thousand Americans, including women and children, none died from disease. It is rather a remarkable fact that among these six thousand Americans a death from disease has not occurred in the past three months. Take six thousand people in New York City, selected at random, and estimating their death rate on what occurred in New York City last year, they would have had about thirty deaths from disease. . . . I do not argue that in the Rio Grande reservoir we have found Ponce de Leon's spring of perpetual life, but merely that Panama is not so bad a place from the health point of view as is generally believed."

In the annual report dated August 23, 1907, he says: "During the year the working ability of the force was kept at its maximum. We averaged only twenty-nine per thousand absent from duty on account of sickness. This shows a very high state of efficiency as compared with any body of men of which I am able to get any record." And there has been no slump in the health conditions on the Zone since these reports were written.

The diseases which our doctors are fighting down here are the same that the profession faces in New York or London. The ailments which we think of as distinctively tropical have been practically eliminated. Indeed, this process has

Digitized by Microsoft®

gone so far that the doctors who are specializing in this field begin to find this a poor place to study. Samuel T. Darling, M.D., the Chief of the Board of Health Laboratory, has probably done as much as any other American in tropical diseases. I have here on my desk a handful of brochures he has written on the outlandish afflictions of man and beast which he has found on the Isthmus. "Sarcosporidiosis," "Equine Trypanosomiasis in the Canal Zone," "Autochthonous Oriental Sore in Panama," are a few of the titles —works which have caused his election to half the important medical societies of the world. But in his "Histoplasmosis: A Fatal Infectious Disease, Resembling Kola-Azar, Found among Natives of Tropical America," I find this paragraph. There is a note of pathos in it which will be appreciated by all those who collect rare objects and fear to have their hobby disturbed:

"In conclusion, it should be said that this disease, although no longer seen in Panama, is probably to be found in unhygienic and less salubrious regions of tropical America, not yet disturbed by the sanitarian."

And if you talk with these men who are fighting disease— the engineer, who with transit and chain is laying out drainage ditches; the man who has the responsibility of guarding the purity of the drinking-water; the rat-catcher, who strolls about with a Flobert rifle and a pocket full of poison; the red-headed young doctor who vaccinates you at Colon; or even the bacteriologist who finds his interesting researches "disturbed"—they will speak of themselves as "ditch-diggers." And no dynamite operator nor steam-shovel man will deny their right to say, "We've got sixty per cent. of the dirt out of Culebra Cut," or "We beat the record laying concrete at Gatun this week."

One of the Larvacide Brigade pointed out to me a rusty mass of French machinery going to pieces in the jungle.

Digitized by Microsoft®

"They didn't know the difference between a mosquito and a bumblebee," he said by way of explanation. And he had hit the nail on the head. Like as not, our mighty modern engines would be going to scrap alongside of the old French ones except for the devoted, intelligent work of these sanitary men.

The responsible head of the men who have done this marvelous work—and no words at my command can express the wonder of it—is W. C. Gorgas, Chief Sanitary Officer. As Colonel Goethals is, in a way, paterfamilias of the community, so Colonel Gorgas is the family physician. Goethals is rather aloof and authoritative. Gorgas is genial and sympathetic. They say "he can give you liquid quinine and jolly you into thinking you like it." That is just what he did to the people of Panama City and Colon during the early yellow-fever epidemic. Nobody likes to have his home fumigated. The Panamanians are immune to the fever. Most of them are too ignorant to understand the reason why they must be turned out of their homes for twenty-four hours. The more intelligent are easy-going, used to avoiding such inconveniences by bribing petty officials. All of them are, from a sanitary point of view, slipshod and careless. Gorgas succeeded in fumigating every house in Panama City within two weeks. He did it by jollying them—slapping the men on the shoulders, smiling at the women, and playing "one little pig went to market, one little pig stayed at home," on the toes of the babies. Even the Panamanians who are most unfriendly to Americans admit that Gorgas is a good fellow, and every child that knows him wants to sit in his lap.

Before coming here he had had charge of cleaning up Havana, and he knew how it should be done. Doubtless there were other American army doctors who had had similar experience and understood the work as well. But

Digitized by Microsoft®

beyond the technique of his profession Gorgas knew the Latin American people, their manner of life and their prejudices. He knew how to make them swallow quinine and at least half believe they liked it. It was necessary to fumigate those houses, and we would have done it even if it had been necessary to call in the marines and proclaim martial law. But Gorgas, with his wonderful tact, did it without using force or in any way increasing the enmity to the Gringo. It was not only a remarkably effective sanitary accomplishment, but an exceedingly clever bit of diplomacy.

They tell a story about Gorgas in Cuba, and people who know him say that it sounds true.

In the early days there were many who made light of the mosquito work. Gorgas went to one of his superiors for some money to carry on his campaign.

"Is it worth while to spend all this money just to save the lives of a few niggers?" the Commandant protested.

"That's not the point, General," Gorgas shot back at him. "We're spending it to save *your* life. And that's worth while."

He got the money.

Before a visitor has been long on the Zone he is sure to discover that there is war on between Gorgas and Goethals. Without exception, the men of the Sanitary Department side with their chief. The personal loyalty which he inspires in his subordinates is remarkable. But the Goethals faction is much larger. An onlooker cannot but regret the ill feeling between these two men, each so admirable and valuable in his own department. But, regret it as one may, it is clearly inevitable. The two men are as different in character as men well could be. The whole controversy is, I think, one of temperament. Goethals, the practical, scrupulous administrator, makes a fetish of economy. "Low costs" are his hobby. Gorgas is imaginative and

Digitized by Microsoft®

enthusiastic. He would like to kill every mosquito on the Isthmus and then begin on the rest of the world. He does not know, unless some one tells him, and even then does not care, whether each mosquito cost five cents or five dollars. *Delendum est.* Goethals does not want to grant a single cent to the Sanitary Department which cannot be traced to added labor efficiency. One of the Goethals faction summed it up: "Why, if you let Gorgas have his way, he'd spend the whole appropriation in six months!" Very likely he would. In a moment of enthusiasm he might offer a ten-dollar reward for every mosquito scalp brought to his office; but no one suggests that he would put any of it in his pocket.

On the other hand, the Gorgas faction accuses Goethals of endangering the life of our men by withholding necessary appropriations. Their own statistics, showing that the Zone is at least as healthy a place as New York City, disproves this accusation.

This conflict, distressing as it at first seems, is very probably a good thing for our Canal. The Sanitary Department was run with less strict economy than any other. If there had not been a strong and rather hostile hand in check, there might have been gross extravagance. And as long as the sanitary crowd is looking for a chance to yell "Murder!" there is little probability that Colonel Goethals will risk any dangerous economy in the department of health.

The whole affair would not be worth mentioning—it has had no result down here beyond generating some personal ill feeling—if it were not for the fact that some steam has been blown off in the papers at home. And those who have rushed into print, as is generally the case in such affairs, are not responsible heads of departments, but underling partisans, *plus royalist que le roi*, very much more bitter and extreme in their statements than their chiefs would dream

Digitized by Microsoft®

of being. Neither the efficiency of the Sanitary Department nor the health of the men on the jobs has been disturbed.

