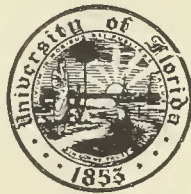


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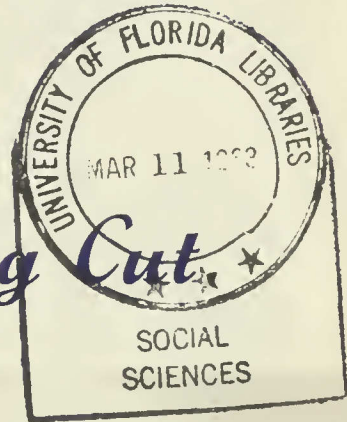


PANAMA  CANAL

REVIEW



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 Blasts Aimed Safely
 Darien Gap Route
 Locks Overhaul



Big Digger Cutting Cut



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Status of Major Canal Improvements



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WIDENING OF GAILLARD CUT: Work began in January on the third, final, and largest phase of this \$43.7 million program which started in 1959. In the Las Cascadas-Bas Obispo Reach project, excavation will total approximately 17 million cubic yards. Bids are to be asked in May for the Zone II work (below elevation 95), with contract completion scheduled in fiscal year 1966.

LIGHTING BANKS OF GAILLARD CUT AND CANAL APPROACHES: There now are 550 lights on the east bank, where work is completed, and 360 on the west bank, with fixtures on the west bank to be removed from their present location and reinstalled as widening is completed. Completion of the banks lighting will mean installation of an estimated 1,100 fixtures. A total of 812 fixtures on the locks give approximately 2-foot candles illumination on lock wall surfaces. Approximately 3,000 feet of Canal are lighted on the Atlantic and Pacific approaches, with 104 lights on the Gatun approach and 129 on the Miraflores approach.

NEW LOCOMOTIVES FOR LOCKS: Tests are being resumed after modifications to the test locomotives delivered in January 1962. The new tests are expected to be completed by April to enable a June go-ahead order on the \$5.9 million contract for 59 locomotives and 3 cranes for completion in November 1964.

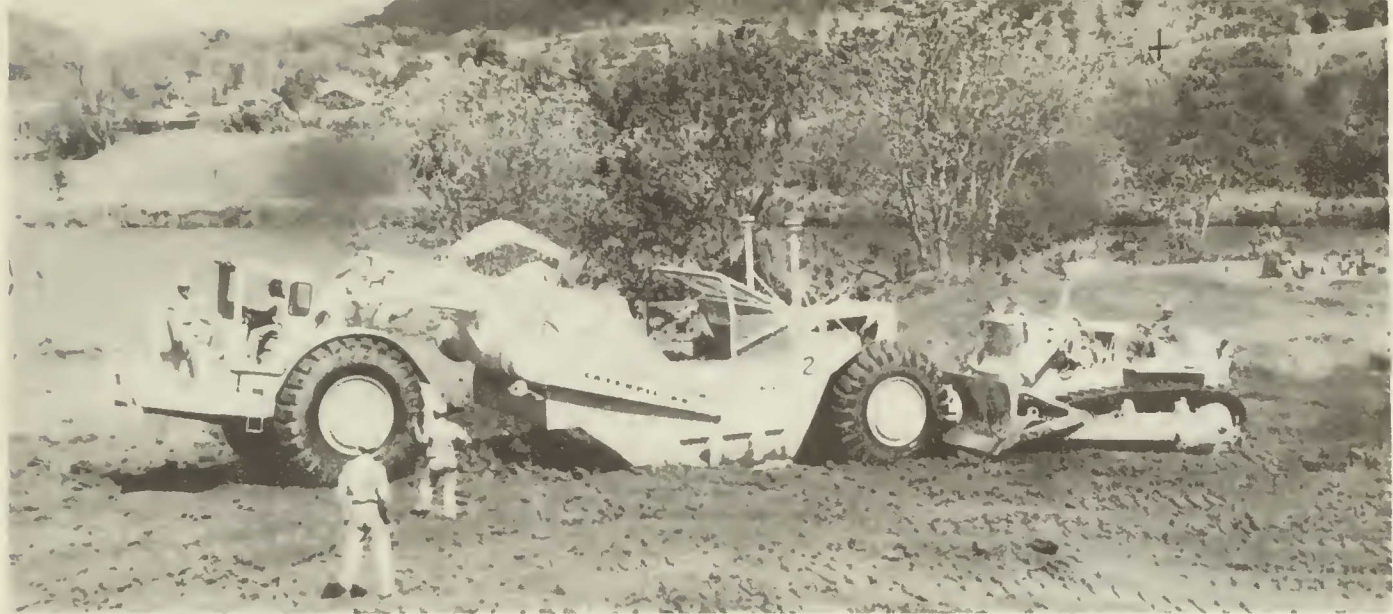
MARINE TRAFFIC CONTROL SYSTEM: Design is approximately 90 percent completed and the contract for the voice radio system was awarded in December. Installation of this by Canal personnel is scheduled the latter part of this year. Design of the "sensing" system for exact ship location, monitoring, and scheduling is to be completed during the next fiscal year, for purchase and installation within the following 2 years. Total cost is estimated at \$2.4 million.

NEW LOCKS MAINTENANCE METHOD: Work is in progress now at Miraflores Locks, and scheduled for Pedro Miguel Locks in 1965 and Gatun Locks in 1966. Lock lane service outages will be reduced to about 24 hours by unhinging gate leaves, using a floating crane, floating the gate leaves to a remote drydock for repair, and rehanging them with a crane, and through use of cofferdams to do hollow quoin work which has in the past necessitated dewatering of locks chambers, with outages of as much as 30 days prior to 1959.

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WELL OVER 300 cubic yards per scraper per hour under ideal or favorable conditions—that's the earth-moving accomplishment already marked up by the scrapers of the type pictured on our front cover. They're the biggest power scrapers ever used on any Panama Canal projects, each with heaped capacity of 44 cubic yards. For more about them and the channel widening project, see the article on page 3. Success of safety measures on blasting, how blasts can be "aimed" and pictures of results are the subject of a companion article on page 4.



One of the 44-cubic yard scraper units at work, being assisted by a D-9 "push cat." Note factory instructor in front of cab as operator-in-training handles the machine.

Canal Widening Nears Final Phase

FOUR OF THE biggest power scrapers ever used on the Isthmus are eating away at the west bank of the Canal near Gamboa—taking as much as 44 cubic yards at each bite.

They're at work on the start of the final phase of the project for widening the Canal channel from 300 to 500 feet—the 3.1-mile Bas Obispo-Las Cascadas Reach. Active earthmoving on the project started January 21 and is scheduled for completion October 30, 1964.

Largest power scrapers ever before used on any Canal Zone projects have been only about half the size of the ones at work on the \$2 million contract for removal and disposal of approximately 4½ million cubic yards of earth and rock

on this project. The unit price is slightly less than 45 cents a cubic yard.

Moretti-Harrison, the joint venture Miami, Fla., firm which has the contract for the work, decided on power scrapers as the principal equipment for accomplishing the job, in which there is a lower percentage of rock than in previous widening projects.

Importance of completion of the widening to better serve shipping is brought into sharp focus by transit figures:

Vessels of 80-foot beam and above increased from 64 in fiscal year 1955 to 457 in 1960, approximately 614 percent. In fiscal year 1962 there were 541, a 6.3 percent increase over the 509 in 1961. This indicates the increase in

requirements for clear-cut passage transits.

