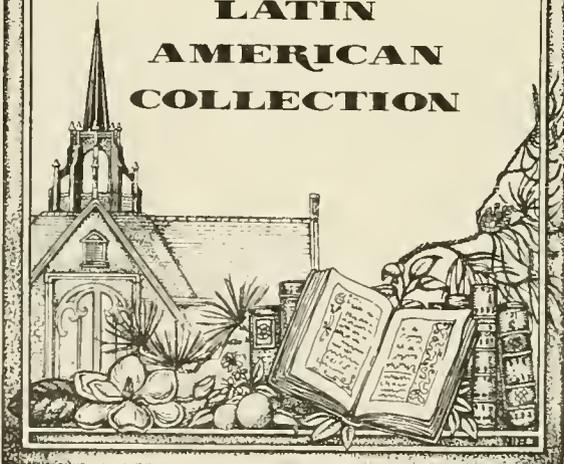




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BALBOA
 OCT. 12
 8:00 A.M.
 1962
 C. Z.

FIRST DAY OF ISSUE

THE PANAMA CANAL
REVIEW
 SUMMER 1977



DEDICATION OF THE FERRY BRIDGE AND OPENING CEREMONY
 OCT. 12 1962



3005
 187
 POSTAGE 80c



HAROLD R. PARFITT
Governor-President

RICHARD L. HUNT
Lieutenant Governor

FRANK A. BALDWIN
Panama Canal Information Officer

THE PANAMA CANAL
REVIEW

Official Panama Canal Publication

WILLIE K. FRIAR
Editor

Writers
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DOLORES E. SUISMAN

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A vital service for Canal customers

At left: The "Queen Elizabeth 2" and three other super-sized ships move through Miraflores Locks of the Panama Canal. The "QE2" (top left) set a new toll record when she transited March 29 on an around-the-world cruise. She paid \$68,499.46. (Photos are by Kevin Jenkins, Don Goode, and Arthur L. Pollack.)



Our Cover

THE "BRIDGELESS" THATCHER Ferry Bridge stamp, one of the best known rarities in the stamp world is among the Canal Zone stamps appearing on the cover of this edition.

Six of these misprinted stamps are along the right side of the page and can be compared to the perfectly printed stamp, with the bridge in silver, which is shown on the first day of issue cover at the top of the page.

The bridge stamps are from the collection of the Canal Zone Library-Museum which has 50 of these rare stamps; 50 are in the Smithsonian Institution in Washington, D.C.; and the only others in existence are 50 that are in the hands of private collectors and stamp dealers. (For further information on this famous stamp, see the story which begins on p. 4.)

Among the other stamps on the cover are examples of the handsome 25th Panama Canal anniversary stamp series showing the "before and after" of Canal construction sites; the regular series which honors the builders of the Canal; and the new 13-cent dredge *Cascadas* stamp. All of the stamps are from the collection of Louis R. Reyes, Administrative Officer in the Canal Zone Postal Division.

To produce this photograph, the stamps were arranged on a sheet of glass and suspended several inches above the shears and the red, white, and blue ribbon used in the ribbon-cutting ceremony that marked the opening of the bridge, October 12, 1962. The cover was designed by Willie K. Friar and photographed by Arthur L. Pollack.



Stamps provide a colorful look at local history

PHILATELY IS ONE OF OUR most interesting hobbies. It also has a distinct educational value. Here in the Canal Zone, the stamp collector's attention is drawn to one of the richest sagas in the history of the United States, the man-made funnel through which flows the commerce of the world.

"The postal history and stamps of the Canal Zone Government vividly reflect the early trials, heartbreaking failures and glorious completion of the Panama Canal. These bits of postage depict the ingenious planners, scenes of their work and the determined Canal diggers accomplishments."

Thus wrote former Gov. William E. Potter in his introduction to the book, "Canal Zone Postage Stamps," which was published by the Canal Zone Government in 1961.

Prepared by the late Judge E. I. P. Tatelman, Magistrate of the Cristobal Court, this book, which is still sold at local post offices, gives a thorough account of Canal Zone stamps, discusses the subjects depicted on the stamps, and tells the story of the Canal Zone Postal Service.

The Canal Zone regular stamp issue is, by far, the oldest in use anywhere today, according to research by the Caribbean Stamp Club. These stamps are referred to by collectors as the "14th Canal Zone series." Stamp buffs term these regular issues "definitive" issues. This issue was first recommended in 1928 by Crede Calhoun, who was Director of Posts for the Canal Zone from 1916 to 1947.

The 1-cent green Gorgas stamp, which came out October 3, 1928, is believed to be the oldest stamp in the world in terms of continuous use. Other oldsters and their dates of issue are the 50-cent Blackburn, issued in 1929; the 20-cent Hodges, 15-cent Smith, and 20-cent Rousseau, all issued in 1932; the 3-cent Goethals issued in 1934; and the 30-cent Williamson, last of the lot, issued in 1940.

The Caribbean Stamp Club members and other stamp collectors have scanned stamp catalogs and journals for possible rivals to these venerable stamps but no close competitors could be found for the 1-cent Gorgas or the 50-cent Blackburn.

Stamp collectors are interested in these stamps but perhaps the most coveted by collectors and best known to the average citizen is the 4-cent Thatcher Ferry Bridge commemorative stamp, issued in 1962 to mark the opening of the bridge across the Canal at Balboa.

A full sheet, 200 hundred of these handsome stamps, was printed perfectly like all of the others in the issue, except for one important detail—the bridge was missing.

Somehow during the press run that overprinted the bridge in silver, this sheet did not come in contact with the printing plate. This sheet probably had adhered to the sheet directly on top of it as it passed through the press.

The Thatcher Ferry misprint became one of the world's most famous stamp errors. Word of the error spread fast

The story of the United States' construction of the Panama Canal, one of the world's great engineering achievements, is told in Canal Zone stamps

By Eunice Richard

when Henry L. Harris, prominent Boston stamp dealer found, in checking his order of 5,000 of the commemorative stamps, that he had a sheet of 50 stamps without the bridge.

About the same time that collector Harris found that he possessed what amounted to a philatelic bonanza, the Canal Zone Postal Service discovered that it also had 150 of the misprinted stamps.

The United States Post Office Department suggested to the Governor of the Canal Zone that more of the stamps without the bridge be reprinted in order to flood the market with identically misprinted copies, which would have destroyed the potential worth of the 50 original misprinted stamps owned by Harris.

This was an act that would have blunted much of the fun and excitement of stamp collecting for the millions who are always hopeful of finding a rare error. Harris promptly appealed to the Federal District Court for a restraining order.

There were protests from stamp collectors all over the world and Harris proved to be a stalwart champion of their cause. After nearly 3 years of legal action, the Federal District Court in Washington, D.C., ruled in favor of Harris in his suit to prevent Canal Zone postal authorities from deliberately printing more of the bridgeless stamps.

The misprinted stamps in the possession of Canal Zone postal authorities were disposed of in the following manner. A sheet of 50 was laminated



The misprinted Thatcher Ferry Bridge stamp, which is shown on the front cover of this edition, is missing this bridge, which it was designed to commemorate.

The "bridgeless" bridge stamps are selling for \$3,500 each

abrogated by the President of the United States. From July 1, 1924, to October 1, 1928, and even later, the United States Government furnished its stamps.

The first stamp the permanent issue of Canal Zone stamps, the 2-cent Goethals, was placed on sale October 1,

in 1924. In general, the Canal Zone Government purchased its stamps from the Republic of Panama until 1924, at which time the Taft agreement was



Displayed in the stamp rarities section of the Smithsonian Institution in Washington, D.C., the Thatcher Ferry Bridge stamp is one of the most popular exhibits in the philatelic collection.

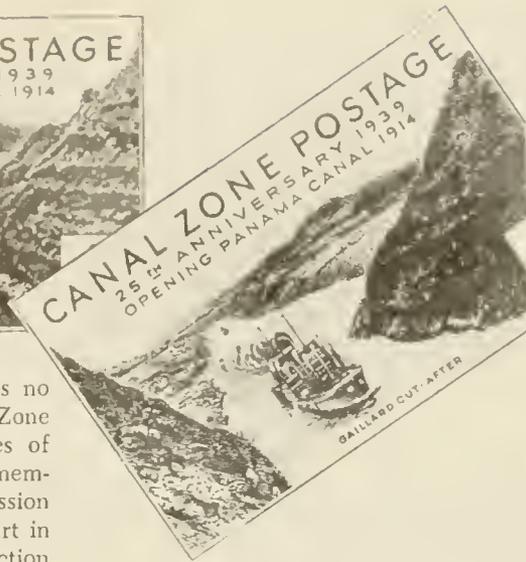
and decided to the Smithsonian Institution in Washington, D.C., where the stamps have become a star attraction; 50 more were laminated and given to the Canal Zone Library (6 of the 50 appear on the cover of this magazine); and the remaining 50 were destroyed. Seeing that these stamps are now worth \$3,500 each, this must have been an heartbreaking task for some employee.

The Canal Zone Postal Service has a colorful history that dates back to 1904, when it was established as part of the Department of Revenues under the supervision of the Treasurer of the Canal Zone. Paymaster L. C. Tobey, USN, was the first Director of Posts. Post offices were first opened at La Boea, Ancon, Cristobal, Gatun, Culebra, Bohio, Gorgona, Matachin, and Empire. They were operated then by railroad station agents as postmasters.

The Canal Zone Postal Service has operated as an independent postal system from the beginning and is established as such by Act of Congress of the United States.

When the Canal Zone Postal Service was first established on June 24, 1904, a small supply of 2¢, 5¢, and 10¢ Panama provisional stamps overprinted "Canal Zone" horizontally in roman capitals were obtained and used. Colombian stamps overprinted "Panama," "Canal Zone" and stamps issued by Panama overprinted "Canal Zone" were used between the years 1904 and 1924 in conformity with the provision of an executive order issued in 1904 by Secretary of War William H. Taft.

U.S. stamps overprinted "Canal Zone" were initially used in 1904 for a short period of time and again commencing



President Roosevelt suggested the design for the 25th anniversary commemorative stamps

1928, but this particular stamp is no longer in use. The current Canal Zone postage stamps consist of a series of 14 ordinary stamps. Ten picture members of the Isthmian Canal Commission and others who played a major part in Canal Zone history or in construction and operation of the Panama Canal.

