A well-organized, paid fire department was maintained from the beginning and it was supplemented by volunteer companies in many places. In a number of towns fire engines of the latest automobile type were installed. Out of 300 fire alarms in 1912, nearly 200 were for fires in Government property valued at one and three-quarters million dollars, while the total loss was only $5,000.

The school system of the Canal Zone was laid out along the same lines that characterized all other activities for the welfare of the people who were engaged in building the canal. It was founded by Charles E. Magoon when he was governor of the Zone, and in 1912 had 75 teachers and officials, with an enrollment of 2,105, of whom nearly 1,200 were white. The standard required of the teachers was maintained at a high point. Of the 48 white teachers employed in 1912, 13 held degrees from colleges and universities, 19 held diplomas from standard normal schools, and 12 others had enjoyed at least two years of normal teaching. The white children on the Zone were given free transportation to and from the schools. Those who had to go on the railroad to reach their schools were given free passes. Those who attended the schools in their own neighborhood were gathered up in wagons and transported to school.

The system of roads for the parts of the Canal Zone adjacent to the canal itself was built mainly by convict labor at comparatively little cost. They have been useful to the natives in getting their few products to market, and during the
years to come will be available as military roads for use in the defense of the Zone. These roads are built according to the best American standards and are almost the only real roads in the entire Republic. The Panaman Government has extended one road from the Zone line to old Panama, and for a few miles into the interior, but aside from this national road activities have been few indeed.

The American road from Panama to the Zone boundary, leading toward old Panama, over the savannas, is the pleasure highway of the Republic. It is practically the only road in the Republic where one drives for pleasure, and here every automobile in Panama City is pressed into service during the late afternoon and the evening. The elite of the capital city own summer homes along this road. These homes are by no means as elaborate as the summer homes along the Hudson, but the fact that they were seated amidst veritable gardens of flowers gives them an air of beauty and restfulness attractive even to the most blase traveler.

The water-supply system of the Canal Zone consists of a number of reservoirs on the watersheds of the Isthmus where no human habitations are allowed, and where trespassing is forbidden. The waters are examined for bacteria and other properties once each month, and a report thereon is made to the proper officials. Twice each month a physical examination of each reservoir, and the land from which it receives its water, is made by inspectors who report all conditions to the sanitary and other authorities.
If there is any sign of contamination, steps to overcome the trouble are taken immediately.

Where the reservoirs fill up to the spillway the waste water is not allowed to go over the top, but is drawn out from the bottom in order that the under layers of water may be the ones wasted. Water drawn out for domestic purposes is taken from the top wherever possible. The water has a somewhat unpleasant taste to people newly arrived upon the Isthmus, and in some cases serves to disturb the digestive tract, but to the people who become accustomed to it the unpleasant flavor, due to the presence of decayed vegetation, is forgotten, and the workers on the Canal Zone frequently declare they miss the Panama water when they go back to the States.

The permanent Government of the Canal Zone will be, in the main, merely a miniature of the government during the construction period. The law providing for the operation of the canal makes this Government entirely subsidiary to the main purpose for which the canal was built. It provides that when war is in prospect the President may appoint a military officer to take charge of the Canal Zone, and to conduct its affairs as they might be conducted were the Zone nothing more than a military reservation. The Government will have its headquarters at the Pacific end of the canal where Balboa, the principal permanent town on the Isthmus, will be located. This little American city will be Government-built and Government-owned, and it will be the smallest of all the world's capitals.

Under the new Government all old laws, not
specifically repealed, or contrary to the new ones, will be continued in force. All executive orders issued by the President, and all orders and ordinances promulgated by the Canal Commission, during the construction period, not inconsistent with the act creating a permanent form of government, are made laws of the Canal Zone to continue as such until specifically repealed by act of Congress.
CHAPTER XXII

CONGRESS AND THE CANAL

While the Congress of the United States ever has been charged with a lack of appreciation of the needs of the executive branch of the Government, spending money foolishly here and being niggardly with its appropriations there, the history of the legislation under which the Panama Canal was undertaken and completed shows that American lawmakers backed up the canal diggers in every necessary way.

One may read in all the hearings that were conducted, both on the Isthmus and in Washington, a desire on the part of the congressional committees having to do with the canal matters, to promote the work, and to enable those directly concerned in its execution to carry out their plans without hindrance.