A man with all Colonel Gorgas's remarkable fitnesses—his knowledge of sanitation, his familiarity with Latin people, his consummate diplomacy, his personal charm and magnetism, which inspire the men under him to their best efforts—who had also a cool, calculating, bookkeeping head might have accomplished the same results somewhat more economically. Very likely cheaper tile drains would have served in some places where concrete drains were laid. But, in spite of our recent ardor for economy and "business efficiency," if there is any one thing for which we, as a nation, are willing to stand a little extravagance, it is health. In this department we are more interested in results than methods. And of all the marvels of this immense Canal job of ours—the great engineering triumphs, the high ideal of financial honesty, the spirit of united, collective action—there is nothing which stands out more wonderful than the results accomplished by the men and ash-cans under Colonel Gorgas.

Digitized by Microsoft®

CHAPTER XXXII

TRANSPLANTED AMERICANS

Of the 35,000 Canal employees, about 5,000 are white Americans. I was as much interested in how this community lived and moved and had its being in the heart of what was once a tropical jungle, as in the number of cubic yards they had excavated.

I happened to reach Colon on Saturday in time to catch the afternoon train across to Panama.

"I'm glad you weren't late," said my friend, who met me on the dock. "I've invited an extra girl for the Tivoli dance to-night for you."

Visions of a miners' dance I once attended in Butte rose before me. I was to be disappointed; nothing so piquant happens on the Canal Zone.

Arrived at Panama, my friend rushed me up to the Tivoli Hotel and into white clothes at top speed, and then to dinner at the home of one of the American doctors. The house was not very attractive on the outside—a big square affair, cased in mosquito netting and roofed with corrugated iron—but inside it had all the familiar appearance of a summer bungalow. The doctor's wife and her two nieces wore just such gowns one would see at home at a college "prom." And the dinner from the soup to the coffee was just such a one as very good housekeepers create at home. Only the salad of alligator pears, which cost a dollar a bite in New York, was plentiful.

And then my friend and I took the young ladies, very

Digitized by Microsoft®

properly chaperoned by their aunt, to the ball. An immense assembly room on the main floor of the Tivoli, a fine floor, an apparently inexhaustible supply of charming, daintily gowned girls and pretty fair music. All my partners spoke with a delightful Southern accent. At first I thought I must have been introduced to a Southern clique. But the longer one stays the deeper grows the conviction that the Canal is being dug by Alabamians and Georgians.

During the evening I was told that I was to be one of a party on a picnic to Naos Island on Sunday. And at nine o'clock in the morning my friend guided me down to the docks at Balboa and there we found the crowd getting onto a tug named "La Petite Louise." A strange name for a boat belonging to our government—but it is part of the equipment we bought from the French and the name has not been changed. There is a wonderful beach on Naos Island, and it is warm enough to stay in a long time. And just as always happens on a picnic at home everybody over-ate and felt stupid through the afternoon. "La Petite Louise" brought us back to the mainland at twilight and we had supper at the University Club in Panama.

It was during this day that I found the adjective to describe the American social life in the Zone—"suburban." This is not meant in any derogatory sense. Suburban society is charming, more gracious in many ways than that of the cities. It has the intimacy, the everybody-knowing-everybody-ness of a country village and the tastes, the culture, the books and the gowns of the city—after they have had a few weeks to ripen. But surely one does not expect to find such a community in the biggest construction camp on earth, and only 9° north of the equator!

Of course I had chanced to strike the Zone on a holiday. But still I found myself rather troubled over this light-mindedness. Was anyone taking the job seriously? I did

Digitized by Microsoft®

not get in touch with this side of the Canal life, and of course the most important side, until the next afternoon. I had gone down to Culebra to present a letter of introduction to the wife of one of the high officials. I arrived at tea-time, two or three ladies dropped in and I got something of an impression—again a sign of the suburban—that they were rather surprised to see a man at that hour of the day. I was busily telling them about how I had enjoyed the dance, and how I did not mind the climate, and how I like tropical fruit except mangoes, and how hobble skirts and peach-basket hats were disfiguring Fifth Avenue—when suddenly there was a grumble of thunder, a quiver of the earth, and my chair jumped half an inch. Incidentally some scalding hot tea spilled on my knee. Now, if there is any one thing about which I am particularly nervous, it is an earthquake.

"What was that?" I cried out.

"Oh," said my hostess, "that's nothing. They always shoot about five o'clock."

And then, apparently realizing that it had not been a very comprehensive explanation, she went on to tell me that down in the Cut, a quarter of a mile away, they were blasting on an unparalleled scale, using more dynamite in a week than the rest of the world uses in a month.

The ladies were placidly nibbling their jelly sandwiches, not one of them had spilled any tea, and the conversation went back to hobble skirts. But somehow, I had caught some sense of a vast undertaking of which balls and picnics and afternoon teas were only the frosting.

And then a young son of the house came dashing across the lawn with the news that the Culebra base ball team had won from Empire, 8 to 3, and was at the head of the league. I have never met a more ardent "fan" old or young at home. A file of men now began passing along the board walk in front of the house. Big, strapping men most of

Digitized by Microsoft®

them, in high muddy boots, khaki riding breeches and blue shirts, stuck tight to their backs with perspiration. One of them, as sweaty as any of them, turned in and came up to the porch. He was the husband of my hostess, as I have said, one of the most highly paid men on the job, and from his appearance it was evident that he had been working as hard as any dollar-a-day negro. The striking thing was that his unkempt condition was accepted without comment by these carefully groomed women. He mopped the perspiration off his forehead with his shirt-sleeve and chatted with us for a few minutes. Then he went whistling into the house and in about two minutes I could hear the swish of the shower bath. Just as I was leaving, he appeared again in crisp white linen and fitted very cosily into the suburban setting.

The problem of keeping a stable labor force on the Zone is one of the most difficult the Commission has to face. The breaking in of new men is time consuming and expensive. It is hard enough to get capable men to leave good positions at home and migrate to an unknown country. It is harder still to keep them. The Commission has probably lost more good men from homesickness than from yellow fever. Mr. Frederic J. Haskin in a newspaper letter on this subject says: "The climate does not interfere with the health of the people, but at the same time anyone who stays here through a year of it becomes depressed, and visions of the home country, with its bracing weather, its familiar scenes and its fond ties, begin to float out on the curling wreaths of smoke from pipe or cigarette."

The Commission tried in two ways to combat nostalgia. First it encouraged matrimony. And second it organized a corps of what might be called mental hygienists, experts who tried to keep the spirits of the men healthy as the sanitary officers worked for their bodily welfare.

Digitized by Microsoft®

Evidently a man who was married and had his family established in the Zone was not going to desert on account of homesickness. The Commission did not actually furnish wives for the men, but in a very thoroughgoing way they arranged to make it cheaper for two to live together than for one to live alone. Being a bachelor on the Zone is an expensive matter. It is also an inconvenient one. Find a wife and you get a three or four room furnished house; electric light and kitchen coal are furnished you free. Instead of having your buttons smashed and your linen clothes scorched at a ruinous price, your wife finds a soft-voiced Jamaican negress who does the entire household wash for less than your bachelor laundry bill. Doctors do not cost you anything. It is surprising how much less you lose at cards. And how easy it is to put something in the bank.