The other four picture the Canal's Administration Building at Balboa Heights; the Goethals' Memorial at Balboa; Fort San Lorenzo, on the Atlantic Coast; and the dipper dredge *Cascadas*.

There have been a number of commemorative stamps, the most handsome being the set of stamps issued on the 25th anniversary of the opening of the Panama Canal. Judge Tatelman, writing in the book on Canal Zone stamps, said they were considered the finest in designing and engraving and even the Bureau of Engraving and Printing in Washington, which is usually restrained in comments concerning its work, expressed pleasure in

the design and the excellence of handling.

Tatelman reported an interesting prologue to this series involving President Franklin D. Roosevelt, his interest in stamps and his interest in this issue in particular.

A few years before the 25th anniversary of the Canal, President Roosevelt arrived in Balboa aboard the U.S.S. *Houston*. He was presented, by Canal officials, with an album showing Canal scenes of the construction era and matching pictures of the same areas showing the completed job. Fascinated with the contrast, he suggested that there existed in these before and after

scenes, the makings of a fine stamp series which could be used to commemorate the 25th anniversary of the opening of the Panama Canal.

The Governor of the Canal Zone, on December 7, 1938, approved the separate scenes of "before" and "after" for a series of 16 denominations for the ordinary stamps and six values for airmail stamps. In addition to the 25th anniversary, the airmail stamps commemorated the 10th anniversary of the Canal Zone's regular airmail service.

Some of the other commemorative stamps issued by the Canal Zone Postal Service over the years honor the 25th anniversary of the foundations of the Smithsonian Research Laboratory at Barro Colorado Island, the California Gold Rush, the 75th anniversary of the opening of Gorgas Hospital, the West Indian workers who helped build the Panama Canal, the 100th birthday of President Theodore Roosevelt, and the 50th anniversary of the Boy Scouts of America.

More recently there have been special stamps issued to recognize the world united against malaria and the golden anniversary of the opening of the Panama Canal.

But a new stamp does not appear from nowhere. When a proposal for a new stamp is made, it sets in motion the Governor's Canal Zone Stamp Advisory Committee which decides on the color, design, and occasionally, the denomination of the new stamp. The latter, as a rule, is decided in advance by the needs of the postal service.

The advisory committee meets only when it has work to do in connection



United States President Franklin D. Roosevelt, accompanied by the President of Panama, Dr. Harmodio Arias, tours the Canal Zone during a visit to the Isthmus. It was at this time that he suggested the "before and after" stamps seen at the top of this page.



This 1906 scene shows a mail wagon waiting at the Cristobal Post Office, which at that time was located in the same building as the commissary. The wagon, at right, is delivering goods to the commissary.

with the Canal Zone postal system. A suggestion for a new stamp may be originated by a member of the committee, by someone outside of the committee, by an outside organization or by an increase in postal rates which necessitates issuance of a stamp in a new denomination.

Members of the committee are Civil Affairs Director, Fred Cotton who is chairman of the group; Executive Secretary J. Patrick Conley; Donald W. Date, Franklin Kwai Ben, and Robert Donaldson of the Engineering Division; and Thomas E. Peterson and Betty Boyer of the Personnel Bureau.

Approval of a design by the Advisory Committee is the last step before submission of the final sketch of the stamp to the Governor for review and final action before it is sent to the U.S. Bureau of Engraving and Printing in Washington, D.C., by the Director of Posts.

The most recent issues placed on sale were the 13-cent ordinary stamp, both in sheet and booklet form, and the 22-cent and 35-cent airmail stamps. The 13-cent ordinary stamp which generated great philatelic interest featured the Panama Canal dipper dredge *Cascadas*. It is based on a painting by Alwyn Sprague, a local artist, and depicts the important role played by the Dredging Division in the maintenance of the Panama Canal. It is one

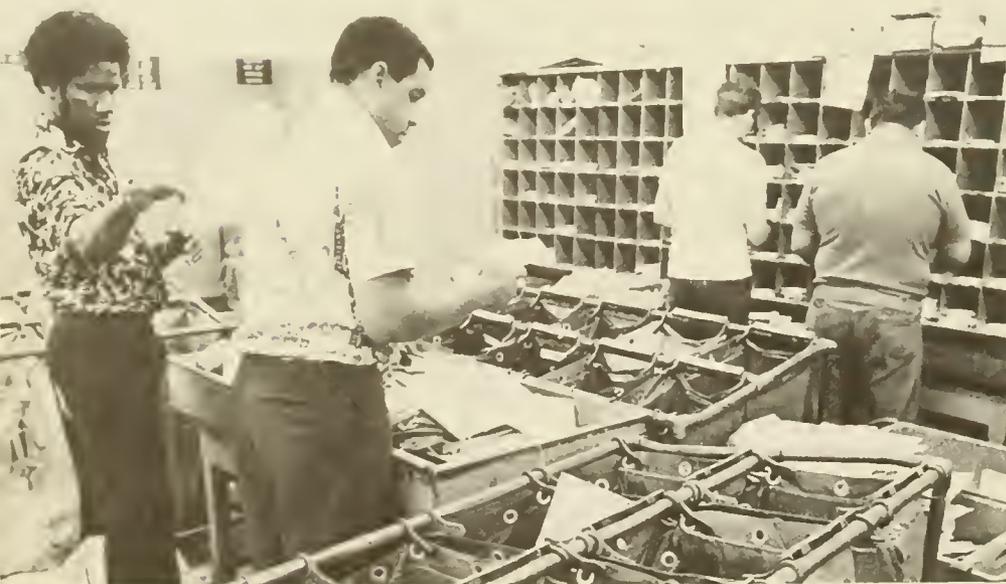
of a series of paintings on Canal operations which was reproduced in the 60th anniversary edition of the PANAMA CANAL REVIEW. All 13 of these paintings, including the one from which the stamp was made, are now on display at the Canal Zone Library-Museum.

As Tatelman noted, the receiving and distribution of mail in the Canal Zone as well as efficient dispatch were of utmost importance if the Canal "diggers" were to remain here and be kept happy.

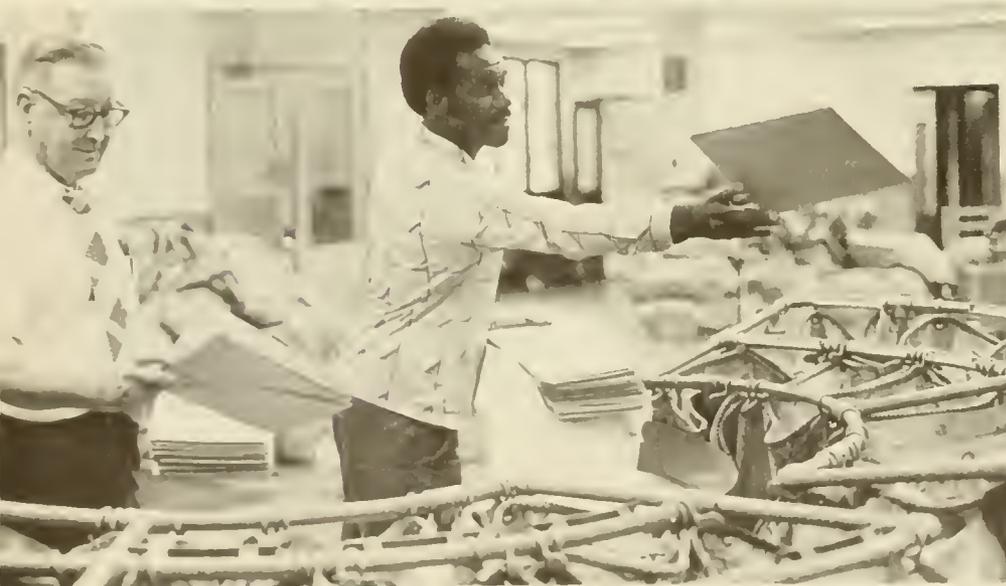
Recognizing the importance of the establishment of post offices, Gen. George W. Davis cabled Admiral Walker in Washington as follows: "Must immediately institute a mail service upon Zone. Have appointed acting postmasters Cristobal, Gatun, Bohio, Gorgona, Bas Obispo, Empire, Culebra, La Boca, Ancon, which should be officially designated United States post Offices; Cristobal and Ancon, money orders. Request Post Office Department and Superintendent Posts report to me with equipment, blanks, instructions, supply of United States postage stamps surcharged Canal Zone, Panama. I send names of postmasters by mail Wednesday."



AN UNUSUAL MAIL DELIVERY—Mail (subscriptions to Victory Bonds) went through the Canal by submarine in 1919.



Above left: Lew C. Hilzinger, Director of Posts, and Louis R. Reyes, Administrative Officer in the Postal Division, discuss postal matters at the Philatelic Agency in Ancon. Right above: Boat mail brought by train from Cristobal is unloaded in Diablo. At left: Mort Jordan and Claude Burgess sort airmail at Balboa Post Office. Left below: Cristobal postmaster W. A. Alonis discusses a postal problem with Edwin W. Reid who is sorting mail at the Cristobal Post Office.



A history of the Canal Zone post offices is a history of the progress of the construction work. As work shifted location or was completed, post offices were moved or new ones opened to follow the workers. When work started at Miraflores Locks, a post office was established there. When the waters of Gatun Lake commenced to rise, many of the construction townsites were abandoned and with them the post offices and some of the old post offices along the Chagres River valley now lie beneath the waters of Gatun Lake.

Today, there are two main post offices in the Canal Zone. They are in Balboa and Cristobal. There are 13 branch offices and one delivery unit facility.

Postal employees number 116 and include both United States and Pan-



Above: Conrad Blades serves patrons at the Gamboa Post Office. Above right: Employees at work sorting mail are reflected in wall mirror. Below: In sharp contrast to construction-day facilities, which were often located in the train stations, is this modern building at Gamboa. At right: A busy day at the Balboa Post Office, one of the two main post offices. The Balboa Heights Post Office has been changed to a delivery unit facility.

amanian citizens. They handled 27,838 tons of mail during fiscal year 1976, including surface and airmail. Receipts during fiscal year 1976 totaled \$1,729,261.17.