Zone II work (below elevation 95) on the current project is slated for completion in 1966 or 1967, depending on availability of funds for capital improvements. It involves removal and disposal of approximately 12 million cubic yards of earth and rock.

Construction equipment for the Bas Obispo-Las Cascadas work arrived January 18. A landing craft-type vessel of the West Indies Shipping Line, the *Inaugua Cloud*, arrived at the mouth of the Mandinga River across the Canal from Gamboa. Here, on an earthen ramp prepared in advance, the cargo of equipment was unloaded under its own

(See p. 5)

As landing craft touches shore, mechanics and operators hurry aboard to begin unloading equipment.



Mechanics begin final assembly of one of the big scrapers as unloading proceeds.



Blasts Aimed Safely

DURING the 8 years the Panama Canal Widening Program has been in progress powerful drills have bored thousands of holes into the rocky material along the Canal banks.

These holes' total length has amounted to more than 4 million linear feet—more than the distance from New York to Chicago.

Into them more than 9 million pounds of dynamite have been loaded and fired.

From the resulting blasts, 13 million cubic yards of hard material has been broken sufficiently to permit its easy removal from the Canal banks.

Planned loading and detonation can "aim" blasts. This is done by millisecond delays in time of explosion of charges. In such a blast as the one pictured here, for example, if there were two charges, the one on the side away from the channel would be detonated a fraction of a second earlier than the other charge. Thus, the first charge has time only to loosen up the earth and rock around and above it before the second charge is detonated, the force of the second charge kicking out the material loosened and started on its way by the first one.

One of the most remarkable features of the blasting program is the excellent safety record which has been made and sustained by the various contractors.

Use of so much dangerous material so close to the busy Canal waters meant extraordinary safety measures had to be taken for every phase of the work. Foremost was safety of the passing ships. It was imperative that no action connected with the widening work should endanger or delay any vessel in transit through the Canal.

This meant being constantly on the alert to avoid knocking large rocks or trees into the waterway, being sure that the powerful flood lights used for night work did not blind pilots guiding the ships, and making certain beyond all reasonable doubt that effects of blasting would not endanger or impede ships' passage.



A high, badly fragmented "fly rock" wall standing almost vertically above the Canal waters. This must be broken (blasted) in such a way as to minimize the amount of fractured material which falls or is thrown into the Canal. Also shown are a passing ship and the contractors' equipment. These must be carefully considered before detonation of a blast.



The blast of the rock wall. Note how the planned loading and detonation has caused the rock to be thrown away from the Canal waters and back into the quarry pit, and the safe location of the contractors' equipment and absence of any craft in the Canal.

Immediately after the blast shown above. Note how all the broken rock has been thrown safely onto the pit floor.



Canal Widening

(Continued from p. 3)

power and assembled in a servicing yard.

The new equipment, all made by Caterpillar Tractor Co. of Peoria, Ill., represents the latest and finest of its type available.

The four huge scrapers with heaped capacity of 44 yards, each with dual powerplants, mounted on both front and rear, are supported by two D-9 tractors and two D-8 tractors. The tractor units have blades for bulldozing, push pads for assisting the scrapers in loading, and huge teeth to rip and fragment the rock to a size within loading capacity of the scrapers.

Portable light plants, compressors, welding machines, and a variety of trucks were included on the shipment. All were unloaded without incident, and work of final assembly and adjustment of the scraper cutting and loading mechanisms was done. The units now were ready to go into production.

For a couple of weeks prior to arrival of the excavating equipment, the contractor had been clearing the areas of excavation and making access roads to the spoil dumps.

With the manufacturer of the equipment concerned that the machines give a good account of themselves, several representatives of the Caterpillar organization were present when the equipment arrived. They remained until it was operating satisfactorily and the contractor's personnel were proficient in its operation and maintenance.

Work accomplished during the relatively short time the scrapers have been in operation indicates they have the capacity and capability of easily meeting the contractor's schedule and should enable the firm to complete work well within the 700 calendar days which the contract allows.

C. McG. Brandl is Panama Canal project engineer for the widening work. Blair Henderson is project manager for Moretti-Harrison and William H. Edgen is the firm's job superintendent. Thirty-four men are employed by the contractor for the project, and employment probably will average around this figure for the duration of the job.

Due to the natural hazards of the job site, poor visibility, limited roads or trails, hazards of the work, and to avoid interference with the contractor's operations, the contract work area is strictly off limits to everyone except those actively associated with the work in progress.

Keeping 'em Rolling...

THE PANAMA CANAL has more than half a million dollars worth of bronze rollers which keep the rising stem valves operating smoothly.

Each rising stem valve rides against two roller trains. There are 56 of these valves at Gatun Locks, 36 at Miraflores, and 24 at Pedro Miguel for a total of 116. That means a total of 232 roller trains or 14,152 rollers in use at all locks. Plus a reserve supply of used rollers suitable for re-use.

Remachining makes the rollers useable again, with results similar to Chicago packing houses' use as by-products of everything but the squeal of the pig.

The rollers, each 4 inches in diameter and 6 inches long, are initially bought with 1¼-inch diameter trunnions. When the trunnions become worn, they are removed and the trunnions are remachined to 1½-inch diameter. When the trunnions become worn again, the rollers are removed and a recessed bearing is cut in each end of the roller. Then the rollers are useable once more.

They receive little wear on the rolling surfaces. Those with appreciable wear have the rolling surface remachined so that they can be used again.

As a result of this reconditioning system, very few new rollers have been required during recent locks overhauls. Approximate cost of a new roller, fully machined, is \$35. No new ones have been purchased for many years.

Worn rollers, when removed, are put aside and stored until it is worth while to remachine a number of them at the same time so that complete roller trains may be built with rollers of the same size remachined trunnions or with the same size remachined roller surfaces— or both.

On the basis of present experience, the life of a roller train averages about 6 years at Miraflores Locks, as long or a bit longer at Pedro Miguel Locks, and a maximum of 5 years at Gatun Locks, with some going out earlier.

Many roller trains are built in advance of overhauls so the ones in service which have deteriorated can be replaced by entire new units. This avoids the delay which would result if all the remachining and rebuilding had to be done during an overhaul.



This is a section of a roller train, a series of rollers which keep rising stem valves in the locks culverts rolling, up or down, in spite of the heavy pressure of water against them.

Three of the rollers which make up the trains. There are 61 rollers to each train, each train is 27 feet long and 2 are required for each rising stem valve. Finger points to worn trunnion, hand indicates relative size of roller.





A 35 mm. sound filmstrip projector now is available from the Safety Branch for worker and supervisor training purposes. Henry M. Winter, Safety Officer, is shown at the projector, partially obscured by the LP record player. Records are synchronized with a strip of still movie shots. Picture and record can be stopped to emphasize points or allow for questions from the audience.



The filmstrip-projector units in use at a meeting of the Maintenance Division Northern District Safety Committee. A shadow box screen permits showings in undarkened rooms. This committee was the first organized, having been started late in 1940 by the late Nelson Magner when work was in progress on the dam on the spillway at Gatun. Edgar D. Miller, Camp Bierd, one of the original members, still is on the committee, which includes public works, building maintenance and water and lab branch personnel.

Preventing 'Unavoidable' Accidents

"THE ONLY WAY to get some of 'em down is to shoot 'em down."

This comment capsulized one observer's reaction to the degree of participation and interest evident in a recent Safety Committee meeting.

When some committee members get the floor, they're far from reluctant to express their views on safety hazards and proposed solutions. And they're not shot down, for active participation is one of the keys to effective safety programs.