But in spite of all inducements some hardened reprobates refuse to marry. How are they to pass their off hours? This is a serious question always for young men away from home. It is doubly so in the tropics where even the mildest forms of dissipation are deadly.

There is an old chant which was quite fashionable in the old days of the Panama railroad and during the French time. Everyone who spoke English knew it:

"Close the door. Across the river
He is gone.
With an abscess on his liver
He is gone.
Many years of rainy seasons
And malaria's countless treasons
Are among the several reasons
Why he's gone.

'Close the sunken eyelids lightly
He is gone.
Bind the shrunken mouth up tightly
He is gone.

Digitized by Microsoft®

Copyright by Fishbaugh.

A STEAM SHOVEL.

Digitized by Microsoft®

Digitized by Microsoft®

Chinese gin from Bottle Alley
Could not give him strength to rally,
Lone, to wander in Death's Valley
He is gone.

"In his best clothes they've array'd him
He is gone.
In a wooden box they've laid him.
He is gone.
Bogus Hennisey and sherry
With his system both made merry.
Very hard he fought them—very!
But he's gone!"

Once in a while nowadays some old-timer will stand up in the barroom of the "Panazone" and recite it with deep feeling. But the verses are little known to the present canal men, except to those who are fond of hunting up old things. But they are worth quoting, for, showing as they do the spirit of the English-speaking men on the Isthmus twenty and thirty years ago, they present a striking contrast to things as they are.

The change has been brought about by the "Commission Club Houses," and the trained amusement experts of the Y. M. C. A. In the more important villages along the line of the Canal, commodious club houses have been built by the Commission. Mr. Haskin writes:

"The result was that the consumption of bad whiskey and worse beer fell off at least 60 per cent. in the towns where the clubs were established. The men were social beings, and they had to meet somewhere, and until these clubs were established the bar was the only place open to them. Now they have bowling alleys, billiard rooms, gymnasiums, libraries, dark rooms for camera clubs, soda fountains, lounging rooms, and so on under the direction of the Y. M. C. A.

"The secretaries in charge of the club houses form bowl-

Digitized by Microsoft®

ing teams, organize billiard tournaments, plan camera clubs and do everything possible to bring in the people and get them interested. Last year there were more than fifty thousand games on the bowling alleys and nearly two hundred thousand games of pool and billiards were played, with seventy-four different tournaments in progress. The chess and checker clubs, glee clubs, minstrel clubs, camera clubs, Bible clubs, and the like, catered to the varying tastes of the men.

"In the reading and writing rooms one finds more comfort than in the public libraries of the United States. There are easy Morris chairs where the tired worker may rest while perusing his favorite magazine, studying his technical journals, or looking over the newspapers from the principal cities of the United States."

The following clipping from *The Canal Record* of June 28th, 1911, gives a concise picture of the work of these clubs:

'COMMISSION CLUBHOUSES

"Activities of the Young Men's Christian Association

"The Culebra indoor baseball team defeated the Gorgona team on the local floor on Saturday night, 21 to 2. The batteries for Culebra were Tupper and Cushing; for Gorgona, Weiser and Christiansen, pitchers, and Ridge, catcher. Tupper struck out 18 men and allowed only five hits. This was the last game of the season, and the first Gorgona has lost. The standing of the teams at the close of the season follows:

	Won	Lost	Percentage
Gorgona	9	1	.900
Culebra	8	2	.800
Empire	6	4	.600
Gatun	3	7	.300
Cristobal	2	8	.200
Corozal	2	8	.200

Digitized by Microsoft®

"CULEBRA

"The high duckpin scores last week were as follows: Huttelmeier, 104, 108, 104, 100, 101, 108; Mengel, 118; Silver, 110; Kennedy, 101; Helper, 106.

"The afternoon gymnasium class which meets Mondays and Thursdays at 5.15 is well attended. More members are invited to join. An evening gymnasium class will be started for the purpose of carrying on apparatus work, tumbling, basketball, and exercise of a heavier nature.

"EMPIRE

"The Cristobal duckpin bowling team took two out of three games from the Empire team on Saturday evening, June 24.

"At a meeting of the Empire Literary and Debating Society held on Friday, June 23, officers were elected to serve six months.

"Forty new books have been added to the library, including some late fiction.

"All those wishing to enter the handicap pool tournament for July will hand their names to manager of the pool room, or to the office. The tournament will begin on July 5.

"GORGONA

"The bowling match scheduled with Gatun on Gorgona alleys for last Saturday was postponed until July 1, when Gorgona will send a team to Gatun.

"The wrestling class has been temporarily disbanded, as a number of the wrestlers are training for the Fourth of July meet. The class will be reorganized after that date.

"GATUN

"At a meeting of the literary club on Wednesday, June 21, M. S. Fox upheld the affirmative and R. M. Gamble the negative, in a debate on the subject, 'Resolved, that the right of suffrage should be granted the women of the United States.' A selection from Eugene Field was given by F. G. Smith. The club has accepted the challenge of the Cristobal literary club to debate the subject, 'Resolved, that the railroads of the United States should be owned and operated by the Federal Government.' Each club will be represented by six men, three of whom will debate at home and three away from home, taking opposite sides of the question. A general discussion on the subject will take place at the meeting of the Gatun Club on Wednesday evening, June 28.

"Members interested in basketball met on Tuesday night, June 27, and organized a local league.

Digitized by Microsoft®

"CRISTOBAL

"The basketball games on Tuesday and Thursday night resulted as follows:

"Tuesday—Sterner vs. Kavan, score 23 to 16 in favor of Sterner's team.

"Thursday—Sterner vs. Luce, score, 24 to 12 in favor of Luce's team.

"The Wednesday night literary and debating club met, and the topic discussed was 'Socialism.' This week, the debate will be, 'Resolved, that the Government should own and operate the railroads.'

"Thursday night, the anniversary banquet will be held at Cristobal hotel at 8 p. m. The occasion celebrates the fourth year this clubhouse has been open."

The same issue contains the following:

"FOURTH OF JULY

"OUTLINE OF PROGRAM FOR CELEBRATION AT CRISTOBAL

"The program for the observance of Independence Day at Cristobal on July 4 is as follows:

"MORNING

"Athletic events on Roosevelt avenue, 9 a. m. to 1 p. m. Twenty-two events are scheduled, eight of which will be laughable contests, and the remainder standard events. Cash prizes, except in contested events, will be paid on July 4. The I. C. C. Band will play at the athletic games.

"Baseball game at Colon park at 10 a. m. The Marine Band will play.

"AFTERNOON

"Patriotic exercises in the Court of Honor on Roosevelt avenue, 1.15 to 2 o'clock. Program is as follows:

Flag raising by Boy Scouts.

Introduction by presiding officer, Maj. Henry A. Brown.

Reading Declaration of Independence, Chief Justice Gudger, Canal Zone Supreme Court.

Address, Chairman and Chief Engineer, Col. Geo. W. Goethals.

National airs sung by school children, accompanied by I. C. C. Band.

Digitized by Microsoft®

'Flag of the free,' Canal Zone high school.
Fire department drill, 2 to 3.30 o'clock.
Aquatic sports, 2 to 5 o'clock. The Marine Band will play.
Fire department ladder exhibition, 6 o'clock.
Band concert by the I. C. C. Band, 6 to 7 o'clock.