This is a far cry from the first year of operation in 1904 when stamp sales in one month were \$655.54.

The Canal Zone Postal administration is unique in its establishment and operation. It has its own postal regulations, yet the United States regulations are applicable. Its postal laws are contained in both the Federal Statutes and the Canal Zone Code. It does not belong to the Universal Postal Union but adheres to its policies. It is not within the United States Post Office Department, but like that organization, is a unit of the United States Government.



**LINDBERGH AGAIN
MAKES PORT AHEAD
OF HIS SCHEDULE**

**COL. LINDBERGH TO OPEN DAWN
TO DUSK SCHEDULE TO CRISTOBAL**

Arrives At Cristobal Two
Hours Earlier Than
Anticipated

**BRINGS 211 POUNDS
OF MAIL FROM U. S.**

Flight Marks Opening Of
7-Day Service Between
N. Y. & Montevideo

**NO PLANS DURING
STAY ON ISTHMUS**

Starts Back Thursday AM
With Mail From South &
Central Americas

NEW YORK, April 22 (AP).—Colonel Charles A. Lindbergh
take off in a regular Pan-
American Airways plane Satur-
day afternoon from Miami for
Cristobal in a dawn flight
inaugurating the new airmail
service between the United
States and Central America.
He expects to arrive at
Cristobal at 6:00 o'clock in
the morning via Grace and
Puerto Rico.



ASSOCIATED PRESS
COL. CHARLES A. LINDBERGH

inaugural Central American flight in 1929, an editorial in the Panama American noted that it was almost a year since he had been greeted so enthusiastically in Panama and the Canal Zone.

"Little preparation is being made for his reception this time while 12 months ago, he was the Viking of the Air, the Lone Eagle, the lone conqueror of the treacherous Atlantic, the Goodwill Ambassador.

"This year, he is just an ordinary businessman blazing a trail for a commercial company which proposes to operate airplane service from the United States to Panama. His achievements in the air remain supreme and he is still prominent. But the spark of romance has flickered out."

These statements made the Lone Eagle one of the boys but it did not detract from the fact that he was one of the pioneers that made airmail service a household word and turned both Lindy and the postal service into such a routine matter that mere mortals dared to criticize.

Airmail service from the United States to Panama was first started in 1929 between Miami and France Field under contract with Pan American Airways. The route went through Central America via Cuba, Honduras, Nicaragua and Costa Rica, entering Panama at David.

This route, also officially inaugurated by Lindbergh, was set up following several years of study and surveys and experimental flights along the proposed routes.

Before the mail flights became commercial, the U.S. Army Air Force, which controlled the only landing fields in the Canal Zone, was giving strong support to the idea of getting mail out of the Canal Zone by air.

The first mail ever to be carried by air in Panama, however, was a local job and was loaded in Cristobal aboard a U.S. Army single engine amphibian plane October 18, 1918. As part of a campaign to promote the sale of Liberty Loan subscriptions during World War I, most of the 919 pieces of mail were bonds. The so called "aero" dispatch from Cristobal to Balboa was carried non-stop on the plane piloted by U.S. Army Air Force Maj. W. W. Wynne. It took 30 minutes of flying time but nearly an hour in all to deliver the mail to Balboa Heights.

By 1920, the idea of sending mail by air to the United States was being promoted and a dispatch of mail con-

THE CRISTOBAL POST OFFICE was astir this morning over the fact that mail can now be delivered from New York to the Canal Zone in five and one-half hours less than two days," the Star and Herald of Panama reported back on April 29, 1930, following the arrival at France Field of the mail plane from Miami, piloted by none other than Col. Charles A. Lindbergh.

Forty-seven years later this might still be a record delivery time, many of today's Canal Zone postal customers will tell you.

But back in the 1920's and 1930's there were no complaints. Airmail service to the Isthmus was the marvel of the age and Lindbergh the hero of the century. As a technical advisor to pioneering Pan American Airways, he made four trips to France Field from Miami as pilot of the plane delivering the mail.

Sorting the 200 or more pounds of

mail on that first direct United States-Canal Zone flight kept the Cristobal Post Office personnel busy throughout the night and at dawn the following day, the mail was loaded on a Pan American Grace Co. (Panagra) plane for the first long haul mail flight down the west coast of South America.

While establishing the new airmail services between the United States and Panama, Lindy soon became a familiar figure on the Isthmus. But his comings and goings were recorded in minute detail by the local press. So much so that he descended from the realm of the angels to the level of the common man.

The Panama Spanish press in 1930 concluded that Lindbergh, who was given such a cordial welcome in Panama in 1928 on his first visit in the Spirit of St. Louis, had become "about as inspirational as a Chicago sausage factory."

Prior to Lindbergh's arrival on the



U.S. Army seaplane prepares to take off for first local airmail flight, October 18, 1918.

sisting of 621 letters, 89 cards and 9 pieces of registered mail was placed aboard an Army Air Force plane at France Field early on the morning of October 6, 1920.

Among the letters was a notice from Crede Calhoun, Canal Zone Director of Posts, to the U.S. Postmaster General in Washington, D.C., noting that the letter was being sent by the first dispatch of mail to be made from the Isthmus of Panama to the United States by "aeroplane."

"I take this opportunity to express to you my kindest consideration and the hope that this may be a forerunner of the eventual establishment of aeroplane mail service between the United States and Latin America."

This grandiose beginning of an early air age project had an anticlimactic ending, however. Lt. Charles B. Austin, pilot in the U.S. Army Air Service, encountered impossible weather conditions nearing the island of Jamaica and he was compelled to return to France Field. All mail, including the confident message to the Postmaster General in Washington, was unloaded and dispatched from Cristobal by the SS *Orbita* sailing for New York via Norfolk.

In an effort to speed up the mail delivery between the Isthmus and the United States, arrangements were made in 1922 between the Canal Zone Post Office and postal authorities in New Orleans to have the Canal Zone mail sacks picked up by hydroplane off incoming mail ships at the mouth of the Mississippi River.

The sacks were flown back to New Orleans and put on the first outgoing railroad train. This advanced mail destined to New York and the U.S. West Coast from 6 to 18 hours depending on the railroad connections.

Transcontinental airmail service was established within the United States by 1924 and the hydroplane service was used to connect with this too. Notices of the airmail service schedules were put up in all Canal Zone post offices and charges were set at 8 cents a postal zone with the addition of the regular 2-cent rate for the Canal Zone added.

Thus a letter weighing 1 ounce or less mailed in the Canal Zone would cost an Isthmian resident 10 cents to send it from the Canal Zone to Chicago via New York. If it went from New York to San Francisco or from San Francisco to New York it would cost 26 cents. The regular postal rate in

those days was 2 cents within the United States and to countries having a postal convention with the United States. Those sending letters elsewhere paid 3 cents.

The first airmail flights between the Canal Zone and Costa Rica were started in 1925 following a trial run inaugurated by the U.S. Army Air Force.

In February of that year a bill was introduced into the U.S. Congress to establish airmail service between New Orleans and the Canal Zone at rates prescribed by existing law. It authorized the Postmaster General to purchase or lease such flying fields, hangars and other equipment necessary for service and to construct facilities with an appropriated fund of \$1,500,000.

Lindbergh opened airmail service between Miami and Cristobal but U.S. Army made first local airmail flight

Things did not move too fast and although there was an airmail service between the Canal Zone and Colombia and the Canal Zone and Costa Rica, bids for the airmail line from Key West to Panama were not advertised until 1928. The contract was awarded in July 1928 to Pan American Airways which was then running a passenger and mail service between Key West and Havana, Cuba.

Lindbergh celebrated his 27th birthday by hopping off from Miami February 3, 1929, to make the first airmail flight to Panama. He made the trip via Havana, Cuba; Tela, Honduras; Managua, Nicaragua; and David, Panama.

With him on this trip were John Hambleton, Vice President of Pan American, one mechanic and one radio operator. He also had six bags of mail. Juan T. Trippe, President and founder of Pan American, traveled part of the way.

Although his receptions in the various countries were to be informal, hundreds of people managed to get to the airport to greet the famous flier when he arrived. At France Field there were more than 1,500 including newsmen and newsreel photographers.

Said the Panama American on this

historic occasion "The airmail arrived here on time today. Airmail Pilot Charles A. Lindbergh was at the stick.

"Scheduled to arrive at 4 p.m., the Lone Eagle zoomed over France Field as watch hands pointed exactly to 4 o'clock. Two sportive P. W. pursuit planes were flying formation on each side. Three minutes later he had landed the big Sikorsky and opened the longest airmail route in the world. He estimated that he had flown about 2,000 miles from Miami to France Field."

As reporters surrounded the plane, Lindbergh refused to pose for photographs until he had checked out the mail bags and received a receipt for them from Director of Posts, Crede Calhoun and Postmaster Gerald Bliss.

When the famous flier opened the Pan American Airways direct mail route between Miami and Buenos Aires April 28, 1930, he landed his twin motored Sikorsky at France Field ahead of his scheduled flying time from Havana to Cristobal by almost 2 hours.

Said the Panama American: "Although soaked to the skin after being exposed from an open cockpit to a downpour of rain, Lindbergh was smiling happily as he crawled out of the plane. Delivering to Gerald Bliss, Cristobal Postmaster, 215 pounds of mail consigned from various points in the United States to South America and the Canal Zone, Lindbergh officially inaugurated the new 7-day airmail service from New York to Buenos Aires and Montevideo."

Flying the mail or any other air service was not easy in those days and compared to the present day routine jet flights, it was downright hazardous. In addition to the vagaries of the weather at the low levels the unpressurized planes had to fly, pilots also had to travel during daylight hours and land at primitive, makeshift airports.

Taking over at the Isthmus from Lindbergh on that inaugural South American mail flight in 1930 was Lloyd R. "Dinty" Moore, veteran Pan American-Grace Airways pilot.