It is probable that no project ever carried to completion under the aegis of the United States Government was studied more carefully by the legislators than the Panama Canal. There was a standing invitation from the Isthmian Canal Commission to members of the Senate and House of Representatives to visit the Isthmus, collectively or individually, for the purpose of acquainting themselves with the character of the work and its needs. This invitation was accepted by a large
percentage of the members of the House and Senate who served during the construction period. When a member of either branch of Congress visited the Isthmus and saw there the character of the work being done, and the spirit of the men behind it, he never failed to return an enthusiastic supporter of the work, ready by vote and voice to contribute his share to the legislation needed.

When the final Isthmian Canal Commission came into power a policy of absolute candor with Congress was adopted. When the annual estimates for appropriations were submitted, they came to Congress with the understanding that they represented exactly what was needed, no more and no less. Instead of recommending from 10 to 25 per cent more than they hoped to get, upon the assumption that Congress would scale down the appropriations—a policy long followed in many of the bureaus of the Government—the canal officials asked Congress to understand from the beginning that the figures they submitted had been pared down to the bone. The result was a happy one. Congress learned to depend upon the figures and to make its appropriations accordingly; consequently, the work was never handicapped by appropriations deficient in one branch and overabundant in another.

Congress for several years made its appropriations for building the canal under the assumption that it was to cost about $145,000,000, exclusive of government, sanitation, purchase price, and payments to the Republic of Panama. It was not until 1908 that a straightforward, definite effort was made to fix the ultimate cost. Ex-
perience showed clearly that all hands had hopelessly underestimated both the total amount of work to be done, and the unit cost of doing it.

After a year's experience of carrying forward the work at full swing, the commission decided to face the situation frankly and attempt to ascertain exactly what might be expected. This investigation disclosed the fact that the estimates of the amount of work to be done were a little over 50 per cent short. Under the experience of one year's work it was calculated that the total cost of the canal would be $375,000,000, including sanitation, government, and payments to the New Panama Canal Company and the Republic of Panama, instead of $210,000,000, as these items would have aggregated under the estimates made in 1906. This was about one and a half times as much as the estimated cost of a sea-level canal. But, although Congress had fixed the limit upon the basis of an aggregate cost of $210,000,000, it cheerfully faced the restatement of the anticipated cost, and finally set the limit at $375,000,-000.

From that day forward the great effort at Panama was to live within this limit, in spite of the extra work required. While Congress might have been willing to increase this limit, in view of the fact that an additional 97,000,000 cubic yards of material had to be removed, it was not asked to do so. The engineers desired above everything else to stay within their own estimates, and they did the extra work with money saved by increasing the efficiency of the force.

The first law providing for the government of the
Canal Zone was enacted in 1904. It gave to the President and those appointed by him the right to govern the Zone and imposed the duty "of maintaining and protecting its inhabitants in the free enjoyment of their liberty, property, and religion."

In 1907 an effort was made to reduce wages on the canal. The sundry civil bill of that year carried a provision that wages on the Isthmus for skilled and unskilled labor should not exceed more than 25 per cent the average wage paid in the United States for similar labor. This proposition was urged by Representative James A. Tawney, of Minnesota, then chairman of the Appropriations Committee of the House. When it came to a vote the wages fixed under Chief Engineers Wallace and Stevens were upheld by a vote of 101 to 10. Congress took the ground that the canal could be built only by the most liberal treatment of the people who were building it.

At another time a provision was inserted in the appropriation law establishing the 8-hour day law for American workers on the canal. A fight was made by the American Federation of Labor and other organizations to make it apply to the common laborer as well as to the Americans, but this was unsuccessful. The 8-hour provision did not work well, since the foremen and superintendents were permitted to stop work after 8 hours, while the laborers under them had to work an hour longer. This was later rectified by providing that the 8-hour law should not affect foremen and superintendents in charge of alien labor; and thus was overcome the difficulty of having an army of common laborers at work.
an hour or so each day without superintendence or direction.

In 1906 it was provided by a joint resolution of the Senate and House that the purchase of material and equipment for use in the construction of the canal should be restricted to articles of American production and manufacture, except in cases where the President should deem prices extortionate or unreasonable. This provision undoubtedly increased by many millions of dollars the cost of the machinery with which the canal work was executed. While some dredges and other equipment were purchased in Europe, foreign purchases were the exception rather than the rule. When bids were submitted there were times when European prices of dredges were placed at less than $700,000, while American prices for the same dredges would amount to more than $1,000,000. When there were such marked difference in bids the awards were made to the European manufacturers.