"NIGHT

"Fireworks, Marine Band concert, 8 to 9 o'clock.
Dance at the Lincoln House, 9 o'clock."

The "Fourth" is the great day on the Zone. Besides the 5,000 American employees, their wives and children, the 30,000 foreigners join in the celebration. It is the most cosmopolitan spreading our old Eagle ever enjoyed.

Two more clippings from *The Canal Record* complete the picture of Uncle Sam's efforts to amuse the men:

STEAM SHOVEL MEN'S BALL

A benefit ball will be given by the Associated Union of Steam Shovel Men on July 1, 1911, at the Tivoli Hotel. A special train will leave Colon at 6.15, making regular stops. The return trip will be made on the passenger train scheduled to leave Panama at 12.01 a. m., July 2.

PUBLIC INSTALLATION AND DANCE OF K. OF P.

On Monday evening, July 3, Balboa Lodge, No. 4, Knights of Pythias of Las Cascadas, will hold a public installation of officers in the Commission lodge hall. Following the installation ceremonies, there will be an entertainment and dance. All Pythians, their families and friends are invited to attend.

Although the Commission has gone to great lengths to keep its employees contented, this has been a relatively easy matter compared to keeping homesickness from the women.

In fact there are some misogynists who claim that the Commission made a mistake in encouraging the employees to bring down their wives. As in more northern climates many unmarried men maintain that a lot more than half

Digitized by Microsoft®

the trouble is caused by women. It has happened more than once that a good man, who was interested in his work and wanted to stay, went back to the States because his wife could not adapt herself, became nervous under the climate or was snubbed by somebody else's wife. Certainly the women have the harder time of it. There is very little to interest them. For eight hours a day the men are too busy to become discontented. The Father of Gossip is just as active in finding work for the tongues of idle people in the tropics as in Greenland. And as a rule the women are idler on the Canal Zone than in a suburban town.

The Commissary stores, for instance, although they greatly reduce the cost of living and are model places for buying, are very poor places for "shopping."

The Commission has bravely taken up the task of amusing and occupying the women folk. It employs an organizer of "women's clubs." Every village has its club. Every week *The Canal Record* publishes a column called "Social Life on the Zone." These clippings give an idea of the varied activities of women's organizations:

"At the regular meeting of the Cristobal Woman's Club on January 22, a paper was read on 'Club Ethics,' written by Dr. Jeanne de la Lozier, of the New York State Federation of Woman's Clubs, which has also been read before several other Zone organizations. It is filled with suggestions and hints for the development of the ideal club life which are most helpful and greatly appreciated in the Zone where the club movement is of so recent date.

"The Gatun club will hold a special meeting February 1, with Miss Anna Gohrman as guest. Miss Gohrman will address the club on school work and the desirability of co-operation of parents with the work of the teachers. The regular meeting will take place as usual.

"The regular meeting of the Pedro Miguel club, January 22, was in charge of the literary committee. An amusing program was presented consisting of a short play which represented the closing day of an old-fashioned country school. The club spares no pains to make these entertainments interesting.

Digitized by Microsoft®

"The president of the Ancon club has called a special business meeting for January 29, at 8.30 a. m. Arrangements for the flower dance to be given by the club on February 29 are going rapidly forward.

"The Paraiso Woman's Club held a social meeting January 23, at the club rooms in the Commission hotel. Several musical numbers were given and an advertisement guessing contest was a feature of the entertainment. Prizes were awarded to the correct guessers. Tea was served by the committee on entertainment. The attendance was the largest since the organization of the club.

"The art section of the Ancon Woman's Club, organized under the title of the Ancon Art Society, will hold its first monthly meeting on the evening of January 29, at the residence of Mrs. Herbert G. Squiers, the American Legation, Panama, from eight to ten o'clock. In accordance with the regular plan of the society, the evening will consist of music given during the hour's sketching; an exhibit and judgment of work by the critic appointed by the society, and a social half hour during which refreshments will be served. The program of work during the month of January has been figure, landscape, still life, genre and applied design.

"The Altar Guild of St. Luke's, which has now over twenty members, met at the residence of Mrs. John L. Phillips January 20. The work of the guild is progressing, the first altar set for the chapel being completed. The next meeting will be held February 3 at the residence of Mrs. W. C. Gorgas.

"The Paraiso club gave a 'Limerick' tea February 19, when a musical program was rendered by Mrs. Downs, Mrs. Richards, Mrs. Lane, and Mrs. and Miss Macombs. The committee in charge of the afternoon was Mrs. G. H. Kerslake, Mrs. Lane and Mrs. Robert Smith.

"The Bowling Club of Culebra gave a farewell reception to Mrs. A. W. Stevenson at the Commission Club House, February 27. Ten members were present, and the afternoon was spent in social amusement.

"The Paraiso Woman's Club is engaged in sewing for specific charitable purposes. The sewing circle meets at the residence of the president, Mrs. J. C. Barnett. The club will entertain the Pedro Miguel Club at its regular social meeting, March 5.

"A movement among club women to study the national songs was responded to with enthusiasm, and the meeting closed with the singing of 'America.' This suggestion has also been taken up by the other clubs along the line, and it is probable that the movement will become general."

Digitized by Microsoft®

But the women are not solely engaged in amusing themselves. They have a very active "Play Ground Association." In Colon you can see little Panamanians from Bottle Alley and Bolivar Street having a glorious time on swinging rings, see-saws and sand piles. The little park is fitted up by the association just as such play centres are equipped at home. There is a thriving branch of the Red Cross and also an Anti-Cigarette League.

On the whole it has been a very successful attempt to transplant Americans. The men are working hard to dig the ditch and the women are working just as hard to make the place seem homelike.

The unmarried man is better off in most ways than he is at home. His wages are probably more, his health is certainly better guarded, his food more wholesome than they would be at home. He is certainly offered more rational and healthy, although much less varied, amusements than on any other job. The bachelor who does not live in Panama City is either saving money or does not want to. Most of them are.

For a married man the place is a paradise—if the wife likes it. Doing the same kind of work, there is no place in the world where he can have as comfortable a home and as good meals and save as much.

But after all it is a man's job and a man's community. The man who works for two years gets a medal—his wife does not. This seems to me a deep and regrettable injustice. It costs the women more to stay. One finds lots of men who really like it, who would rather be on the Canal work than any job with equal pay in the States. It would be hard to find a woman from one end of the Zone to the other who after six months does not wish that her husband could find something as good at home. That most of them do not

Digitized by Microsoft®

fret about it, is all the more reason that they should have the medals.

But whatever moping and homesickness there is among the women, it is generally laid aside when the roar of the blast in the Cut shows that the day's work is over. The smile is taken out of the top bureau drawer and carefully polished. The veranda of every "family house" blossoms out with a cheery, plucky, prettily gowned American woman. The married men come down from the draughting tables, the steam shovels and the concrete-mixers, to a greeting which makes the bachelors feel lonely, to a cold shower and clean clothes, to a well laden dinner table—and a quiet evening at home or game of cards with the neighbor and his wife.