Moore left France Field at 6:26 a.m., April 29, and landed at Santa Elena, Ecuador at 5:48 p.m., stopping on the way to refuel at Buenaventura, and Tumaco in Colombia. He was accompanied only by a copilot and a radio operator who reported a flight continuously harrassed by strong headwinds as far as Tumaco and an almost

1929 - Miami to Cristobal, C.Z. This early Latin American route eventually was extended to Venezuela and Argentina.



First-day airmail cover now on display at Smithsonian Institution in Washington, D.C.

Lindbergh Makes Delivery Of Mail With Which He Started New 7-Day Service



Charles Lindbergh and Donald F. Lusk, Operating Manager of the Panama Canal Zone, are seen here with Lindbergh's first-day airmail cover. Lindbergh is on the left, Lusk on the right. Lindbergh is on the left, Lusk on the right.

impenetrable fog from Tumaco to Santa Elena. At Talara, Peru, the mails were rushed to another waiting plane which took them to Lima.

From Lima the mail flight continued down the coast of South America to Santiago, Chile. Bundled in arctic flying togs, the pilot took off from Santiago early in the morning, crossed the Andes, flying sometimes at an altitude of 20,000 feet, and landed in Buenos Aires at 4:30 p.m.

The express airmail service from Miami, inaugurated in 1930, was only one of many airmail routes Lindbergh sponsored personally within the United States and to Panama. The Colonel himself could not remember how many when he was interviewed at France Field. It was the beginning of the airmail age and still a matter of wonder.

Canal Zone Gov. Harry Burgess, writing to J. M. Eaton, Pan American Airways General Manager in New York, said: "It has been brought to my attention that letters originating as far west as Des Moines, Iowa, and Minneapolis, Minn., arriving on Pan American Airways plane last Sunday, were received by the Canal Zone postal service 50 hours after they were mailed at the office of origin. Rapid and reliable communications service is vital to the

Panama Canal offering to the best advantage its service and facilities to business interests using the waterway."

Stamp collectors, an avid breed, were no different in those days from what they are today. Post offices on the Isthmus had as much trouble with the collectors as they did establishing the first regular airmail routes.

Both on this first flight via Central America and the later one direct from Miami, the bags contained thousands of first-day covers most of them consigned to stamp collectors who made all kinds of requests, sent money and stamps and generally gave a bad time to the hard working postal clerks.

Lines of people 15 deep waited at the windows of the various Canal Zone post offices to purchase stamps and the special first-day cache for the cancellation of the first airmail letters to be sent from the Isthmus to the United States.

The cache was designed by Meade Bolton, then Section Office Engineer at Balboa Heights, and showed a trimotored monoplane flying over Gailard Cut with a ship beneath it in the Canal.

Interest was doubled by the fact that Lindbergh was flying the inaugural flight and by the time post offices closed on departure date, more than 30,000 letters were processed.

The work was accomplished not without some grief and a lot of burning of the midnight oil. In a memo to Director of Posts Calhoun, Stacey Russell, the Canal Zone Postal Inspector, noted some of the difficulties.

Of the approximately 22,000 letters received on the first flight, most were individual requests for first flight covers. Since they contained money and stamps, he handled them personally and succeeded in dispatching 42,061 articles on the return inaugural flight.

Some of the collectors, he said, made unreasonable demands that could not be filled and several hundred letters arrived with 5-cent U.S. postage affixed which could not be used here. Others sent \$1 and asked the post office to return 10 or 15 covers. Each wanted special attention, perfectly centered stamps and the autograph of the postmaster and the pilot—who was Lindbergh.

Postmaster Bliss complied with the autograph in these cases, but, said Russell, naturally no attempt was made to obtain the pilot's autograph. E.R.

Those where the days . . . when the passengers opened the windows

THE TRI-MOTORED FOKKER planes used by the U.S. Postal Service, were capable of carrying 8 to 12 passengers and 800 pounds of mail. To give some idea of what it was like to be a passenger on one of these flights, an excerpt from a 1928 Pan American brochure is reprinted below. It will be noted that passengers in those days had the luxury of wicker chairs and could open the window to enjoy the breeze.

The fare on this trip between Key West and Havana was \$50 and included 30 pounds of luggage. Excess baggage was carried at the rate of 25 cents per pound "when the capacity of the plane permits."

ALL ABOARD!

Motors drum pleasantly, spinning glinting propellers in the early morning sunshine, as a little group emerges from the Passenger Station and strolls leisurely down the path.

Those who are making their first trip by air are wont to exclaim at the size of the airliner—its sturdy yet graceful lines that impart such a definite impression of power and reliability. The interior of the plane, with its spacious and luxuriously furnished cabin arouses admiration. Wicker chairs beautifully upholstered are ranged four in a row on either side of the cabin—leaving ample leg room and a clear aisle up the center.

As the passengers settle themselves for the journey, the Assistant Pilot furnishes each with reading matter, inquires after individual comfort, then takes his place next to the Chief Pilot. There is a subdued distant roar, as the propellers begin to whirl faster and the plane taxis gently forward for the take-off. It gains speed. Some seasoned air traveler casually remarks—"We're off!" but were it not for the cessation of the rumble of the wheels on the ground, the fact that the plane had arisen

would scarcely be noticeable.

The Pilot rises in a wide arc, and Key West with its white buildings slips gently away beneath. Meacham Field, where the plane took off, swings into view.

The Airliner straightens her course, heading out to sea—pink and white coral reefs are discernable through the clear blue water of the Gulf. The little island Key becomes an emerald set in blue, studded with tiny pearls of white houses.

Ahead as far as the eye can see are snowcapped waves in endless motion, sparkling in the sunlight. A refreshing breath of cool air pervades the cabin, as a seasoned air passenger slides back the window next to his chair. Others soon follow suit, finding the operation absurdly simple and the window easily adjusted to meet individual taste.

Above are corded nets in which small articles of apparel may be placed—hats, top-coats, sticks, briefcases and other things that the traveler may wish to have at close hand.

There is a compartment for heavier luggage aft, also a lavatory and storage space for mail. Pan American Airways, Inc., holds exclusive contracts for this service. The Post Office Department requires strict maintenance of schedules and exercises a general supervision over the Company's operations, in order to protect and safeguard the mails.

But to return to the flight—Passengers aboard this modern Magic Carpet converse freely, untroubled by the muffled roar of the engines. One points out far below a six-masted barkentine, reminiscent of the days of Captain Kidd—another sights the car ferry which appears at the halfway point in the air journey, on her run between Havana and Key West.

The White-Uniformed Assistant Pilot emerges from the cockpit

(Photos from 1928 Pan American brochure)



Interior of Pan American Airliner



Passengers boarding Pan American Airliner

and cheerfully supplies interesting information to those who are taking their first flight. It is learned that the load carried by the plane is checked three times before the take-off, and limited to the point which enables any one of the three engines alone, to keep the plane in the air until one shore or the other is reached.

Suddenly land is sighted—the coast of Cuba—and soon Havana Harbor swings into view, with Morro Castle guarding its narrow entrance, and the famous Malecon Drive stretching along the opposite shore, and all around a sea of white houses. Havana from the air—a sight not soon forgotten.

Surely a visit to Havana, the enchanted city, the Monte Carlo of the New World, is in itself a sufficient lure to the traveler, but add to this the fascination of making the journey over the turbulent Straits of Florida by Airliner, and the urge to go becomes irresistible.



Canal Zone

Happy hunting ground for bird watchers

By Willie K. Friar

FROM THE TIME THE FIRST parrots from the South American jungles were taken to Europe by sailors who had adopted them as companions for their long and arduous voyages, tropical birds have excited the imagination of nature lovers.

The colorful profusion of tropical birds in such close proximity to homes and offices is one of the first impressions of the new arrival to the Canal Zone.

But it is not by accident that the Canal Zone has become a paradise for bird watchers. The builders of the

Panama Canal were men of vision and they made careful plans to preserve forest areas, wherever possible, not only to protect the watershed so vital to the operation of the Panama Canal but to preserve the habitats of the wildlife in the area.

As soon as the permanent towns were built, top priority was given to the planting of trees and shrubs. A "City Beautiful" movement was started and the Canal Record of May 15, 1915, reported:

"In connection with the landscape

work being done in the permanent towns of the Canal Zone the horticulturist supervising the work is endeavoring to secure the cooperation of all residents in beautifying the towns by means of plants, shrubs, and trees. He points out that no place in the world offers better opportunities for this purpose, as the climate of perennial summer allows plants a continuous

**Preservation of forests
and planting of trees
make the Canal Zone a
naturalist's paradise**

development to more and more attractive forms. Tasteful planting, he states, and proper community care, will relieve the glistening newness of the new concrete town of Balboa, gradually conceal its angularity, and eventually transform it into a beautiful dwelling place, delightful to live in."

The flower and fruit trees planted at this time quickly filled with birds and a large bird population developed in all the towns. Also helpful to the survival of the birds in the Canal Zone, was the decision to place the utility lines underground, not only adding significantly to the beauty of the towns but eliminating a hazard for birds. Few people are aware that flocks of migrating birds frequently sever their wings when they accidentally fly into these lines.

An ornithologist's delight, the Canal Zone has more varieties of birds than



Mateo Sánchez, of the Grounds Branch, waters a newly planted palm on the Prado in Balboa. These young trees will replace the old ones, now more than 62 years old, which were planted when the permanent towns of the Canal Zone were built. Early planting of trees assured the propagation of the colorful tropical birds in the housing areas.



A sampling of the 880 species of birds found on the Isthmus, photographed by Officer John V. Brown, of the Canal Zone Police. These are familiar to most local residents. Left to right, by rows: Toucan, Tropical Kingbird, Red-legged Honeycreeper, Orange-chinned Parakeets, Red-crowned Woodpecker, and a flock of parakeets eating bananas at a backyard bird feeder.

One of the few places in the world where such a great variety of birds can be seen with so little effort

all of North America above Mexico. Approximately 880 species have been identified here.

There are several groups of people who are particularly interested in the local birds. There are the bird watchers, many of whom belong to the Canal Zone Chapter of the Florida Audubon Society. They go on field trips and wander through field and forest with binoculars identifying birds and keeping annual records. They are especially interested in finding a particular type bird unusually early or late in the season or seeing a rare species, like the quetzal, which is still found in the Panama highlands.