Nearly 60 Panama Canal safety panels are at work regularly, with meetings scheduled monthly, to make their jobs, yours, and mine, less hazardous. Unit committees' membership ranges up to about 25. At any one time, more than 300 persons, supervisors and employees, are engaged part time in the safety program.

Supervisors' safety program involvement is necessarily almost continuous. On the employee level, job and safety training is the goal, with a turnover of committee personnel about every 6 months, for two reasons: Greater direct interest by more employees in safety and to keep interest and training channeled into concentration on problems in the employees' own fields.

Supply and Community Service Bureau agencies have 22 safety committees, Engineering and Construction Bureau has 10, Marine Bureau 9, Transportation and Terminals Bureau 7, and

the rest are scattered among other units of the Canal organization.

The Safety Branch has visual training aids ammunition for safety personnel to use to meet almost any needs, with main reliance placed on 16-mm. sound films and 35-mm. sound film strips, supplemented with use of safety graphs not requiring a projector, sound equipment, or operator.

Subject fields range from driving, first aid and fire hazards through materials, office, protective equipment and railroading to shopwork, stevedoring and supervision. The basic listing of films available from the Safety Branch contains 26 pages and there are 18 pages of film strips available. In addition, other titles can be obtained on a loan basis from the huge Army film library lists.

Minutes are kept on safety committee meetings and votes taken on recommendations to be made in regard to specific local hazards and problems. Requests for action along certain lines can, if desired, be kept anonymous in the minutes, which go on to supervisors' meetings for action.

Some committee meetings are formal to the extent of opening with prayer, others more informal. Local ground rules prevail. Following the training portion of the meeting, judgment is passed, after discussion, on whether recent local accidents were avoidable

or unavoidable. If it isn't obvious that an accident was unavoidable, a mere statement to that effect isn't accepted by the members without challenge. There may be and often are suggestions by the members or instructors as to how "unavoidable" accidents could have been avoided.

Pre-film showing true-false tests may be conducted, followed by similar tests after showings, to see how well points have gotten across. Pre-film papers aren't collected, or identified, but the tests and their review let the instructor and the committee members know how well or ill-informed members were beforehand in the field with which the film dealt.

Plans can be prepared, in advance, of what the films are to teach and how, including audience participation and directed discussion. Highlights can be selected in advance to be further expanded during discussion.

Accidents are unplanned events that take place in what should be orderly work procedures. They are costly in man-hours of work lost, in disablement, sometimes permanently, and in cost to the victims via pay loss. The safety program and safety committees' goal is to substitute foresight for hindsight and try to "plan" in advance what could happen, so that workers know how to "plan" to eliminate accidents from their jobs.

Big Step Taken Into Darien Gap



Through a land of the past, a road into the future. The first 22-mile link, built with United States Point 4 help, from Chepo to Cañita.

"SOONER OR LATER we'll have it," declared Engineer Tomás Guardia, Jr., director of the Darien Subcommittee, who for many years has been a supporter of the project for construction of the Pan American Highway through the southern area of Panama, over the Darien Gap—a barrier that many consider insurmountable.

Here some 450 miles of well-nigh impenetrable jungle region will have to be cleared. More than half that mileage is in Colombia.

"The most important step has been taken," he said, "in awarding the contract for the definite construction plan to the firm of Brown & Root, Inc., of Houston, Tex. (Brown & Root is represented in Panama by Horacio Clare & Associates, and in Colombia by Vialidad, Ltd.)

The highway would extend through extensive and fertile valleys and would pass through the basins of the Bayano, Chucunaque, Tuira, and Balsas Rivers in the Panama portion of the project.

Four field crews have been working since January in Colombia, and three others started work in Panama last month.

Cost of the project will be about \$100 million when completed. The road soon will extend from Chepo to the agricultural region of Cañitas, a strip of about 22 miles constructed jointly by Point Four and the Ministry of Public Works of Panama. The former contributed the heavy equipment, and the latter paid the laborers. The Darien Subcommittee had charge of the technical aspects, inspection, and coordination.

For the formal studies now under way, the United States agreed to contribute double the amount apportioned by the Latin American countries collectively, up to \$2 million.

Six large bridges will be necessary, three in Colombia and the other three in Panama. Largest of all will be the bridge over the Chucunaque River, near Yaviza, Darien.

The topography is more rugged on the Colombian side of the border, where major earth-moving operations will be required as well as construction of graded roadbeds.

Besides Engineer Tomás Guardia, Jr., the members of the Darien Subcommittee include Engineer Tomás Guardia, Sr., Engineer Jorge García Tellez for Colombia, and Engineer A. F. Chiglione for the United States.

The difference in the designations of Inter-American Highway and Pan American Highway lies in the fact that the name Inter-American Highway is applied to that section from Mexico to the Isthmus of Panama, and is under a special financing plan, while the Pan American Highway unites Alaska with Patagonia.

Great assistance to the project has been given by the Inter-American Geodetic Service (IAGS), which has its headquarters at Fort Clayton, C.Z. The IAGS has contributed, among other items, portable communications equipment, work instruments and equipment for use in the jungle, and has supplied aerial photographs and reconnaissance reports of the Darien and El Choco areas.

Point Four of the United States has provided effective assistance in heavy equipment and training of operators of the equipment.

The only complete Panama to Bogota transit completed by motorized vehicles was accomplished by the Trans-Darien Expedition. The approximately 590-mile expedition, in 1960, was completed in 4 months and 20 days in two specially-equipped trucks.

The "U.S. Army TRECUM Transportation Environment Research" made a trip during the rainy season in 1961 along about 82 miles of jungle in 12 heavy trucks, some on caterpillars.

During the dry season that year three

North American-manufactured passenger cars, accompanied and assisted by three double-traction vehicles, traveled from Dundee, Ill, to the Panamanian-Colombian frontier.

In 1959 Dr. William Stern and Dr. Kenton Chambers of the Forestry School of Yale University traveled for 3 months in the Darien forests and published a book concerning their trip.

In 1961 Dr. Owen J. Sexton and Dr. Harold Heatwole made a series of investigations under the sponsorship of the National Foundation for Sciences of the United States.

Dr. Leslie Holridge and Dr. Vincent Raymond of the U.S. Army Transport Research also have conducted studies in the fields of forestry, geology, soils, and travel, as well as rains.

Dr. Reina Torres de Arauz, Panamanian anthropologist, accompanied by students of the University of Panama, also has carried out scientific studies in the Darien.

Not impenetrable, but survey teams don't find many sidewalks. And stakes just may take root and grow.





Truman H. Hoenke, in charge of the Miraflores Locks overhaul, points to rivet head corrosion on one of the old style riveted rising stem valves taken from the centerwall culvert. Eighteen all-welded valves are being installed during the current overhaul, completing a changeover to this type started during the 1958 overhaul. Mr. Hoenke is Locks Superintendent, Pacific Branch. This is the 6th locks overhaul in which he has been involved.

Zinc blocks are attached to some rising stem valves to reduce deterioration from electrolytic action. With these in place, this action first attacks the zinc, rather than the steel of the valves. Same valves are in water in which salinity is so low zinc blocks would have no effect. It takes a certain amount of salinity in water for conductivity to make them work to curb corrosion.



Wearing a mask with air hose line attached, Armando González crawls out from under one of the huge cylindrical valves. Masks with air hose attachments are worn by workers in restricted areas where fumes effects might result. Visible on the left support of the valve is one of the heavy steel brackets which assure that the valve's inside "drum" remains elevated while work is in progress. At left is McNair C. Lane, lead foreman painter.

"IT LOOKS LIKE NEW."