It is especially after the whistle blows on Saturday that one sees the Zone at its jolliest. Nobody's homesick Saturday night or Sunday. There is sure to be a dance or a lecture or some amateur theatricals somewhere within reach. The extra Sunday trains of the Panama railroad are crowded with as merry and light-hearted a lot of Americans as one could find anywhere in the States.

Digitized by Microsoft®

CHAPTER XXXIII

THE BIG JOBS IN 1911

Of course the biggest job of all, the original planning of the canal, was finished long ago.

There remains, however, work to be done of a magnitude which might well stagger the faith of men who had not already made much progress at removing mountains.

In the two years between my visits to the Isthmus great strides have been made in all directions. But the progress is especially noticeable in that to-day the canal is beginning to take definite shape and the uninitiated can see what it is our men are doing.

In 1909 they showed me the lock sites at Gatun. It was a great hole in the ground which they had scraped out with their steam-shovels—but not nearly so impressive as the excavations they had made in other places. It took more imagination than I could muster to visualize the locks as they will look when in operation.

To-day—1911—sixty per cent. of the concrete is in place. Of the three steps in the flight of locks, the upper one is so near completion that one has only to imagine it full of water to see it as it will look from the rail of a passing steamer.

A glance at the accompanying map will give you the lay of the land.

Sailing almost due south from the Caribbean Sea, the ships will come into the Atlantic entrance between the two breakwaters we are building from Toro Point and Colon. In 1502, when Columbus sailed into this harbor, he named it

Digitized by Microsoft®

Navy Bay. It was his fourth voyage, his last attempt to find the short cut to the Indies. Now, four centuries later, we are building the passage he sought in vain.

From the harbor entrance there is a straightaway channel —eight miles—to the locks. The first half of it is through the bay, the last four miles between low banks, covered with swampy jungle.

At Gatun, a massive flight of concrete masonry, eighty-five feet in height, will rise before the steamer. As she enters the approach her power will be shut off and ropes run ashore to the electric mules which will tow her through. By a very clever mechanical device, which doubtless seems simple to Colonel Hodges and the other engineers of the locks, but which is beyond my comprehension, this towing system is so arranged that, while the ship will progress at a rate of five miles an hour, there will be no momentum, or at least so little that she can be stopped in a few inches. I have a very distinct recollection of something in sophomore physics about there being no movement without momentum. But, be that as it may, several lock gates in various canals in other parts of the world have been smashed by ships which, once started, refused to stop. It was blamed on momentum. So some of our engineers sat up late several nights and contrived this device, which makes momentum one with Cæsar and the snows of yester year.

As soon as the ship has entered the lock and the gates are closed behind her the water alongside will begin to bubble. It is the inflow from the great lake above. There are conduits running down through the solid concrete centre and side walls—conduits as big as the California redwood trees which make a horse and wagon look so small in comparison. The water is distributed by a lot of smaller conduits running out under the lock chamber at right angles to the big ones and emptying upwards through the floor. When the first

Digitized by Microsoft®

lock is full, the ship will be more than twenty-five feet above sea-level. The gates ahead will be opened, those intelligent electric mules will tow her into the middle lock, the process will be repeated, and again in the upper lock. And when the last gate is opened, she will steam out into Gatun Lake, eighty-five feet up in the air.

And while one ship is going up another in the opposite direction may be going down, for all the locks are in duplicate.

It is impossible to give an adequate impression of the immense size of these locks to one who has not seen them. When I was here before, and only the excavations had been made, I tried to get some idea of what 1,000 feet long, 110 feet wide, by 41 feet deep meant. One of our engineers tried to help me out by saying that the Olympic, the largest liner yet laid down, could grow 120 feet longer and still go through. But, not having seen this monster, I had no clear idea of how big she will look. Another told me to imagine a wide city street lined with six-story buildings for three blocks. But there on the edge of the jungle, with no building in sight more than two stories high, and no city street within hundreds of miles, this did not help much either. I got only a vague feeling that it was to be immense.

Now you can stand on the edge of the almost completed upper lock, look down into the bottom at the busy midgets who are full-sized men, across the hundred odd feet to the centre wall, a Titanic monolith of concrete which separates the lock chamber you see from its twin—just as big—beyond, and then you can look northward towards the sea along three-quarters of a mile of the biggest concrete job on earth —and—well—even now, with it almost completed under your eyes, you cannot find any adequate comparison. Only there is no longer anything vague about the impression of immensity. This lock job of ours—by itself—is stupendous.

Having climbed up these eighty-five feet above the sea,

Digitized by Microsoft®

the ship will, under its own steam, traverse over twenty miles to Gatun Lake.

This lake is undoubtedly the greatest liberty we have taken with the landscape. There is to be something like one hundred and sixty square miles of it balanced on the side of the hills. This great body of water is to be held in place by Gatun Dam. In 1879, at the International Scientific Congress for the consideration of an Atlantic-Pacific Canal, which was called at Paris under the presidency of Count de Lesseps, this plan—then first suggested—was laughed at as preposterous. Within three years it will be an accomlished fact. It is already more than two-thirds completed.

In 1909 there was nothing to see of this incipient mountain range except two parallel trestle-ways stretching out a mile and a half from Gatun village to the other side of the Chagres Valley. The trestles were about a quarter of a mile apart, and along them ran a continuous procession of dirt trains filled with spoil from Culebra Cut. They would dump their loads at the foot of the trestle and rush back to the Cut for more.

These parallel stone heaps were, I was told, the "toes" of the dam. But—as was the case with the lock sites—enough had not been accomplished to give me any hint of the thing as it is to be. The two years which have passed since then have been busy ones of progress. Now the dam, as it is nearing completion, is easily recognizable as a dam.

The "toes" on which they were piling stone in 1909 are only retaining walls for the real dam. Loose rock—just as it came from the steam-shovels in the Cut—was dumped in these parallel heaps, a quarter of a mile apart, until they reached a height of sixty-five feet above the sea. The immense weight of these "toes" squeezed out the soft soil below them until they rested on firm foundations. The great ditch between them is being filled by suction dredges

Digitized by Microsoft®

with an impervious mixture of sand and clay. This "core" is what our engineers rely on to stop the water, and the "toes" are only there to hold it in place. Outside of the "toes," both up stream and down, so much more material is being placed that the sides of the dam will rise only one foot in twenty-five up to the eighty-five-foot level of the lake. For the superstructure the slope is more rapid—one to three. The dam when completed will be a mile and a half long, 105 feet high, 100 feet wide at the top, and the total width at the bottom will be close to half a mile.

Of course the massiveness of the dam is its most impressive feature to the layman. But our engineers are more interested in, and proud of, the "spillway." As its name suggests, this is where the excess water from the lake will spill out.

The dam is divided near its centre by an isolated hill of solid stone. This not only gives added anchorage for the dam itself, but forms an excellent foundation for the spillway. And when you are dealing with a tropical lake you need a spillway which will stay where you put it. The waterways which run into the Chagres Valley—the bed of the future lake—are things of sudden and mighty passion. A freshet is recorded which rose forty feet in twelve hours at Alhajuela. The problem of handling these sudden excesses of water—the taming of the Chagres—is perhaps one of the most intricate, as it certainly is one of the most important, which our engineers have had to solve.