A second group is made up of ornithologists who represent a branch of biological science and study such things as how birds developed in the course of evolution and how the individual survives, including feeding habits, migrating, breeding, nesting, etc.

Almost everyone, young and old, appreciates birds and feels a special joy at hearing their songs and watching their activities.

But for any bird fancier to pursue this interest, there must be, of course, an abundance and variety of birds and this requires preservation of their habitats.

Since many tropical birds make their homes in the large old trees of the forest they leave the area as soon as the trees are cut. They need the jungle canopy for shade and the hollows in the trees in which to make their nests.

Once destroyed, the tropical forest does not grow back as many people believe. A dense jungle type growth does begin immediately but it is usually scrubby growth and not the same as the old forest with the large sturdy branches and the verdant growth of leaves, orchids, and bromeliads, which are typical of the trees which are many years old. The process of regrowth is

so slow that, for all practical purposes, once the jungle forest is destroyed, it is abandoned forever by the birds that used the area as their habitat.

Many of the irreplaceable old trees of the Isthmus have disappeared. But because of the foresight of the late Dr. Thomas Barbour, well-known naturalist, who proposed the establishment of the Madden Forest Preserve, and to the efforts of the late Canal Zone Gov. Harry Burgess, the Canal Zone remains a veritable wonderland for the bird watcher or amateur naturalist.

Writing in 1930 about the establishment of the Madden Forest Preserve, Dr. Barbour said, "This forest reserve abuts on country with a considerable rural population as you cross the boundary of the Canal Zone, to which the reserve extends, and passes into the territory of the Republic of Panama. The area is not sufficiently extensive to support many of the large native animals but many of the small species are abundant and will increase with protection and the birds are very satisfying indeed and are to be seen in numbers and great variety. There are several fine colonies of the hang-nests or oropendulas."

It was also through Dr. Barbour's efforts that Barro Colorado Island has been preserved. It is a hill converted into an island by the rising waters of the Chagres River following completion of the Gatun Dam. Birds, as well as animals, fled to safety here and as a result, a great variety are concentrated in this sanctuary.

Barro Colorado, administrated by the Smithsonian Institution, is ideal for the study and observation of tropical birds as trails have been chopped through the jungle so that it is possible to view birds in their natural environment.

Today, the Madden Forest Preserve with its giant espavé and cuipo trees covers nearly 6 square miles of the Canal Zone and is a popular spot for bird watching.

But the struggle to protect the area from squatters and timber poachers began at the time of its establishment and continues today. Canal Zone police keep a regular patrol and watchful eye on the preserve but poachers slip in and squatters practicing slash and burn agriculture continue to invade and destroy the forest.

Panama is a biological crossroads of North and South America containing plants and animals from both continents and is considered by some scien-

tists to be the most biologically diverse country in the world for its size. Here one can find within a small easily accessible area, an enormous variety of bird life but conservation of habitats is an escalating problem as man's impact on the environment becomes increasingly strong.

It is significant that after Balboa discovered the Pacific Ocean and claimed the land for Spain, a part of his ritual was to cut down a tree. It is still almost a ritual in parts of the Isthmus to attack the trees as soon as a road is opened through an area and the people come in.

In addition, the constant burnings during the dry season decimate the forests. Although fires have little effect on the untouched thick tropical forest where no cutting has been allowed, the edges are vulnerable to repeated burnings and the forest gradually retreats until only sawgrass and other undesirable grasses continue to grow.

Anyone driving through Madden Forest can observe this process. The moment one leaves the protected area there is only sawgrass. The tropical soil which once supported giant trees has dried out from exposure to the sun and has become barren and all the colorful birds have deserted the area.



Bisected by the Trans-Isthmian Highway, Madden Forest Preserve, is an easily accessible wonderland for bird lovers.

Continued preservation of habitats is necessary for the Canal Zone to remain a bird sanctuary



Above: Canal Zone Police Officer, John V. Brown, a bird watcher, shows some of his color slides to Balboa Elementary students.

Above right: Second grade students place some crumbs on the bird feeder built for them by Officer Brown.



It is hoped that in all future plans for the Canal Zone, measures will be taken to permanently insure the preservation of forest areas such as Madden, Ancon Hill, the Pipeline Road area near Gamboa (a particularly valuable area for bird watching) Barro Colorado and other areas, such as Fort Sherman and Fort San Lorenzo on the Atlantic side, not just for bird watchers but for the enjoyment of all nature lovers.

Bird watching is the hobby of an increasingly large number of people, as evidenced by the number of tourists who come to the Isthmus for this pur-

pose. Amateur naturalists have made many important contributions to ornithology and the study of birds continues to contribute much to the theoretical and practical aspects of biology.

As objects of general interest, birds have always been a part of the writings and art of man. Stories about birds are a part of all ancient cultures. Bird figures are found in ancient Egyptian hieroglyphs and paintings. Aesop's fables are filled with bird characters. One of the most impressive of the drawings on the Nazca plains of Peru is a bird.



Bird watching is a hobby that requires little equipment. However, to reach the habitats of some of the rarer birds, a canoe and jeep are helpful.



The Natural History Society donated bird watercolors to Canal Zone Library-Museum

In 1928, Bertha Bement Sturgis, who was a strong advocate of conservation in her popular "Field Book of Birds of the Panama Canal Zone," wrote:

"Many of the birds are valuable to man as destroyers of insects, as game birds, or food; while those that are not useful are for the most part quite harmless and often very beautiful and interesting creatures, which all who have a love of nature enjoy seeing and becoming familiar with.

"It cannot be too strongly emphasized that now is the time to begin systematic and earnest efforts to preserve the wildlife of the Isthmus, and to set aside reservations for the purpose while it still can be accomplished with a minimum of trouble and expense. Ten or fifteen years hence the difficulties and cost will be many times greater and it will be too late to save many of the larger and rarer species of birds and animals, as far as the Canal Zone and the more accessible parts of the Republic are concerned."

She went on to propose the organization of a natural history society to work for the preservation of the native birds and animals.

In 1931, such a society was organized. It was called The Panama Canal Natural History Society and from the time of its first meeting on August 19, of that year, the list of scientists who addressed the group read like a page from "American Men of Science." There was Dr. Arthur H. Compton, professor of physics at the University of Chicago, winner of the Nobel Prize in physics.

There was Dr. Thomas Barbour, Director of the Harvard Museum of Comparative Zoology and Dr. Frank Chapman, Curator in Chief of Ornithology for the American Museum of Natural History, one of the world's greatest ornithologists.

The society held meetings for many years at the Smithsonian Institution

Building in Panama City. The society became a memorable part of Isthmian history and has served to foster interest and study of insect, reptile and other wildlife forms on the Isthmus. The membership included many well-known Canal Zone residents who were here during construction days and who continued to work with the Canal following its opening in 1914. Quite a few influential citizens of Panama were included in the membership.

Mrs. Theodore Roosevelt was a guest at the meeting addressed by Dr. Chapman and the President of the Republic of Panama and the Governor of the Canal Zone were honorary members of the society.

Dr. James Zetek, at that time the director of Barro Colorado Tropical Research Station, was the first president of the Natural History Society and Dr. Barbour and Dr. Chapman became charter members.

The society was formed to stimulate interest in local natural history and to give local residents contact with the eminent scientists who frequently come to this region, particularly to Barro Colorado to study tropical wildlife.

When the society was disbanded several years ago, the remaining members still on the Isthmus voted to use the funds left in the treasury to purchase the watercolors of Canal Zone birds which had been painted by Lois Morgan. (Story on Miss Morgan is on p. 22.) These were donated to the Canal Zone Library-Museum and all 28 of them may now be seen hanging on the walls of the recently renovated library.

Eight of these paintings are reproduced in the centerfold of the REVIEW.

Birds shown in the centerfold are, left to right, top row:

1. Barred Antshrike (*Thamnophilus doliatus*)
2. Palm Tanager (*Thraupis palmarum*)
3. Variable Seedeater (*Sporophila aurita*)
4. Tropical Mockingbird (*Mimus gilvus*)
5. Orange-chinned Parakeet (*Brotogeris jugularis*)
6. Yellow-backed Oriole (*Icterus chrysater*)
7. Red-legged Honeycreeper (*Cyanerpes cyaneus*)
8. Squirrel Cuckoo (*Piaya cayana*)



The Oropendula female is a skillful weaver. Here she weaves the bottom of the nest while the male keeps watch for predators.



The Oropendulas are among the most interesting local birds with their long strange hanging gourd-like nests which are built in colonies in carefully selected trees. The female nest builders have the peculiar habit of stealing fibers from a neighbor's nest when she is away and quickly weaving it into their own nests.





Painting the birds

*Lois Morgan's watercolors
delight patrons at the
Canal Zone Library-Museum*



THE BIRDS I HAVE PAINTED are not rare jungle birds but are ones that I have come to know. With a few exceptions, most of the birds are fairly common." This is the way Lois Morgan explained the subjects she selected for her paintings of birds of the Canal Zone. Eight of these watercolors are featured on pages 20 and 21. All 28 watercolors in the collection are on permanent display at the Canal Zone Library.

Miss Morgan came to the Canal Zone in 1947 and taught science, art, social studies, and math to junior high school students until she retired in 1973 and returned to Toledo, Ohio, where she was born and grew up. She received her Bachelor of Arts in Education Degree at the University of Toledo and studied art at the Toledo Museum of Art and with Eliot O'Hara at Goose Rocks Beach, Maine. She also taught art at the Toledo Artists' Club and Toledo Women's Club.

In her spare time, one of her hobbies was capturing in watercolors the places she visited. She has painted landscapes in Maine, New Hampshire, Louisiana, Ohio, Michigan, Costa Rica, Ecuador, Peru, Bolivia, and Panama.

In addition to her well-known bird collection, she did a series of tropical flowers and grasses and another of her shows featured paintings of Louisiana landscapes painted while she was in Baton Rouge on a Ford Fellowship. The fellowship was granted to Miss Morgan to enable her to study botany, paint watercolors of local flowers, and visit historic sites relating to her teaching of social studies.