This comment came from an observer watching Miraflores Locks overhaul work. He was looking at a huge casting, parts of it clean and bright, the rest well covered with protective coating.

It wasn't new. In fact, it was a piece of original locks machinery installed half a century ago.

The remark was a double testimonial: To the workmanship and supervision in this and previous overhauls, and to the simple, massive original design of locks machinery and equipment.

Parts needing cleaning get it—with air-powered and hand-powered, chipping hammers, scrapers, and wire brushes.

A cylindrical valve stem pulled during the current overhaul was marked "Do Not Clean." The renovation and protective coating given it during the last overhaul 5 years ago had lasted so well that only small spot sections of "patch" cleaning and new hot-applied bitumastic enamel coating were required.

Deterioration by corrosion, although severe, has been less than found during the 1958 overhaul. This is attributed partly to use of improved materials. Changes are made regularly as materials prove their worth in experimental installation or tests.

This overhaul is expected to be the last which will require more than 24-hour service outage of a lane at Miraflores Locks. During this overhaul, quoin cofferman seats—accurately-finished concrete surfaces against which rubber seals of moveable cofferdams will fit snugly—are being prepared. The cofferdam will be used for access to

gate work which has previously been possible only by draining lock chambers, with resultant cutback to transit capacity.

All rising stem valves are being pulled, inspected and renovated or replaced as necessary this time. Each is

LOCKS OVERHAUL

approximately 11 by 18 feet and weights about 12 tons. Eighteen welded rising stem valves are being installed during this overhaul, completing the conversion from riveted rising stem valves started when 18 were replaced in 1958. The welded valves are smoother

A group of employees in the center culvert of one of the cylindrical valves. There are 40 of these valves opening off the Miraflores Locks centerwall culvert, none in the east or west lanes culverts, where rising stem valves provide water control necessary. Gatun Locks have 60 cylindrical valves, and Pedro Miguel Locks, 20.



Robert E. Budreau, lead foreman painter, checks cleaning and painting work on one of the cylindrical valves. Visible just below his right hand are the large nuts holding in place the iron segments which retain the rubber seals which bear against the inner moving "drum" section of the cylindrical valve. At right is George W. Pinnock.

and easier to clean and coat thoroughly, meaning less corrosion than with the riveted type.

Cylindrical valves were repaired in place. For the most part, only the stems not pulled in 1958 were removed this time. These could be inspected from

deterioration is most severe. Some of this applied 5 years ago still was in such good condition it wasn't renewed during this overhaul.

Besides the cofferdam system, the major change being made during this overhaul to decrease locks outage time is installation of new heavy rubber seals at the bottom of the locks gates. These seals will be free to move to compensate for downstream movement of the mitered position of the gates as the vertical bearing plates wear and corrode.

Total cost of the current Miraflores Locks overhaul is estimated at \$2,100,000, with major special equipment in use valued at more than \$2 million.

These major equipment items include two locks entrance caissons, two personnel elevators for access to the centerwall culvert, two elevators for access to the locks chamber floor, two bridges for access across open chambers, four 25-ton diesel locomotives, five 30-ton steam locomotives, and two culvert pumps, each 250 horsepower and each with capacity of 15,000 gallons per minute.

Protection of gates against corrosion is being improved by applying cathodic protection. Anodes are being installed in the chamber floors and walls near the gates through which low-voltage current will be applied. Zinc and magnesium anodes also are being secured to the underside of certain gates for the same purpose. Plastic strips have replaced bronze ones holding the rubber seals along vertical edges of rising stem valves.

Corrosion was found greater at the
(See p. 12)



William Black, Maintenance Superintendent, Pacific Branch, with a section of the new rubber seal for bottoms of the lock gates. These heavy, tough rubber pieces weigh 19 pounds per foot. They're replacing thinner rubber strips fastened along the bottom edges of the gates.

One of the temporary bulkheads holding the waters of Miraflores Lake back from the centerwall culvert. Floor level of the culvert here is approximately 43 feet below the surface of the lake. A certain amount of leakage is planned, not accidental, to keep a flow of fresh water going through the culvert to prevent stagnancy of water in the culvert where the men are working. Six bulkheads are required at each end of Miraflores Locks during center culvert overhaul. Each bulkhead is in two sections, each section being approximately 11 by 14 feet in dimensions, and weighing 5 tons.





Going over the script for a Republic of Panama Fair Selectra-Vision presentation, and listening to a playback of the tape, are W. E. Burns, left, Photo Section Chief; Alberto Acevedo, photographer; and Miss Mercedes Acevedo, well-known professional announcer and script writer. She's called in at times to make recordings and is the girl "Guide" voice in these presentations. She's a sister of Alberto.



C. W. Browne, contract assistant on the Gorgas Hospital construction work, examines a picture of progress on part of the project.

PHOTOS

*Plus 40 Other
Related Services*

Photographer Arthur L. Pollack checks print quality with Pablo Alba in the Photo Section darkroom.



Dan Fiore, illustrator, Allen Chandler, audio-visual specialist, and Tomás A. Cupas, of the Information Office, left to right, in a planning session for a Selectra-Vision presentation.





Cleve Soper, standing, left, microfilm technician, gives instruction in operation of the microfilm equipment to Henry S. Olton. At right, standing, William E. Hall, systems accountant in the Office of the Comptroller, inspects some of the microfilm work with W. S. Wigg, Records Management Section Chief.

BROADENED services to meet wider demands, combined with technical advances, have changed Panama Canal Photo Section operations to an extent undreamed of less than two decades ago.

As recently as 1954, the section operated with only one photographer and two laboratory men in a small part of the attic of the Administration Building.

Its responsibilities now include more than 40 services in photographic and related fields, its equipment is valued at approximately \$60,000, and 11 persons are required for its operations.

Photographic print production the last 2 years has run around 40,000 prints, but the recent production schedule has been at a rate which would mean nearly 70,000 prints a year. And in a single month this year, besides photo prints, 83 rolls of photo slide film (nearly 1,700 pictures) and 15 microfilm rolls, of 2,500 frames each, were shot.

The Photo Section, a unit of the Administrative Branch, provides studio, in-plant and field services in still photography. Other services include motion pictures, audio-visual planning and preparation, photoreproduction, and specialized applications, plus consultation on problems with possible photographic solutions.

The section's principal responsibility hasn't changed, however, since the construction days of 1907, when a one-man photo section made official record pictures for reports prepared for and by engineers here and in the States.

Although the current workload, in pictures taken and prints produced, doesn't reflect it, the principal mission is Canal operational photography service for working units, such as on locks overhauls, contract and inspection work, machinery details, and special projects.

An estimated 6,000 pictures were taken, for example, during Thatcher Ferry Bridge construction, for a progress record and use, if needed, in contracts settlements. On such projects as locks overhauls, it's impossible to recall exact details of all procedures and problems. Photographic records are available for future study, including even underwater areas accessible only at intervals of years.

Approximately 15 selected employees of other Panama Canal units have been issued cameras and given training in their use, for taking routine field photographs which otherwise would require additional personnel, if the work had to be done by the Photo Section. Pictures taken by these men are processed, and prints made, along with those taken by the regular photographers.

It is felt that there is a large still-untapped field along the lines of industrial photography which could be entered with advantage to some Canal units.

The number of negatives on file is conservatively estimated at more than 90,000. These include approximately 14,000 glass-plate negatives dating back prior to 1900, some of them from French construction days. Before 1907,

Panama Canal official pictures were obtained on a contract basis.