Ever since we took possession of the Canal Zone we have been at work surveying the watersheds which empty into the Chagres Valley. It has been the toughest and roughest job to which we have put our men. It has been impossible to carry our sanitary work into the extremes of the jungle to which their job had taken them. Every line on the contour maps you can see at the administration building means bitter hardship. *Machete* men had to cut out the jungle

Digitized by Microsoft®

foot by foot in front of the instruments. Sulphite of quinine was the principal article of diet. And even forty grains a day was not enough. Every two months or so the men had to come down river—in the bottom of native dugouts—to civilization and the hospital.

Besides the maps of all the watersheds, we have exact records of the rainfall during our occupation, and also the observations of the French for many years before. Our hydraulic engineers have figured things out to meet the contingency of three successive years which should each be as wet as the wettest on record or as dry as the dryest. The Canal will be able to handle traffic in either of these extreme cases—although they are so improbable as to be practically impossible.

The proper conservation of the water in the lake—the keeping of it down to the proper level during the nine months of rain, and up to level through the remaining dry season, when it is constantly going out through the locks and by evaporation, and very little coming in—depends on the proper working of the elaborate system of gates in the spillway.

When the Canal is in operation, the man in charge of this station will be in telephonic communication with the "fluvigraphs," the river-observation stations, back in the hills. If a cloud-burst at Alhajuela has produced a twenty-foot rise in the upper Chagres, he will know it at least five hours before the freshet reaches the lake, and he will have ample time to figure out just how much this flood will raise the surface of the lake, and how much he must open the gates to preserve the desired level.

And it is not the intention to waste these excesses which will flow over the spillway. They will be harnessed and turned by a turbine plant into electric power to run the gates and valves and towing apparatus of the locks.

Digitized by Microsoft®

Much of Gatun Lake will not be navigable for large boats, but we are dredging and cutting a channel forty-five feet deep, and from five hundred to one thousand feet wide, all the twenty-three miles from the locks to the beginning of the Cut at Bas Obispo. For the last five miles the hills crowd down closer and closer to the channel, then there is a rather sharp turn, and the steamer will enter Culebra Cut—the cañon we are cutting through the backbone of the Isthmus. This notch in the continental divide is nine miles long, from Bas Obispo to the lock at Pedro Miguel, where the ship will take the first step down towards the Pacific Ocean.

The French had dug down at Culebra to within one hundred and sixty feet of sea-level. But they were only digging an irrigation ditch in comparison to the immense ship canal we are at work on. The accompanying cross-section shows graphically how much more geography we are displacing then they planned to do.

In reading over the annual reports of the Commission one cannot escape the impression that we made a mistake at the very beginning in the way we began work in Culebra Cut—at least a mistake from the engineering point of view. Mr. Wallace, our first chief engineer, in response to popular demand, began at once "to make the dirt fly." Very probably he had explicit orders from Washington to this effect. So he scraped the rust off the old French machinery which he found in the jungle, and began in the Cut, where they had left off, using their little "excavators," some of them twenty years old, and their puny Belgian locomotives, which, beside the ones we are now using, look a comfortable size for a watch-charm. We at home who wanted the Canal built were cheered with the news that dirt was actually "flying."

Of much greater importance, Wallace, with his marvelous

Digitized by Microsoft®

ability to sense the magnitude of the undertaking, was frightening the first Commission with orders for a new railway, seagoing dredges, and modern steam-shovels. His requisitions were considered preposterous. The supplies which reached him were always overdue, often far from his specifications. But all this was a matter of dreary official correspondence, and the public knew little of it. The important thing for us was that work was under way. The annual report for the year ending December 1, 1905, states that 1,000,000 cubic yards had been removed from the Culebra Cut. If I remember rightly, we did some cheering when it was announced that the million mark had been reached.

But this hasty beginning is the thing for which Wallace is most severely criticised by engineers. The slogan of their clan is "low unit cost." The resuscitated French machinery was certainly uneconomical. Some of Wallace's excavation in the Cut cost $1.35 a cubic yard. And they say that if we had spent two solid years in preparation—in attending to sanitation, gathering and organizing the labor force, buying and installing the equipment—we could have removed all the dirt at the amazingly high speed and low cost we later attained.

Stevens, who succeeded Wallace as chief engineer, stopped work in the Cut. He began laying ninety-ton rails, building machine-shops which would keep the steam-shovels and big locomotives up to their highest pitch of efficiency, and installing compressed-air plants to supersede the costly hand-work on the drills. He left the dirt alone until he could attack it in the most economical way. There has been little change in the method of work he organized.

But the men whose outlook is broad enough to see more than the engineering phase of the work—the politicians—do not criticise Wallace on this score. They are quick to insist that the policy of "making the dirt fly" was the only

Digitized by Microsoft®

possible one. They recall that the Canal was not so popular in the early days as it is now, that they had to fight for every appropriation, that certain "lobbies" at Washington were ever on the *qui vive* to find flaws and start trouble, that the newspapers were flooded with wild stories of death and destruction—in short, that the problem of building the Canal was at first not one of engineering but of politics. "If we had not made 'the dirt fly' the first year," they say, "there would not have been any second year." And in this, I guess, the politicians are right.

But whether the first policy was right or wrong, the work is certainly booming to-day.

There are two ways of "seeing the Cut." You can hang your feet over the edge somewhere and look down on it as a whole, or you can go through it and see the details—gigantic details—one by one. If you are a Congressman, or something equally important, they will offer to send you through in a motor car with wheels fitted to the railway track. Don't let them. You are sure to get dust in your eyes, and you will whiz dizzily past the things you would like to watch and be held up in uninteresting sidings while endless dirt-trains go by. For, no matter how important you are, they will not give you the right of way over a dirt-train. If they held one of them up, it might throw a whole battery of steam-shovels out of stride, the dislocation would be felt twenty-five miles away on Gatun Dam; it might keep them from breaking the month's excavation record—and that is not to be thought of.

There is a grassy spot back of the Commission Club-house at Culebra where the red-bugs are not too numerous—an important condition. It is the best place I have found for a leisurely general view of the Cut. To the right are Gold and Contractor's Hills; the cut between them is the deepest of all. To the left you can see four or five miles through the

Digitized by Microsoft®

Cut towards Empire. And in front of you, away down, is the busiest part of the whole job. In the bottom and swarming on the sides is an army of gnomes hurrying hither and thither, doing a dozen different things, the nature of which you find it hard to determine unless you are a construction engineer, or have one at hand to interpret the scene.

One glance down into the Dantesque abyss and you will realize that those midgets of men are not doing the work. They are only arranging it for the monsters of steel whose food is fire and whose breath is alternate steam and black smoke. There are times when the wind dies down and the pall of their breath hangs so heavy that you can scarce see them. But through all the long day you can hear them roaring and shrieking over their prey.

I suppose it would be possible to estimate the number of "horse-power" which is busy down there in the steam-shovels and locomotives and compressed-air drills and compare it with the number of men at work. The ratio of one hundred horse-power in these machines to each man is probably under the truth. But I doubt if it would be possible to calculate the horse-power represented by the terrific forces of the dynamite which tears loose the ribs of the mountain—crushing the hillside to bits the steam-shovels can handle.