Her work is well known in the United States as well as on the Isthmus. She has had work accepted in juried watercolor shows in Ohio, West Virginia, and New York as well as in her hometown, where she has had shows at the Toledo Museum of Art and the Toledo Artists' Club.

*This 1962 photograph shows
Lois Morgan putting finishing touches
on a bird watercolor at her home in Balboa.
Retired since 1973, she now lives
in Toledo, Ohio, where she continues
to pursue her interest in painting.*

It's fun to find the female birds whose feathers may blend in with the foliage

A familiar figure around the Canal Zone for many years, Miss Morgan attracted crowds as she sat absorbed in her work of painting flowers, grasses, or birds but she said this never disturbed her. She also noted that cats, dogs, and even one snake showed up to watch her at work. In discussing the bird paintings and her painting technique, Miss Morgan said:

"I paint in transparent watercolor and use no white for lighting. Anything that is light must be kept light or scratched out after the painting is done. I have no white in my paints.

"I have been interested in birds all my life, and I have been interested in the different birds I saw here. I had been thinking of painting some of the common birds as well as some of the common plants of Panama and the Canal Zone and have been making bird sketches for some years.

"In painting the birds I have done them from life making sketches and notes and watching them for hours day after day. When I felt I "knew" the birds well enough I would sketch them in poses that I had seen them assume and that to me were characteristic of the bird. Then I would check my notes against Mrs. Sturgis' descriptions (author of "Field Book of Birds of the Panama Canal Zone"), and if there was a discrepancy, I would study the birds some more. After I had painted the bird, I would keep on observing to see if I had painted it as I thought it should be done. Some of the birds came within several feet of me but most of the study was done through binoculars.

"My first bird paintings were done directly in watercolor, but, as my paper supply diminished, I began sketching the final picture in pencil first and transferring my sketch to the watercolor paper and then painting.

"It has been a fascinating project



Ellen Martin, secretary to the Recreational Services Officer in the Civil Affairs Bureau, compares the reproductions in the centerspread of this edition to the original watercolors on display at the Canal Zone Library-Museum.

and one that has been of increasing interest. The Canal Zone Library has an excellent collection of bird books and I have been interested in all of them. I enjoyed particularly the information about some of our common birds—the blue tanager, crimson-backed tanager, blue honeycreeper, and the boat-tailed grackle in "Life Histories of Central American Birds" by A. F. Skutch. "Field Book of Birds of the Panama Canal Zone" by Bertha B. Sturgis is the best book on the birds of the Zone."

(A new book, published this year, "Birds of Panama" by Robert S. Ridgely offers bird watchers up-to-date information about bird watching in the Canal Zone. It is available in the Canal Zone retail stores.)

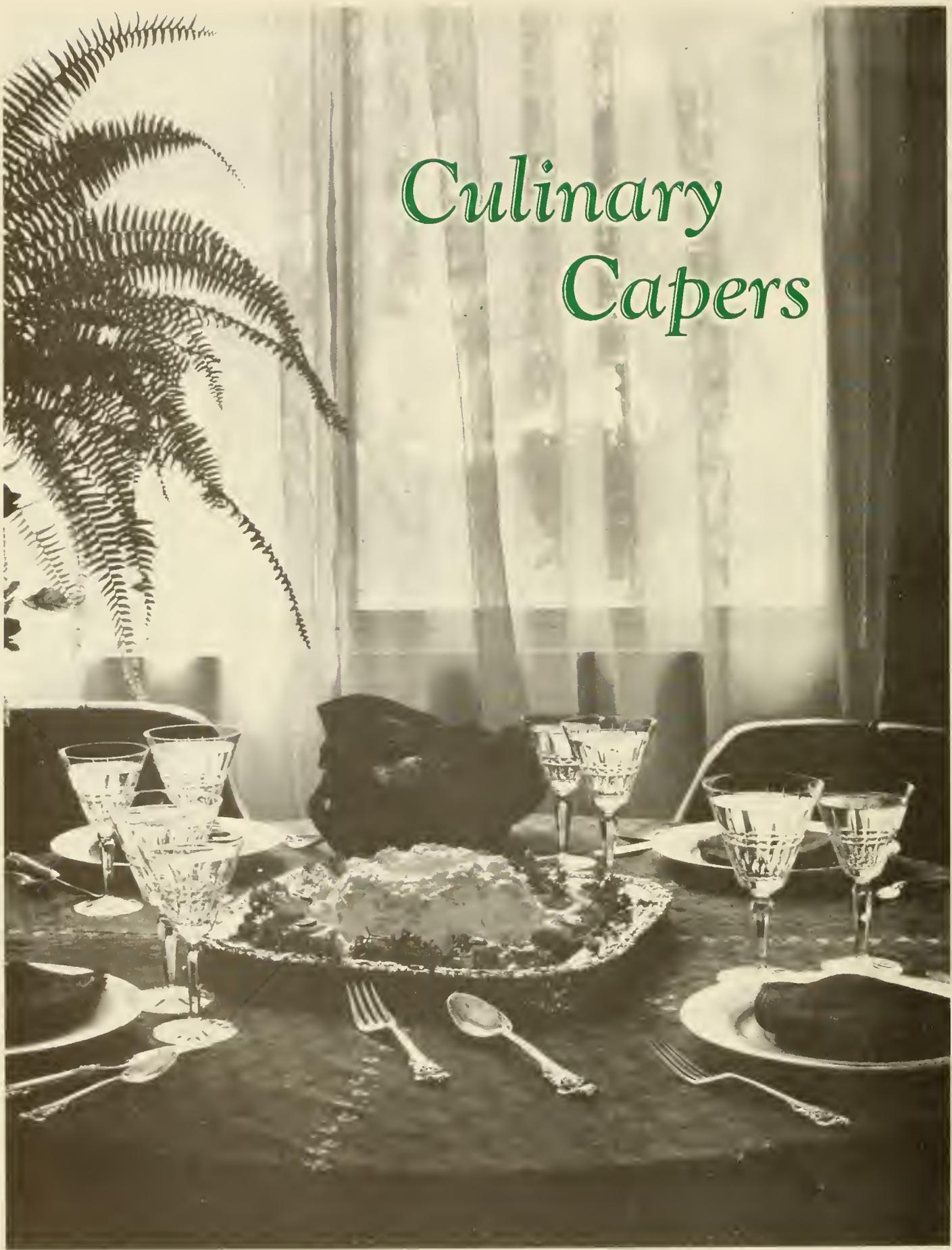
"The birds are painted approximately life size. However, since they can compress themselves and fluff out their

feathers and then stretch themselves out and smooth down their feathers, their size changes so much in life. They can change from tender, roundheaded, round-eyed Easter chick types to small-headed, feathered reptilian contours. Their color changes according to the light and the season, and I think, varies greatly in different members of the same species."

Her extraordinary collection of local birds features those familiar to residents of the Canal Zone as well as the not-so-familiar "cacique," which Miss Morgan says she just happened to discover at a feeding station on Ancon Hill.

Since her retirement, Miss Morgan continues to paint but also donates time to the mobile meals program for shut-ins and teaches English to the foreign born at the International Institute in Toledo.—WKF

Culinary Capers



A CALL TO LOCAL LOVERS of the culinary arts to share their favorite recipes with other REVIEW readers brought forth a plethora of diner's delights for our summer issue.

Among the many who responded was a professional chef whose story appears on page 28, and a long time Canal Zone resident who came back with a counter-request for a special salad dressing fondly remembered from the days of the old Tivoli.

A little digging in the files of the Canal's Supply Division produced not only the requested roquefort dressing but the more traditional Tivoli Dressing which was a trademark of the elegant old hostelry in its heyday.

Rushed to completion in 1906 for the arrival of President Theodore Roosevelt, the first of a long line of celebrities and distinguished guests to sign its register, the Tivoli closed its doors in 1971.

The building was dismantled, but many of the furnishings, silver and chinaware were salvaged and put up for sale as nostalgic reminders of another era. First opened as a commercial hotel, the Tivoli became a government guest house in 1951.

In construction days and in the years to follow, the Tivoli was a popular social center and a favorite eating place with Isthmus residents.

By Vic Canel

Readers' Recipes

Lemon Cream Cheese Salad With Shrimp Dressing (Shown at left)

Salad:

- 2 Cups boiling water
- 2 Packages lemon jello (3 ounces each)
- 1 8-Ounce package cream cheese
- ½ Cup light cream
- 1 Cup chopped celery
- 1 Cup pitted ripe olives, sliced
- 1 Cup whipping cream (½ pint)

Pour water over jello and stir. Chill until just syrupy. Soften cream cheese with cream and fold into jello. Add celery and olives. Whip cream and fold into jello mixture. Put mixture into mold and chill in refrigerator for 24 hours.

Dressing:

- 1 Cup mayonnaise
- 2 Tablespoons lemon juice
- 1½ Tablespoons grated onion
- 4 Tablespoons finely chopped pimento
- ½ Cup chopped cooked shrimp

Mix well mayonnaise, juice, onion, pimento and shrimp and chill until ready to serve. The dressing may be served over the mold (after it has been inverted onto serving dish) or on the side.

Serving plate may be decorated with small whole cooked shrimp, hard boiled egg halves and tomato wedges.

Noreen Singer

Rakort Spenot (Layered Spinach)

- 2 5-Ounce packages wide noodles
- 2 Packages frozen chopped spinach or 2 cups fresh cooked spinach (chopped)
- 3 Tablespoons butter or margarine
- 2 Tablespoons flour
- ½ Teaspoon salt (or to taste)
- ½ Teaspoon Hungarian paprika
- ¼ Teaspoon black pepper
- ¼ Teaspoon cayenne pepper
- 1 Cup milk
- ½ Pound Swiss cheese, coarsely grated

Cook noodles as directed on package, drain and rinse. Cook spinach and drain well. Check both for salt and add to suit taste. In saucepan, melt butter, stir in flour, salt, paprika and pepper. Gradually stir in milk. Cook until thickened, stirring constantly. Remove from heat and stir in the spinach. Grease 12 x 8 x 2 baking dish. Arrange half of noodles in dish, sprinkle with one half of the cheese; spoon spinach mixture over cheese; add remaining noodles and sprinkle other half of the cheese over top. (Paprika can be sprinkled over top of cheese for faster browning or more desirable color.) Bake at 350°F 15 minutes or until cheese is bubbly. Yield: makes 8 generous servings. Can be served with any entree—chicken, beef, veal, lamb chops or fish. Can be made day before and refrigerated.