The most persistent continuous problem of the section is time, complicated by lack of regularity in the workload. Preparation of a 6-minute Selectra-Vision program requires a minimum of 80 hours. Setting up for briefings—there may be 20 to 30 a month—means 3 hours work per briefing, exclusive of any slide preparation. There are as many as 3 briefings some days, none on others.

Flexibility of operation necessary also is obvious in view of the distance from suppliers, with equipment repair capabilities needed for the same reason. The section frequently works with Eastman Kodak Co. in making new equipment displays available for demonstration, and maintains liaison with the Kodak sales, laboratory, and research agencies in Panama. Through this, there's access to 10,000-volume library on photography and related fields, for special equipment design or special processing.

All personnel of the section are bilingual. Two have learned English and one has learned Spanish since joining the section. While five in the section take photographs, only two are regularly assigned as photographers.

Audio-visual presentations require planning and coordination to match and time slides with briefings data. Much of the illustrator's work is in this field to provide non-photographic art work for both briefings and Selectra-Vision machine presentations.

Microfilming of vital statistics and irreplaceable files and records, besides being a precautionary step, makes possible more compact storage in consolidated areas and reference to these files frequently is easier than to originals.

The Photo Section was moved from the attic of the Administration Building to Diablo Heights in 1954 and remained there until 1959, when it was returned to the Administration Building and given basement quarters now part of its present area.

It contracts for very few outside services and its personnel periodically are called upon to check out photo, visual and audio equipment operated by employees of other Canal Zone units.

A large share of the photo print production is for international news media, Isthmian newspapers and official Panama Canal publications. Some motion picture production has appeared on network television programs in the States and the section gave technical assistance and editing aid in production of the sound film on the Panama Canal. Motion picture work also is done in training films.

Locks Overhaul

(Continued from p. 9)

middle of the centerwall culvert than at either end—the fresh water Miraflores Lake end or the salt water lower end. Higher salinity sea water apparently causes less corrosion than the diluted sea water in mid-culvert.

Lengths of the stems for the raising stem valves varies between approximately 27 feet and 57 feet, and length of the cylindrical valve stems is approximately 58 feet. After these are cleaned and protective coating applied, that isn't the end of work on them. They're inspected again as they're lowered slowly into place by crane, inspected as they go down, and have additional protective coating put on in any place where it appears to be uneven, too thin, or may have been damaged in handling

The new cofferdams to be used for future renovation and repair work at miter gate quoins will be of steel construction, roughly semicircular, with a radius of 9 feet. They will vary from 47 to 78 feet in height.

They will be built in sections and assembled length will depend on gate height. These heights range from approximately 47 to 82 feet, with intermediate heights of about 55, 77, 78, and 79 feet.

During the entire overhaul, any machine which could cause damage or injury if inadvertently operated is removed from remote control and the switch is either locked out or power is cut off from the machine so that it cannot be casually operated by unauthorized personnel.

When culverts are drained preparatory to the start of overhaul, air, water, and power lines are the first things to go in, along with a public address circuit for paging and telephone lines. Ventilator fans are installed to keep a constant flow of fresh air moving through the culvert.

Some years ago, culvert overhauls were necessary about every 3 years. Improved designs, materials, know-how and techniques have gradually extended the period between overhauls, with resultant improvement in Canal efficiency. It's expected to be 6 years before the center culvert at Miraflores will be dewatered again for overhaul. Meanwhile, however, the upper level will be entered for inspections at intervals during extreme low tides, because at such times it can be drained so that only about a foot of water remains in it.

Geological History Gaps Filled

EVIDENCE THAT Panama was a land bridge connecting the continents of North and South America for quite a period 15 or 20 million years ago is being unearthened—literally—by Canal geologists while contractors dig down in the layers of shale and sediment on the job of widening the Canal channel in Gaillard Cut.

Chapters in the geological story which is constantly being studied by scientists are being filled in locally by discovery of the remains of bones of mammals which apparently lived happily and well in the Miocene period.

Recently Robert Stewart and Joanne Allen, two Panama Canal geologists with the Canal's Civil Engineering Branch, came upon the bones of what appear to be a rhinoceros, primitive deer, a large camel, members of the rodent family, crocodiles, and turtles.

The remains are fragmentary, but to the trained eye of the geologist, it was apparent that they were of the North American species and had developed to such an advanced stage that they were able to migrate across the land bridge of Panama and firmly establish themselves in the area. They were quite different from the animals which had developed on the southern continent while the two land bodies were divided.

From the condition of the bone fragments and the type of earth in which they were buried, the Canal geologists have been able to reconstruct a fairly graphic picture of what life on the Isthmus was really like 20 million years ago.

A modern man projected back through time would have found that the climate of Panama in Miocene times



Piece of rhino tooth; hunting knife alongside gives conception of size.

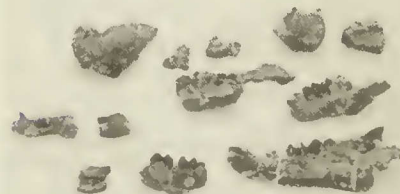
was very similar to that of today. A large section of the Isthmus was a low flat plain with poor drainage which became inundated frequently by flash floods pouring down from nearby active volcanic mountains. The coastal plains had large swampy areas filled with layers of silt and clay washed down by the tropical downpours, prevalent even in that long-gone day.

A landscape similar to that in Panama 20 million years ago can be seen today, according to Mr. Stewart, in the low flat area stretching between Anton, Penonome, and Aguadulce from the mountains to the Pacific Ocean. The climate was warm and humid and the plant life probably resembled that which can be seen any day growing along the shores of Miraflores Lake.

The recent discoveries have been taken to Washington, D.C., by Dr. Frank D. Whitmore, Jr., a vertebrate paleontologist with the U.S. Geological Survey, and their identity verified there. They are being studied by scientists in the United States and later will be made available for student research and other study.



Part of pelvic bone of rhinoceros.



Fragments of jaw of a camel.

ANNIVERSARIES

(On the basis of total Federal Service)

4 **SUPPLY AND COMMUNITY SERVICE BUREAU**
 Harold W. Williams
 Clerk, Typing

ADMINISTRATIVE BRANCH

David F. Mead
 Supervisor, Agency Records Center

ENGINEERING AND CONSTRUCTION BUREAU

Harris Campbell
 Heavy Laborer
 Lee Redman
 Helper Machinist, Maintenance

MARINE BUREAU

James W. Allen
 Deckhand Boatswain
 Julio O. Magan
 Deckhand

SUPPLY AND COMMUNITY SERVICE BUREAU

Nathan W. Ashton
 General Supply Officer

TRANSPORTATION AND TERMINALS BUREAU

Pedro J. Ruiz
 Guard

CIVIL AFFAIRS

Albert I. Hermanny
 Detective Sergeant
 Robert LaPorta
 Police Private
 Odessa F. Hearne
 Elementary and Secondary School Teacher

ENGINEERING AND CONSTRUCTION BUREAU

Lucille M. Flenniken
 Accounting Assistant
 William H. Gonzalez
 Welder
 Víctor C. Melant
 Construction and Maintenance Superintendent (Rivers and Harbors)
 Hugh E. Gadsby
 Maintenceman
 Guy Mandeville
 Helper Central Office Repairman
 Ancelmo Mena
 Leader Maintenceman
 Kemmis R. Clovis
 Seaman
 Daniel E. Hebbert
 Seaman
 Emanuel Reefe
 Seaman
 Juan Scott
 Seaman