Although the construction of the canal was authorized by the Spooner Act in 1902, it was not until 1906 that Congress expressed its views in legislation on the question of the type of canal that should be built. It was then that it declared the canal should be of the general lock type proposed by the minority of the board of consulting engineers, which was a complete approval of the plans urged by President Roosevelt. In order to make certain this decision as to the type of canal, a provision was incorporated in the appropriation bill of that year, setting forth that no part of the sums therein appropriated should be used for the construction of a sea-level canal.
Congress was always willing to aid the engineers in meeting unforeseen contingencies by giving them unusual liberties in the application of moneys appropriated. It was provided that as much as 10 per cent of any appropriation might be used for any of the other purposes for which money was appropriated, thus allowing the necessary leeway to insure a systematic progress of the work throughout all its features. This provision many times came to the rescue of the chief engineer, when he found that more money was needed at one point and less at another than had been estimated 16 or 18 months before.

While President Roosevelt was in the White House Congress gave him abundant authority over all phases of the task at Panama. He was empowered to do almost anything he thought expedient for hastening the work. For instance, in 1907 when he considered building the canal by contract, Congress provided that nothing in the Spooner Act should prevent him from entering into such contract or contracts as he might deem expedient for the construction of the canal. This practically gave him full authority over the limit of cost and the methods of building. He was thus the sole judge of the character of the contracts that he might make. No President in the history of the country ever was vested with fuller jurisdiction and control over a great matter than was President Roosevelt in this case. That he did not enter into such contract was due mainly to the reports made to him by Col. George W. Goethals, who had just been appointed chief engineer.

In 1908 the Secretary of War was authorized
to purchase for the Panama Railroad Company two steamships of American registry of not less than 9,000 gross tons each, the cost of which should not exceed $1,550,000, for the transportation of supplies, equipment, and material, and of officers and employees of the Canal Commission. These ships, when no longer required for that service were to be transferred to the Secretary of the Navy for use as colliers or other auxiliary naval vessels. These ships carried the bulk of the cement used in building of the great locks, and more than paid for themselves in the saving of transportation charges which would have been levied by private carriers. In the appropriation act of 1909 Congress decided that the carrying of marine or fire insurance was bad policy for the Government, and provided that no such insurance should be carried by the Panama Railroad Company, but that it should be reimbursed for any loss it might sustain from the appropriations made by Congress for the building of the canal.

There were a number of committees in Congress which dealt with canal legislation. Principal among these were the Committees on Appropriations of the two Houses, the Committee on Interoceanic Canals of the Senate, and the Committee on Interstate and Foreign Commerce of the House. The Appropriations Committees dealt with the question of appropriations. The House Appropriations Committee usually made a trip to the Isthmus before each session of Congress. There it would hold hearings, questioning closely every person connected with the work who had made estimates for its benefit, its members seeing
AN ITALIAN
A TIMEKEEPER
A SPANIARD
A NEGRO BOY
A FEW OF THE MANY TYPES ON THE Isthmus
TESTING THE EMERGENCY DAM, GATUN LOCKS

COL. HARRY F. HODGES
with their own eyes the projects for which each individual appropriation was asked. The practice was, during these visits, to go over a part of the work and then to hold sessions of the committee for the purpose of asking questions about that phase of the undertaking. The testimony was taken down by an official stenographer and printed for the use of every Member of Congress. A few months later the chairman and chief engineer would make a trip to Washington and furnish the committee with such supplementary information as the intervening time might have disclosed.

The Senate Committee did not visit the Isthmus as frequently, as it usually found that the hearings held by the House Committee afforded it sufficient information on which to predicate its action. All matters having to do with organization traffic, or general laws for the Canal Zone, were handled by the Committee on Interoceanic Canals of the Senate and the Committee on Interstate and Foreign Commerce of the House. It was the latter committee, under the chairmanship of Representative William C. Adamson, of Georgia, which framed the permanent Canal Law, under which the Isthmian waterway will be governed and operated. The big fight in Congress over the type of canal was waged before the Senate Committee on Interoceanic Canals. The records of this committee, together with the additional records in the hands of Congress, constitute one of the most extensive accounts of a great work anywhere to be found. The official literature of the Panama Canal is almost as voluminous as the canal is big.
Although Congress usually left the details of canal construction to be worked out by the Canal Commission and the President, from start to finish it showed a determination so to deal with the big project that it could look back over the work with the feeling that it had contributed its share to the triumph of the undertaking.