Sue Wallace

Toasted Coconut Chips

- 1 Coconut
- Salt to taste

To prepare coconut, pierce eyes in end of coconut and drain liquid. Crack coconut open removing meat in fairly large chunks, when possible, and run potato peeler down edges to make strips. Spread by layers in roasting pan; sprinkling each layer generously with salt and toast in 300° oven for approximately 1 hour, stirring occasionally. When done they will be golden brown and crisp. Cool. Pack loosely in an airtight container. One medium coconut will make 1 one-pound can of chips.

Karen Pahumbo

Pickled Carrots

- 1 Can tomato soup
- 1 Onion, diced
- 1 Green pepper, diced
- ½ Cup salad oil
- 1 Cup sugar
- ¼ Cup vinegar
- 1 Teaspoon French mustard
- 1 Teaspoon Worcestershire sauce
- Salt and pepper to taste
- 3 Cans sliced carrots, drained

Mix all ingredients. Add the carrots last. Place in covered dish or jar. Refrigerate for several hours before serving.

Margie Ruoff



Tivoli menu covers and Tivoli china are from the collection of J. Winter Collins, Retirement/Housing Counselor. Tivoli silver is from the Canal Zone Library-Museum.



Tivoli Dressing

- 1 Cup sugar
- ½ Teaspoon dry mustard
- 4 Tablespoons catsup
- ½ Garlic clove (pressed)
- ¼ Medium sized onion, chopped
- 1 Cup oil
- 1 Cup cider vinegar

Mix sugar, mustard, catsup and garlic. Add oil. Blend or whip until creamy. Add vinegar and blend or whip until thick and creamy. Pour into 2 quart container. Add onion and let set from 6 to 24 hours in refrigerator.

Roquefort Dressing

- 1 8-Ounce package Blue cheese
- 8 Ounces sour cream
- ¼ Medium onion, grated
- 1 Small garlic clove
- Dash Louisiana Hot Sauce
- Dash Worcestershire Sauce
- Mayonnaise to thin dressing

Crumble the cheese and blend with sour cream. Add the onion, garlic, the sauces and mayonnaise. Let set in refrigerator overnight.





Stuffed Olive Fritters

- 1 7-Ounce can pitted black olives (jumbo size)
- ¼ Cup finely chopped onion
- 1 Tablespoon bread crumbs (very fine)
- 4 Tablespoons grated Parmesan cheese
- 2 Tablespoons tomato juice
- ½ Cup Bisquick mix
- ½ Cup milk
- 1 Egg

Oil for deep frying

Drain olives. Combine onion, crumbs, 2 tablespoons cheese and tomato juice to form stiff mixture. Stuff mixture into centers of olives. Beat Bisquick with milk, egg and remaining cheese to make batter. Pour about 1" of oil into pan and heat to medium-hot. Dip stuffed olives into batter and fry in oil until golden brown and crisp. Keep turning olives to brown evenly.

Noreen Singer



Avocado Omelet

- 4 Eggs
- 2 Avocados
- 1 Tablespoon dry onion flakes
- ¼ Teaspoon salt
- 1 Cup grated Swiss cheese
- 4 Teaspoons butter

Separate the egg yolks from the whites. Peel and mash the avocados. Combine the mashed avocados with the egg yolks, onion, salt, and ½ cup cheese. Blend until smooth and creamy. In another bowl, beat the egg whites until stiff. Combine with the avocado mixture and stir until all ingredients turn bright avocado green. Melt the butter over medium heat in a 6-inch frying pan. Pour ¼ of the batter into the pan, allow omelet to turn a light golden brown, flip completely and sprinkle with the grated cheese. Allow second side to turn golden brown. Cover and cook for 2 minutes more while the cheese melts. Serve immediately. Makes 4 omelets.

Roy Howell

Paper Bag Apple Pie

Crust for deep dish pie

Filling

- 7 Cups of apple chunks
- ½ Cup sugar
- 2 Tablespoons lemon juice
- 2 Tablespoons flour
- ½ Teaspoon cinnamon



- Topping*
- ½ Cup sugar
- ½ Cup flour
- 1 Stick butter

Combine ½ cup sugar, 2 tablespoons flour and cinnamon. Sprinkle over apples, coating well. Spoon in shell. Sprinkle with lemon juice. Combine topping ingredients, cutting in the butter and sprinkle over the apples. Slide the pie into a large paper bag and close it with paper clips. Bake for 1 hour at 425°F. Split bag open and serve.

Note: The paper bag will not work if it is recycled paper.

Beverly Hoffman

Potatoes Supreme

- 6 Medium potatoes, boiled and peeled
- Salt and pepper to taste*
- ½ Cup butter or margarine, melted
- 2 Cups shredded Cheddar cheese
- ½ Cup chopped green onions
- 1 Pint dairy sour cream

Grate potatoes coarsely. Mix with remaining ingredients and put in shallow 1-1½ quart baking dish. Sprinkle parsley on top and dot with butter. Bake at 350°F about 35 minutes. Makes six servings.

Donna Grubbs

Barbecued Pot Roast

Beef pot roast (blade, arm or chuck, 3 to 4 pounds)

- 2 Teaspoons salt
- ¼ Teaspoon pepper
- 2 Tablespoons fat
- ½ Cup water
- 1 8-Ounce can tomato sauce
- 3 Medium onions (minced or thinly sliced)
- 2 Cloves garlic (minced)
- 2 Tablespoons brown sugar
- ¼ Teaspoon paprika
- ½ Teaspoon dry mustard (Colmans)
- ¼ Cup lemon juice
- ¼ Cup chili sauce
- 1 Tablespoon Worcestershire sauce
- ¼ Cup vinegar

Rub meat with salt and pepper, brown in hot fat. Add water, tomato sauce, onion and garlic. Cover and cook over low heat 1½ hours. Combine remaining ingredients and pour over meat. Cover and continue cooking for about 1 hour . . . or until tender. Remove meat, thicken gravy with either flour or cornstarch (whichever is -the preference). Serve immediately. (This recipe, like many, improves with re-heating.)

Sue Wallace

Guanabana Sherbert

- $\frac{3}{4}$ Cup sugar
- 1 Cup water
- 1 Cup light cream
- 2 Cups guanabana purée
- 1 Tablespoon lemon juice
- 1 Egg white

Purée guanabana pulp by putting it through a colander, forcing it through a sieve, or squeezing it through cheese cloth.

Combine sugar and water and boil 5 minutes. Cool to lukewarm. Add purée and unbeaten egg white, cream and lemon juice. Freeze in an ice-cream freezer using 8 parts ice to 1 part salt.

Muriel Anderson



Quick Chocolate Mousse

- 1 6-Ounce package chocolate chips
- 2 Whole eggs
- 3 Tablespoons very strong hot coffee
- 2 Tablespoons rum or Grand Marnier (GM preferred)
- $\frac{1}{4}$ Cup scalded milk

Combine all ingredients in blender and mix at high speed for 2 minutes. Pour into four dessert dishes and chill for about 2 hours. Top with whipped cream before serving.

Deborah Livingston



Refrigerator Pickles

- 8 Cups sliced cucumbers
- 1 Cup diced onions
- 1 Cup diced celery
- 1 Cup diced green peppers

Mix and let stand for $\frac{1}{2}$ hour.

In the meantime make the brine.

- 2 Cups sugar
- 1 Cup vinegar
- 1 Teaspoon celery seed
- 1 Teaspoon mustard seed
- $\frac{1}{2}$ Teaspoon turmeric

Mix all in pan. Bring to boil and let cool. Pour over vegetables and mix well. Put in jars and refrigerate. Let stand for 10 days before using. Makes 3 pints.

Mickie Kramer



Alva L. Osavio, who sent in his recipe for Quiche Bretagne, removes the delectable dish from the oven in the Dredging Division kitchen in Gamboa.

By Dolores E. Suisman

SOME PEOPLE COOK AND others are cooks. Alva L. Osavio is a cook. As is so often the case, fate played a part in casting him in the role he has filled to perfection.

It began with Hungarian goulash. Back in 1940 when Osavio was a brand-new second cook on the tug *Favorite*, the captain wanted Hungarian goulash for lunch and asked Osavio if he could make it. Although the ambitious young man had never heard the words before, without batting an eye, he nodded and dashed for the nearest cookbook. When not only the captain but the officers and crew agreed it was the best goulash they had ever tasted, Osavio's star began its rise.

Assigned now as the Dredging Division's Food Supervisor, Osavio is in charge of procurement, storeroom, kitchen, and galleys on the division's floating equipment. But he doesn't cook.

The box lunches his cooks prepare for men working overtime are as tasty as he can make them, but it's not the same as poring over cookbooks, preparing menus and serving big steaming hot lunches to hard-working hungry men.

Osavio was 17 in 1939 when he went to work as a pinsetter in the Gatun Clubhouse bowling alley. Three

times in one year he was promoted: to waiter, pantryman and cooks helper. A little later he transferred to the Lighthouse Division as a messman, second cook, and, when the captain needed someone good at math to do subsistence reports, to steward over men his senior in age and grade.

Osavio's career and the *Favorite's* menus brightened again in 1945 when the tanker *Royal Oak* transitted the Canal. A cook-to-cook talk with the ship's steward, a seagoing veteran of ships' galleys, ended with a gift that is now the treasure of Osavio's huge collection of cookbooks: volumes entitled "How To Cook on Shipboard," "How To Bake on Shipboard," and "How To Order Food for Shipboard."

The new tug *Taboga* came into service in January 1949 and Osavio, now a real pro himself, was put in charge of feeding all of the men working on the Canal's floating equipment. He often went to sea himself to cook for those who went out to repair lighthouses on the reefs that guide ships along the Atlantic coast to the Panama Canal.

Twice he traveled far beyond the lighthouse reefs. A trip to Jacksonville, Fla., to pick up a new barge and tow it to Cristobal turned into a month's

layover in the United States when the Coast Guard wouldn't allow the tug to leave while hurricane warnings were up.