HEALTH BUREAU

Emma E. Klinger
 Staff Nurse, Obstetrics
 James Webster
 Medical Aid, Undertaking
 Samuel Hart
 Medical Aid, Veterinary
 Lemuel Joseph
 Leader Cook
 Elis Martínez
 Laborer, Heavy Pest Control

MARINE BUREAU

Ernest C. Flowers
 Admeasurer
 Kenneth L. Middleton
 General Foreman, Locks Operations
 Lawrence S. Worrell
 Helper Lock Operator
 Jorge J. Bautista
 Carpenter
 Walford G. Miller
 Maintenceman, Rope and Wire Cable
 Simon Miller
 Launch Seaman
 Guillermo Hernández
 Seaman
 Francisco Sánchez
 Boatman
 Alfredo Rodríguez
 Deckhand
 Albert Wilson
 Deckhand

TRANSPORTATION AND TERMINALS BUREAU

Vido O. Chase
 Clerk Checker
 Claudius Gowdie
 Cargo Checker
 Winston J. Mitchell
 Delay Clerk
 Clement J. Moses
 Boiler Tender
 Edwin Taylor
 Truck Driver
 Richard Toppin
 Cargo Checker
 Ernest S. Gibbs
 Heavy Duty Equipment Mechanic

OFFICE OF THE COMPTROLLER

Ruth J. Bain
 Accounting Clerk
 Hazel M. High
 Clerk Typist

SUPPLY AND COMMUNITY SERVICE BUREAU

Demetrio Avendaño
 Grounds Maintenance Equipment Operator
 Florence M. Barton
 Sales Section Head
 Lina Davis
 Clerk Typist
 Herminio Figueroa
 Grounds Maintenance Equipment Operator
 Arturo Gómez
 Milker
 George A. Gregory
 Warehouseman
 Frank U. Holness
 Service Station Attendant
 George B. Palmer
 Stock Control Clerk
 Gelmira Silva
 Tailor (Alterations)
 César A. Viloría
 Cemetery Worker
 Jacinta M. Fong
 Sales Clerk
 Mavis R. Grant
 Sales Clerk
 Gladys H. McKenzie
 Sales Clerk
 Mabel M. Murray
 Sales Clerk
 Leonora E. Waite
 Sales Clerk
 Aguedo Ortiz
 Heavy Laborer
 Gustavo O. Jaime
 Heavy Laborer

PROMOTIONS AND TRANSFERS

January 5 through February 5

EMPLOYEES promoted or transferred between January 5 and February 5 are listed. Within-grade promotions and job reclassifications are not listed.

ADMINISTRATIVE BRANCH

Marcia B. de Ortega, Clerk-Stenographer, to Translator (Typing).
Charles N. Brathwaite, Truck Driver, Motor Transportation Division, to Messenger (Motor Vehicle Operator).

CIVIL AFFAIRS BUREAU

Frederick W. Harley, Order Filler, Philatelic, Substitute, Postal Division, to Police Private, Police Division.

Division of Schools

Howell W. Atwell, Teacher, Elementary-U.S. School, to Elementary School Teacher-Principal.
Elizabeth N. Benson, Vivienne D. Diercks, Carole J. Farnsler, Dorothy L. Hauser, Conchita R. Martínez, Substitute Teacher to Teacher, Elementary-U.S. Schools.
Eileen M. O'Brien, Substitute Teacher to Elementary and Secondary School Teacher.

ENGINEERING AND CONSTRUCTION BUREAU

Electrical Division

Robert R. McCoy, Test Operator-Foreman (Electrical Power System), to Chief, Power Plant (Diesel or Gas Turbine).
Joseph F. Green, Robert E. Holland, John L. Irwin, Gust E. Rosene, Marine Machinist, Industrial Division, to Shift Engineer (Mechanical).
Rudolph A. Gangle, Lock Operator (Machinist), Locks Division, to Shift Engineer (Mechanical).
Donald A. Jeffries, Apprentice Central Office Repairman, to Telephone Electrician.
Horace R. Worrell, Helper Central Office Repairman to Telephone Operator.
Robert W. Adams, Apprentice Cablesplicer, 1st year, to Apprentice Cablesplicer, 2d year.
Alfonso Joseph, Helper Lock Operator, Locks Division, to Helper Machinist (Maintenance).
Arthur C. Hubert, Lee Redman, Alejandro Sheperd, Helper Machinist (Maintenance), to Oiler.

Dredging Division

Julián R. McZeno, Seaman to Oiler (Floating Plant).
Cándido A. Meléndez, Fireman (Floating Plant), to Watertender (Floating Plant).
Luis Rosero, Line Handler, Locks Division, to Fireman (Floating Plant).
Joaquín Brenes, Allan F. H. Brewster, Kenneth A. Brown, Andrés Carrasquilla, Douglas E. de Gracia, Victoriano Jackson, German C. Lambridge, Claudio A. Layne, Medardo Palomina, Navigational Aid Worker to Maintenance (Distribution Systems).
Evanice Amantine, Samuel A. Henríquez, Jerome B. Howard, Boatman to Seaman.
Nashbert Holmes, Clerk to Supervisory Clerk.

Robert Graham, Seaman to Timekeeper.
Clyde E. Richards, Harold Riley, Messenger to Launch Dispatcher.
Ernesto F. Scott, Messenger to Clerk.
Gene R. Griffith, Laborer to Messenger.
Eliás Sánchez, Heavy Laborer to Leader Laborer Cleaner.
Ira A. Bailey, Utility Worker, Supply Division, to General Helper.

Engineering Division

Franklin K. Ben, Engineering Draftsman (Architectural), to Illustrator.
Thomas W. Grimison, Enrique Castillo, Julio E. Cordovez, Engineering Draftsman (Architectural), to Architect.

Maintenance Division

David Rosenblatt, General Engineer (Estimates), to Maintenance Engineer.
Roderick N. MacDonell, Plumber to Leader Plumber.
Clemente Cedeño, Helper Millman, Industrial Division, to Carpenter.
Carlos A. Guardado, Launch Seaman, Navigation Division, to Carpenter.
Oliver F. R. Iñil, Helper Shipwright, Industrial Division, to Carpenter.
Theophilus C. Omeaire, Laborer Cleaner, Division of Preventive Medicine and Quarantine, to Carpenter.
Edgar B. Simmons, Carpenter (Maintenance), Locks Division, to Carpenter.
Halden Thomas, Heavy Laborer, Supply Division, to Carpenter.
Thomas Wellington, Helper Millman, Industrial Division, to Maintenance.
Eusebio Quintana, Grounds Maintenance Equipment Operator, Community Services Division, to Helper Refrigeration and Air Conditioning Mechanic.

HEALTH BUREAU

Inocencio Leguía, Laborer (Heavy-Pest Control), to Truck Driver.

Gorgas Hospital

Ingrid K. Anderson, Medical Radiology Technician, to Medical Radiology Technician (Therapy).
Capt. Charles J. Fagan, Chief Radiology Service, Coco Solo Hospital, to Medical Officer (General Radiology).
Joseph A. Owen, Hospital Resident, 3d Year, to Hospital Resident, 4th Year.
Bobby J. Stinebaugh, Hospital Resident, 2d Year, to Hospital Resident, 3d Year.
Dorothy E. Brooks, Substitute Teacher, Latin American Schools, Division of Schools, to Clerk-Typist.

MARINE BUREAU

Navigation Division

Eugene H. Bunnell, Rigger, to General Foreman, Docking and Undocking.
Conrado Brown, Deckhand, to Deckhand (Boatswain).
Luis E. Hurtado, Luis A. Ríos, Heavy Laborer to Deckhand.
Gabriel Blackburn, Laborer Cleaner to Heavy Laborer.