Fully half the men down there are serving the dynamite —drilling holes, placing the charges, stringing the wires. They shoot twice a day—during the noon-hour and at twilight. No one loiters in the Cut after the whistle blows. Labor trains pick up most of the men and hurry them beyond danger, some few clamber up the sides. An inspection squad takes a last look at the wires, and then runs for it. Some one away off somewhere outside the Cut presses a button. It does not matter much where you are on the Zone, you are pretty sure to hear the rumble, to feel the surprised

Digitized by Microsoft®

quiver of the earth, as the dynamite breaks up a new section.

A walk through the Cut is the most interesting thing one can do on the Isthmus. At close quarters the job becomes human. The men who run the machines carry union cards just like ordinary mechanics at home. And the machines themselves no longer look like mythological monsters born of fire and a great wind. A sign on their sides tells you that they were made up in the States by a man named Bucyrus or Lidgerwood.

A steam-shovel, on intimate acquaintance, develops a remarkable personal charm. You use the feminine pronoun in referring to them even more instinctively than to a ship. I think that custom comes from the old sailing days. Except for the inherited convention we would probably refer to a steamer as "it." But no one could question the gender of a steam-shovel. "Why," one of the men said, "she'll do anything for a man who treats her decent." She is not exactly good-looking, but mighty amiable. She grumbles considerably, and sometimes grunts and snorts in an unladylike way. But the steam-shovel man, knowing her whims, pets her a bit and says "Please," and up she comes with a load that fills a quarter of a flat car!

A betting man would lose endless money on a steam-shovel. At least, as I watch one, I find myself continually saying "I bet she can't handle that load!" But she always does.

We have to dig the Cut down to a grade forty feet above the sea, so that there will be forty-five feet of water at the eighty-five foot level. And, barring unexpected slides, we are seventy per cent. through with the excavation. At the two ends the Cut is down to grade, and at Empire, the present summit, near the middle, the steam-shovels are working at sixty feet above grade. The job is now so nearly completed that we are gradually reducing the size of the labor force and the number of shovels.

Digitized by Microsoft®

FROM THE WEST BANK, AND SHOWING THE BOTTOM PIONEER CUT.

Digitized by Microsoft®

The work of the drills does not offer much of interest. These machines are a relatively stupid lot. All they have to do is to bore a hole in the ground. Off somewhere outside the Cut engines are at work forcing air into the compressors. It is brought down, ninety pounds pressure to the inch, in iron pipes, and the drills rise and fall monotonously until the desired depth is reached; then they are pushed on a few feet and begin over again. There is no temptation to gambling in these machines; they are too evidently sure to win.

There are more thrills in watching the dynamite squad. Whoever is taking you through, after boasting that there is no job on earth where the consumption of dynamite is so high as on this Canal of ours, will also boast that there have been surprisingly few premature explosions, the Government, of course, taking much more pains to prevent accident than would be profitable for a private contractor. But, in spite of this reassurance, you will probably view the clean boxes—they look as innocuous as soap-boxes—with considerable awe. Each stick of dynamite is done up in brown wrapping paper. Undoubtedly, long experience has proved this to be the best way. But it certainly looks like an insecure, not to say undignified, way to treat dynamite. The men, with the lack of respect bred of familiarity, chuck the sticks about nonchalantly, poke them down into the hole, and ram the earth down on top of them with a cynicism which knocks the bottom out of one's stomach.

The wiring is done with great care. For one time a charge failed to explode, and the next day an unsuspecting steam-shovel ran into it. By an inexplicable coincidence, the tooth of the dipper hit the little fulminate cap. It was one of the worst accidents we have had. Once more some of our men sat up late at night and worked out a new system of wiring which makes a repetition of such an accident impossible.

But, in spite of all care, the bottom of the Cut is not the

Digitized by Microsoft®

safest place in the world. You are not likely to be run down by a speeding automobile, but that is about all that can be said for the place. The greatest excitement is caused by the "dobey" shots—the name is, I believe, an abbreviation of "adobe." Often the big blasts break off fragments of rock too big for the shovels and flat cars to handle. These are broken up by small charges of dynamite, pasted against them with sticky clay. One day you will hear very little of it. The next they will keep you side-stepping all the time. When the charge is in place, there is a warning toot-i-toot-too-o-o-o-oot from the steam-shovel whistle and everybody scampers. Behind the nearest shelter you hold your breath till the explosion comes and the whistle blows again and the danger is over. Sometimes there is little commotion from these "dobey" shots, and again they will throw a couple of hundredweight of stones away up into the air and make dodging lively half a mile away.

And when you are walking through the Cut you must keep one eye always on the lookout for trains—otherwise they will surely carry you out on a stretcher. There are dirt-trains moving everywhere; they charge you from in front, they make sudden and bewildering flank attacks, but the worst is when they creep up on you from behind under cover of the noise of a battery of tripod drills.

Somewhere, of course, there are responsible white men dispatching these trains, but you can only see careless-looking Jamaican negro flagmen. They are a type you see everywhere on the job. At every switch—and there is one every hundred yards—there is a shelter, made of four upright sticks and a sheet of corrugated iron. Under it there is a lolling subject of his Britannic Majesty from Jamaica. He is sure to be doing one of two things: either rolling a cigarette or admiring himself in a bit of looking-glass. They are not an especially beautiful race, but they seem to find endless

Digitized by Microsoft®

pleasure in looking themselves over and trying to part their hair. It would be hard to imagine persons who appeared less worried over their responsibilities. But suddenly something will galvanize them. They jump up, grab a red or white flag, wave it violently for a moment, and stick it up in a bracket. Then they return to their cigarette or their self-contemplation. In a few minutes they will have another burst of activity, taking down one flag and waving another. How their minds work is beyond all finding out. What it is that so suddenly interrupts their hair-combing or smoking I could not discover. They have no telephones, and do not seem to be watching any set of signals. But somehow there is a brain back of them. For they always wave the right flag at the right moment. These ineffectual-looking, dandified Jamaicans are very important cogs in the vast machine.

For the digging of Culebra Cut is, above all things, a problem of transportation. Big as they are by themselves, there is nothing very complex in the job of putting sufficient dynamite in place and shooting it, nor in the job of handling the dirt with steam-shovels. The problem which called for extraordinary brains—the nubbin of the whole matter—was how to get this vast quantity of spoil out of so narrow a cut. In order that it may be done at the lowest possible cost per cubic yard, it is necessary that each steam-shovel shall be working up to its maximum all the time. And for this, in turn, it is necessary that no loaded train shall ever be stationary. The instant the last car is filled the train must start, and not stop until it reaches the dump. And also the moment a loaded train has left, a line of "empties" must be ready, so that the steam-shovel will not stand idle. How this could be worked out in a ditch nine miles long and only 300 feet wide at the bottom was indeed a problem!

For a layman the details of the system are hopelessly complicated, but once the problem has been stated, there is new

Digitized by Microsoft®

interest in the view from above the Cut. Instead of a chaos of aimlessly moving trains one begins to see the outlines of a mighty plan.