Industrial Division

Harold S. Brenner, Jr., Heavy Duty Equipment Mechanic, Maintenance Division, to Maintenance Machinist.
Milán Fernández, Dock Worker, Terminals Division, to Laborer.

Locks Division

Robert C. Carter, Lock Operator (Engine-man-Hoisting and Portable), to Leader Lock Operator (Engine-man-Hoisting and Portable).
Rudy M. Wieland, Towing Locomotive Operator to Lock Operator (Electrician).
Marcos F. Rueda, Painter to Leader Painter.
Stanley G. Campbell, Helper Lock Operator to Crane Hookman.
Amado Andrion, Alfredo Dickens, Heavy Laborer, Maintenance Division, to Helper Lock Operator.
Victor H. Hoyte, Line Handler, to Helper Lock Operator.
Vernal S. Jones, Pinsetter, Supply Division, to Helper Lock Operator.

SUPPLY AND COMMUNITY SERVICE BUREAU

Supply Division

Beverly C. Halliday, Procurement Agent, to General Supply Officer.
Joseph H. White, Supervisory General Supply Assistant, to General Supply Officer.
Robert A. Duvall, General Supply Assistant, to Supervisory General Supply Assistant.
John H. Stevens, Accounting Assistant to Procurement Agent.
John H. Simson, Management Technician to General Supply Officer.
Vernon F. Kepford, Jr., Supervisory General Supply Assistant, to General Supply Assistant.
Harold I. Tinnin, Supervisory Storage Officer, to Supervisory Storage Specialist.
Thurman W. Napier, Retail Store Supervisor to Supervisory General Supply Assistant.
Rolanda M. Dahlhoff, Clerk-Typist, from Accounting Division.
Edward L. Inniss, Teller to Assistant Retail Store Manager.
Carmel W. Campbell, Retail Store Supervisor, to Cash Clerk.
Nemesio Wood, Grocery Attendant, to Sales Clerk.
Verona M. Pascal, Utility Worker to Sales Checker.
Robert Phillips, Utility Worker to Leader Utility Worker.
Afilonso T. Shaw, Utility Worker to Heavy Laborer.
Alexander A. Butcher, Heavy Laborer, Locks Division, to Waiter.
Harold R. Agodon, Laborer Cleaner and Special Waiter, to Utility Worker and Special Waiter.
Ivanhoe A. Harris, Jr., Package Boy, to Utility Worker.
Simeon L. Chandler, Pinsetter to Utility Worker and Pinsetter.

Community Services Division

Robert H. Miller, Housing Project Manager, to Housing Project Manager (Superintendent Housing Branch).
P. Byrne Hutchings, Housing Project Manager (Manager, Crisobal Housing Office), to Housing Project Manager (Manager, Balboa Housing Office).
Jackson J. Pearce, Housing Project Assistant (Assistant Manager, Balboa Housing Office), to Housing Project Manager (Manager, Cristobal Housing Office).

CANAL HISTORY

50 Years Ago

MARKING of the Canal channel with gas buoys about every mile, with intermediate spar buoys, it was announced, necessitated special precautions to protect the buoys from the corroding action of salt water and sea air in the tropics.

A pocket of earth and loose rock on the east bank opposite Hodges Hill at Culebra settled downward and moved 80 feet into the Canal. In 2 hours the bank sank in places as much as 60 feet. It was estimated that 2 million cubic yards were in motion.

25 Years Ago

CONSTRUCTION of new quarters for Panama Canal employees was being considered by the U.S. Congress.

Canal Zone health authorities tightened up on smallpox vaccination regulations as reports were received that there was a smallpox epidemic in the interior of Venezuela.

10 Years Ago

A CONTRACT for construction of an elementary school and a kindergarten school building at Paraiso, and remodeling of the existing building, was awarded on a low bid of \$245,000.

One Year Ago

CHANGES liberalizing regulations governing payment of night differential added several hundred Panama Canal employees to those previously eligible to receive the differential.

James R. Shirley, Housing Project Assistant (Administrative Assistant), to Housing Project Assistant (Assistant Manager, Balboa Housing Office).

Peter T. Corrigan, Leader Plumber, Maintenance Division, to Maintenance Representative (Buildings and Utilities).

Charles A. Russell, Accounts Maintenance Clerk, to Accounting Assistant.

Plácide Hernández, Laborer, to Grounds Maintenance Equipment Operator.

Rupert V. Watson, Laborer Cleaner to Heavy Laborer.

TRANSPORTATION AND TERMINALS BUREAU

Terminals Division

Herman C. Graham, Clerk to Cargo Clerk.

Ernesto A. Harrison, Messenger, Administrative Branch, to Guard.

Jaime E. Boxen, Helper Machinist, Industrial Division, to Guard.

Francino E. Downer, Helper Lock Operator, Lock Division, to Helper Liquid Fuels Wharfman.

Carl R. Kinsman, Utility Worker, Supply Division, to Cargo Marker.

Alvin Girdwood, Counterman Supply Division, to Cargo Marker.

Albert M. Rowe, Laborer Cleaner, Industrial Division, to Cargo Marker.

Eusebio J. Vivies, Line Handler to Stevedore.

Cecil L. Lowe, Cargo Checker, to Supervisory Cargo Checker.

Railroad Division

Richard E. Bunch, Jr., Carman (Wood and Steel) to Inspector (Carman, Wood and Steel).

José F. Quiñónez, Clerk to Clerk Checker.

OTHER PROMOTIONS which did not involve changes of title:

Cecil A. Archbold, Clerk, Dredging Division.

William J. Boehning, Construction Inspector (General), Contract and Inspection Division.

Norris C. Brewster, Clerk-Typist, Navigation Division.

Jerome C. Brown, Mail Clerk, Supply Division.

Domingo de Gracia, Surveying Aid, Engineering Division.

Gary P. Dunsmoor, Housing Project Assistant, Community Services Division.

Alvin B. Ganes, Clerk-Typist, Dredging Division.

Norma E. Hamilton, Secretary (Stenography), Office of Director, Supply and Community Services Bureau.

Alba D. Hutchings, Jr., Supervisory General Supply Assistant, Supply Division.

Kerry B. Magee, Industrial Engineer, Executive Planning Staff.

George B. McFarlane, Life Guard, Division of Schools.

Edward L. Melbourne, Clerk-Typist, Navigation Division.

Ruby E. Radel, Nurse Supervisor (General Medical and Surgical Hospital), Coco Solo Hospital.

Ivan J. Stephens, Clerk-Typist, Maintenance Division.

John R. Thomson, Hospital Administrative Officer, Palo Seco Leprosarium.

Victor Zakay, Civil Engineer (General), Engineering Division.

RETIREMENTS

EMPLOYEES who retired in January, with their positions at the time of retirement, and years of Canal service, are as follows:

Murphy B. Alexander, Lead Foreman, Maintenance Division, Atlantic side; 22 years, 6 months, 11 days.

Mrs. Geraldine W. Allen, Counterwoman, Supply Division, Atlantic side; 20 years, 3 months, 22 days.

William B. Allen, Supervisory Storage Specialist, Atlantic side; 34 years, 7 months, 25 days.

Gabriel Avila, Chauffeur, Motor Transportation Division, Atlantic side; 22 years, 10 months.

Robert L. Blaney, Supervisory Cargo Operations Assistant, Terminals Division, Pacific side; 34 years, 8 months, 4 days.

Leland Brooks, Master, Towboat or Ferry, Navigation Division, Pacific side; 21 years, 5 months, 22 days.