There are about one hundred miles of track in the Culebra division—either in the Cut itself or ways to the dumps. For every mile of track there is one locomotive and about twenty cars. There is seldom as much as a three-minute interval between trains. Nothing short of chronometer-like precision can keep such a system from congestion.

The whole thing is further complicated by the variety of spoil the shovels must handle. Some of it is waste which goes to the dump, some of it is hard stone and can be utilized on the Gatun Dam or the Naos Breakwater. Always the right kind of a train—Lidgerwood flats or steel dumps—aimed in the right direction must be ready to serve each steam-shovel, according to the kind of dirt it is working on. There can be nothing haphazard about it. Each one of those moving car units must be in the firm grip of the dispatcher.

The prettiest feature of the whole system is that every loaded train is going down hill. Each steam-shovel is at work at the top of a grade which runs down either to the Pacific or Atlantic dumps. All the climbing is done by "empties." The saving in costs—the price of coal, on account of the long haul from the States, is high—gained by letting the loaded trains slip down hill is, in the total, immense.

The working out of this transportation problem in Culebra Cut was done by Mr. Stevens. And it is the proudest achievement of our engineers.

Between the Cut and the Pacific the problems of the Canal are only repetitions in simplified form of those which have been solved on the Atlantic slope. The three "Big Jobs"—the crucial points—are the Locks, the Gatun Dam, and Culebra Cut. But along the strip of land—forty miles long by ten

Digitized by Microsoft®

broad—there are other problems, small only in relation to the stupendous ones I have tried to describe.

Perhaps the strongest impression which one carries away from a prolonged visit to the Canal Zone is the immense variety of the work, the wonderful flexibility of our force. At home we think of it as an engineering job. Few of us realize that here our Government is making its first experiment in a nationally owned railway. But the Panama Railroad and Steamship Company, besides giving immensely valuable assistance to the Canal work, is carrying on a large and profitable commercial business with a degree of efficiency which is not surpassed by any system at home. The Commission is running a modern department store down here in the tropics which does a business of several million dollars a year, and "the cost of living" has not soared as far skyward for our people on the Canal Zone as it has in New York.

The recruiting and organizing of the labor force—over thirty-five thousand to-day, with their women and children —has been a sociological problem of many brain-racking complexities. It is necessary not only to make life in the jungle possible for our men—the sanitary department has attended to that—but also to make it attractive. The Commission has had to go into the amusement business. An employee can bowl on an alley built by the Government or play pool on a nationally owned table. He can have his saddle horse cared for in the Commission corral. He can take his sweetheart to a picnic at San Lorenzo on one of our Government launches, or he can dance with her in a Government ballroom to national airs played by the Commission band.

These are only samples of the numerous "side issues," the solutions of which were integral parts of the Canal building.

Digitized by Microsoft®

Before very long the ships of the world will be passing through our Canal. And we will have to our credit a national achievement over which the old eagle may well spread and flap his wings. We Yankees are reputed to be boasters—and we all think we have a right to boast. We own half of an unusually big waterfall at Niagara. We have some mountains out West which rival the Alps and a bit of fine grain land in between. But we have never had an accomplishment like this Canal to boast of before. Something we, as a nation, have done ourselves—and not entirely for ourselves.

Digitized by Microsoft®

CHAPTER XXXIV

EXPERIMENTS IN COLLECTIVE ACTIVITY

A VISIT to the Isthmus of Panama will make any American proud of his nation. The Canal is the greatest undertaking of the age. Its success is assured. Even jealous foreigners agree that—in grandeur of conception, intricacy of detail, and efficiency of execution—it is a national achievement without parallel. Yet to admit pride in this enterprise is a grave heresy to what we have been taught to revere as the very spirit of Americanism. No great work of modern times has been carried on with as little of that "individual initiative" which we are wont to consider the basic principle of our industrial progress.

The "political economy" which most of us studied in our youth, the editorials we are accustomed to read, are explicit on this point. Every warship added to our Navy is the text for countless sermons on how much quicker and cheaper and better work can be done by private corporations than by the Government. We are in the habit of applying Spencer's dictum, "that government is best which governs least" most emphatically to industry. Ninety-nine out of a hundred of us believe that in business, at least, "individual initiative" is superior to "collective enterprise." We go a step further and believe that in some definite way this "individual initiative" is connected with the expectation of money gain. If we want to get the best out of a man we expect to offer him a share in the profits of the concern.

The Panama Canal is a government job. It is being dug

Digitized by Microsoft®

Months	Receipts	Expenses
July	$124,542.19	$122,206.33
August	177,018.83	119,195.60
September	119,481.72	116,993.77
October	119,115.78	120,894.42
November	115,445.75	117,588.77
December	120,517.48	122,190.99
Total	$716,121.75	$719,069.88

"The rations at the messes for European laborers have been increased, among the additions being wine three times a week, instead of twice a week. There was an increase in the number of men eating at these messes in December of over three hundred, the total at the close of the month being 3,375 men, out of a possible 4,800, which is the number of European laborers in Commission bachelor quarters."

The annual report of the Isthmian Canal Commission for 1907 gives this account of the Subsistence Department:

"Fifteen hotels were operated for white Americans, where good wholesome meals were furnished for 30 cents each.

"Eighteen mess-halls are operated for the Europeans, where a day's board is furnished for 40 cents. The stewards and cooks at these messes are usually Europeans, and a meal peculiar to the tastes of the men boarding there is served.

"There are in operation 23 kitchens for West Indian laborers, where a day's board is furnished for 30 cents.

"The number of meals served during the month of June, 1907, is as follows: Hotels, 197,419; messes, 286,155; kitchens, 456,765, or nearly a million meals for the month.

"The subsistence operations are merely self-supporting; it is not the purpose to make a profit."

Since this was written the labor force was increased about fifty per cent.—to 35,000—and is now decreasing as the bulk of the work is finished.

Digitized by Microsoft®

It is an eloquent tribute to the Government's cuisine that 3,375 of the 4,800 European laborers—who are free to eat where they will—prefer the mess-halls to anything which "individual initiative" has to offer. There are three "club" messes run by unmarried white men in opposition to the commission hotels. Perhaps a hundred Canal employees use them. But in spite of the large income from the "bar" these private messes are more expensive and very little better than the government's meals.

No private contractor in the world feeds his employees as well as the Isthmian Canal Commission. There are very few of the employees who ever ate better meals, slept in cleaner, more comfortable beds, or amused themselves in more wholesome clubs than those furnished by the government.

This is true of the American mechanics and clerks, whose standard of living is high in the States. It is more strikingly true of the laborers—both European and West Indian. A Barbadian negro at home earns a shilling a day during the few weeks when the sugar is planted and harvested and not much of anything the rest of the year. He lives in a shack of corrugated iron, dry goods boxes and thatch, and eats plantains. In the Canal Zone he earns a dollar a day —seventy cents clear above the cost of three square meals. His lodgings are free. There is no comparison at all between the lot of a West India negro boy on the Canal and one who works in the neighboring banana fields or mines.

Along the same line of paternalism—but of more fundamental significance—is the governmental attitude in its industrial relation to the labor force.

Of greatest importance to the working man is the frank recognition and encouragement of labor unions. A Socialist administration could not be more cordial to organized labor.

Digitized by Microsoft®