Claudius Brown, Brakeman, Railroad Division, Pacific side; 20 years, 9 months, 29 days.

Wilmoth N. Cameron, Brakeman, Railroad Division, Atlantic side; 20 years, 10 months, 23 days.

Lucio Castro, Laborer, Dredging Division, Pacific side; 16 years, 8 months, 29 days.

James B. Crane, Admeasurer, Navigation Division, Pacific side; 14 years, 2 months, 21 days.

Abraham Daisey, Chief Engineer, Towboat or Ferry, Navigation Division, Pacific side; 31 years, 8 months, 9 days.

Vicente Espinosa, Heavy Laborer, Gorgas Hospital; 21 years, 3 days.

Clair E. Ewing, Terminal Operations Officer (Assistant to Superintendent), Terminals Division, Pacific side; 37 years, 4 months, 12 days.

Edward H. Halsell, Chief, Locks Security Branch, Locks Division, Pacific side; 34 years, 5 months, 20 days.

Miss Dorothy K. Henry, Elementary and Secondary School Teacher, Schools Division, Atlantic side; 27 years, 4 months, 12 days.

William Hyatt, Truck Driver, Motor Transportation Division, Atlantic side; 31 years, 10 months, 15 days.

Anselmo Jiménez, Leader Maintenceman, Electrical Division, Pacific side; 33 years, 9 months, 16 days.

Jacques K. Lally, Postal Clerk, Postal Division, Pacific side; 20 years, 4 months, 13 days.

Leslie R. Loga, Master, Towboat and Ferries, Navigation Division, Pacific side; 14 years, 11 months, 26 days.

Florencio Maldonado, Surveying Aid, Engineering Division, Pacific side; 33 years, 10 months, 7 days.

Eligio Rangel, Painter Maintenceman, Industrial Division, Pacific side; 28 years, 10 months, 25 days.

Guillermo C. Rodríguez, Guard, Locks Division, Pacific side, 21 years, 7 months, 15 days.

Jean Jacques Sablo, Storekeeping Clerk, Printing Plant, Atlantic side; 40 years, 2 days.

Robert B. Sager, Supervising Structural Engineer, Engineering Division, Pacific side; 23 years, 10 months.

Abel Samudio, Laborer, Supply Division, Atlantic side; 17 years, 8 months, 18 days.

George H. Sanford, Foreman, Printing Plant, Balboa; 22 years, 26 days.

Harry C. Seaman, Food Processing Specialist, Supply Division, Atlantic side; 22 years, 10 months, 10 days.

Hugh B. Smith, Lock Operator Electrician, Locks Division, Pacific side; 13 years, 1 month, 14 days.

Elmer B. Stevens, Supervisory Bridge Engineer, Engineering Division, Pacific side; 26 years, 4 days.

Louis J. Taylor, Clerk Checker, Supply Division, Pacific side; 42 years, 9 months, 5 days.

Albert G. Turner, Machinist, Industrial Division, Pacific side; 23 years, 5 months, 28 days.

SHIPPING

New Ship, New Service

A BRAND NEW ship starting a brand new service passed southbound through the Panama Canal early in February. It was the newly-built *Henriette Maersk*, which arrived at the Canal on her maiden voyage around the world. She arrived here from Copenhagen via Tampa where she picked up a cargo of 12,000 tons of phosphate. After leaving Balboa, the new Maersk liner sailed direct for Moji, Japan.

In the future she will operate on a new Maersk Line round the world service which will take her to Hong Kong and Singapore, around Africa to New York, and back through the Panama Canal to the Far East. The *Henriette Maersk* is the first of four new ships of this line which will be placed in this run. She is of the new design with the engine aft, has a gross tonnage of 9,000 tons, is completely air conditioned and carries no passengers.

The cargo liner was of special interest to C. B. Fenton & Co., her agents at the Canal, since her master, Capt. J. E. Pedersen, is the father of Ture Pedersen, a Fenton Co. employee in Cristobal.

Next Stop, Ecuador

FORMER Panama Canal ferryboats *Presidente Amador* and *President Roosevelt* are shown at the La Boca ferry slip for loading of steelwork and ferry ramp installations. When loading is completed on the east bank of the Canal, the ferryboats will be moved to the west bank for a repeat loading performance of ferry ramp installations there.

Once loaded, the *Presidente Amador* and *President Roosevelt* will proceed to a new scene of operations at Guayaquil, Ecuador.

The two ferryboats, no longer needed with the opening of the \$20 million Thatcher Ferry Bridge, were put up for sale, together with ferry ramp installations and a selection of spare parts. Simon Canarte B., c/o American Export & Import Co., New Orleans, La., was the successful bidder last October, with a bid of \$39,000 for the two ferryboats. The ferryboats cost \$127,930 each. They were built in 1931 by the former Panama Canal Mechanical Division.

TRANSITS BY OCEAN-GOING VESSELS IN JANUARY

	1963	1962
Commercial.....	769	917
U.S. Government.....	20	25
Free.....	7	8
Total.....	796	950

TOLLS *

Commercial....	\$3,872,855	\$4,736,412
U.S. Government	87,142	157,033
Total....	\$3,959,997	\$4,893,445

CARGO**

Commercial....	4,118,440	5,465,458
U.S. Government	62,340	139,347
Free.....	39,785	32,342
Total....	4,220,565	5,637,147

*Includes tolls on all vessels, ocean-going and small.
**Cargo figures are in long tons.

Far East Cruise

THE NORWEGIAN America Line's flagship *Bergensfjord*, due at Balboa March 29 on the last leg of a South Sea cruise, already is lined up for a cruise to the South Pacific and Far East for the winter-spring season of 1964. Next year's 80-day cruise will take the passengers to many places associated with campaigns during World War II.

These islands include the New Hebrides, the Solomons, and New Britain in the Bismarck archipelago. The cruise also will include the Philippines, Borneo, Bangkok, Hong Kong, Japan, Honolulu, and return by way of San Francisco, Acapulco, and the Panama Canal to New York.

New Coal Carriers

SEVERAL new large Japanese-built coal carriers will go into service soon carrying coal from Hampton Roads, Va., through the Panama Canal to Japan. Shipping sources report that a new 48,000 deadweight-ton collier being built by Yawata Iron & Steel Co. for the Triton Shipping Co. will be able to import a total of 225,400 tons of coal in a single 12-month period.

Fuji Iron & Steel Co. plans to add two more coal carrying vessels to its fleet, each of some 47,000 deadweight tons, the report says. One vessel is to be called the *Nagano Maru*, after Shigeo Nagano, Fuji Iron & Steel Co. president, and the other the *Oswego Fuji*. Builders of these two ships are the Japanese firm of Ishikawajima-Harima Heavy Industries Co., Ltd., and Shin Mitsubishi Heavy Industries Co., Ltd., of Kobe. Both are to be completed this month and will be able to carry some 45,000 tons of coal per trip from Hampton Roads. Each will be able to make between 5 and 5½ trips a year.

A number of coal carrying ships are travelling through the Canal these days with coal from Hampton Roads to Japan. On the return trip, most of these vessels stop in Peru to pick up cargoes of iron ore which are delivered to Baltimore. The ships include the *Naess Clipper*, *Naess Cavalier*, and the *Naess Clarion*, operated by Naess, and the *Nini*, operated by the C. M. Lemus Co., which carried a record load of 48,381 tons of coal through the Canal in July.

Ferries Taking "Homes" With Them

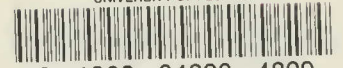


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