The "Red Letter Days" in Osavio's life involve feeding people: "Dredging Division Day," August 15, 1970, when he walked around and around the entire division area until his feet ached supervising eight cooks as they prepared fried fish, cole slaw, hamburgers and hotdogs for 3,000 people. And March 15, 1973 when Gov. W. P. Leber hosted 250 U.N. Security Council delegates aboard the *Atlas* tied up at Miraflores Locks. In rare unanimous agreement, the delegates approved of the buffet lunch of tropical delicacies that Osavio served.

Osavio has long had a desk-and-paper-work job but he has never stopped cooking. At work he leaves his office to get out in the kitchen with his men "to keep his hand in." And at home he cooks when he's allowed in the kitchen—which isn't often. His wife, the former Doriel Piggott of Gatun, says he only wants to get into her kitchen to show off. But he does do the cooking for parties and church suppers when he makes his most popular, and often original, dishes. Most requested are his famous Johnny Mazetti and chicken chow mein.

Saturdays he and Doriel go to his cousin's home in Bethania where Osavio experiments with new recipes. Once it was Quiche Bretagne (his recipe is at right) which, he says, "just happened" when he was making a Quiche Lorraine and his cousin came home from a fishing trip with some crabs. Osavio tossed in crab meat, added some shrimp that were in the refrigerator and had a dish that drew raves and has come to be one of his most sought-after recipes.

Now he is experimenting with three Ceviche recipes—one from Bolivia, one from Peru and one from Mexico.

Osavio, who was born in Gatun and attended Gatun Elementary School and the Baptist Academy in Cristobal, lives in a home in Paraiso filled with letters of appreciation, certificates of commendation and many other forms of recognition. Twice he has received outstanding performance awards with quality step pay increases.

He is proud of these signs of the success of his 38-year career but he is most proud of the sign of approval that comes when those eating one of his meals ask for seconds.



Quiche Bretagne

- ½ Cup mayonnaise
- 3 Eggs, beaten
- 1½ Cup (7½ ounce can crabmeat, drained and flaked)
- 1 8-Ounce package natural Swiss cheese, sliced and cut into pieces
- 1½ Cups shrimp, cooked and cut into pieces
- 3 Tablespoons flour
- ½ Cup white wine or cooking sherry
- 1 Teaspoon parsley flakes
- ½ Teaspoon salt
- 1 Cup thinly sliced onions
- ¾ Cup chopped scallions (about ½ inch long)
- ½ Cup pimientos, minced
- ¾ Cup thinly sliced celery

One 10-inch unbaked pie shell, chilled in refrigerator. Combine mayonnaise, flour, eggs, and wine and mix until smooth as velvet. Stir in crabmeat, shrimp, Swiss cheese, celery, parsley, salt, pimiento, scallions and onions. Pour into pastry shell. Bake at 350°F for 30 to 40 minutes. Serves 8.



Dredging Division's food supervisor is a creative cook



Above: The freshly baked Quiche Bretagne is seen close-up on the table of a tugboat. In the background is the dredge "Cascadas." Below: With wine, a special treat.





An aerial view of Balboa shows a part of the commercially owned and the Panama Canal Company owned and leased tanks at the La Boca Tank Farm.

Marine Bunkering

*Plays a vital
role in the
operation of the
Panama Canal*

THE PANAMA CANAL MARINE Bunkering Division, one of the largest bunkering operations in the world, handled 5,200 ships during fiscal year 1976. On a comparative basis, this was about 43 percent of the more than 12,000 oceangoing commercial vessels which transited the Canal during that period.

In February 1977, the *Remuera*, a northbound containership, took on 43,500 barrels of fuel at Pier 16, Cristobal, having a value of some \$600,000 at current local prices. In July 1973,

the price of fuel in Cristobal was \$3.85 per barrel vs. \$14.14 per barrel at the present time. The average bunker order today has a value of approximately \$53,000.

The bulk of all products moved through Panama Canal pipelines is the property of six major oil companies operating in the Canal Zone and Panama, and the Canal's Marine Bunkering Division charges only for hose handling, pumping, and the use of pipelines.

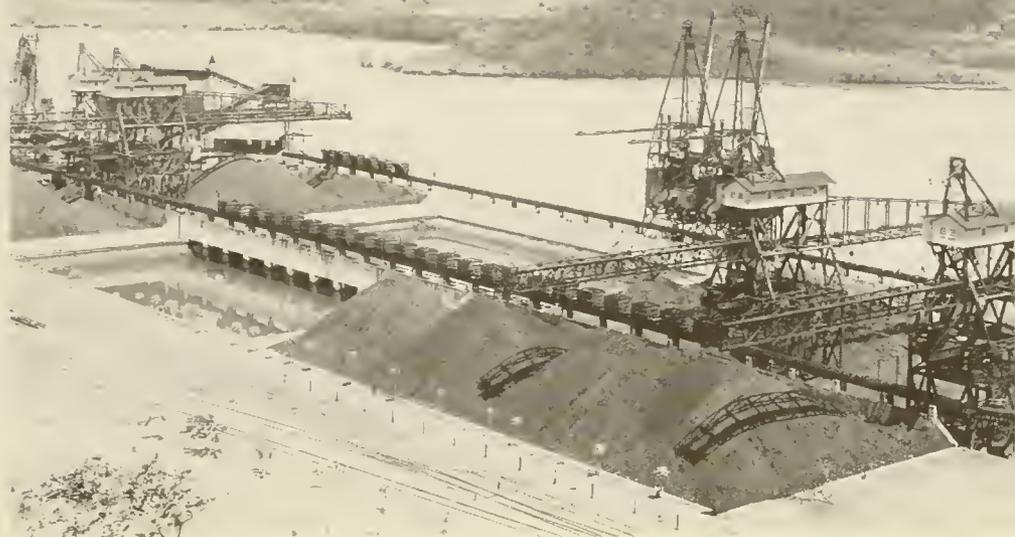
Prior to the recent decline in transits

One of the largest bunkering operations in the world

caused by the worldwide recession, oil volume handled in the Canal Zone made it the largest bunkering service in the western hemisphere and the third largest in the world. The largest operation in the world is in the Kuwait area and the second largest is Europort (Rotterdam-Amsterdam).

Following the end of coal bunkering at the Canal, the petroleum workload climbed upward steadily at an annual rate of 4 to 5 percent until the middle of last year when higher prices caused a downturn.

From the two coaling stations established in Canal construction days, the Marine Bunkering operations at the Panama Canal have evolved to become an integral part of services offered to transiting ships at the ports of Cristobal and Balboa. (The term



Conveyors for transferring coal from the pit to ships can be seen in this 1921 photograph of the old coaling station at Balboa.

Serving Canal customers for more than 62 years



The tanker, "Opalia," is serviced at Dock 7 in Balboa, a tanker discharge and bunkering berth. In the foreground is a gantry crane used for handling containers.

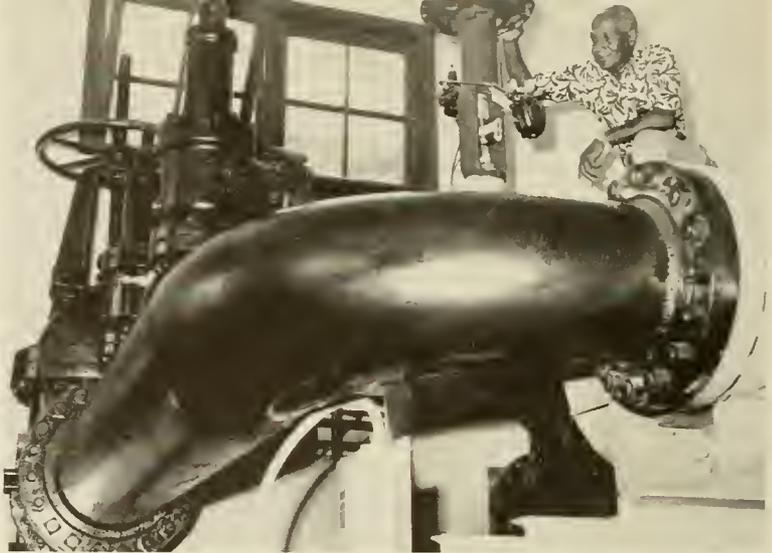
bunkering comes from the word "bunker," a compartment in a ship for storing fuel.) Today, bunkering involves the use of heavy, portable oil hoses and fixed pipe connections between a storage tank and the ship with valves to control the flow of fuel.

Reducing fuel costs and other expenses of ocean transportation were a basic consideration of the Panama Canal before it was opened. It was recognized in toll studies made in 1912 that toll rates and the cost of fuel would greatly influence traffic through the Canal. To attract shipping to the waterway, it was necessary for the Canal to be equipped with facilities for supplying vessels with coal, fuel oil and other provisions that would be comparable to those offered at the main ports of the world.

In "Panama Canal Traffic and Tolls," studies by Emery R. Johnson in 1912, it was indicated that "Government coaling stations will give the Panama Canal greater traffic and larger revenues." Providing coal at the Canal for merchant vessels making long voyages was an important factor in competing for the traffic which was free to move by more than one route. Business-minded shipping companies were aware



Fuel Distribution System Operator Hugh Cole conducts tests at the boiler water testing laboratory in Balboa.



Operator John Weibly makes an adjustment on a by-pass valve on a turbine pump at the Balboa Plant.



also that by being able to cut bunker space in their vessels there would be more room for cargo.

To provide this service, coaling

plants were established at Cristobal and Balboa, in 1914, soon after the Canal was opened to world commerce. At Cristobal, ample wharf space was built and coal handling machinery was provided for loading and unloading the colliers bringing coal from Virginia and West Virginia, and for loading it onto the barges. Covering 20 acres, with "coal pile" space 1,800 feet long by 460 feet wide, the Cristobal coaling station was said to be the largest single coal receiving and distributing plant in the world at that time.

The two plants had a normal storage capacity of approximately 500,000 tons of coal and sales ran as high as 45,000 tons a month. The sale of coal was then a growing business for the Panama Canal and for several years the coaling plant at Cristobal was one of the most important harbor operations.

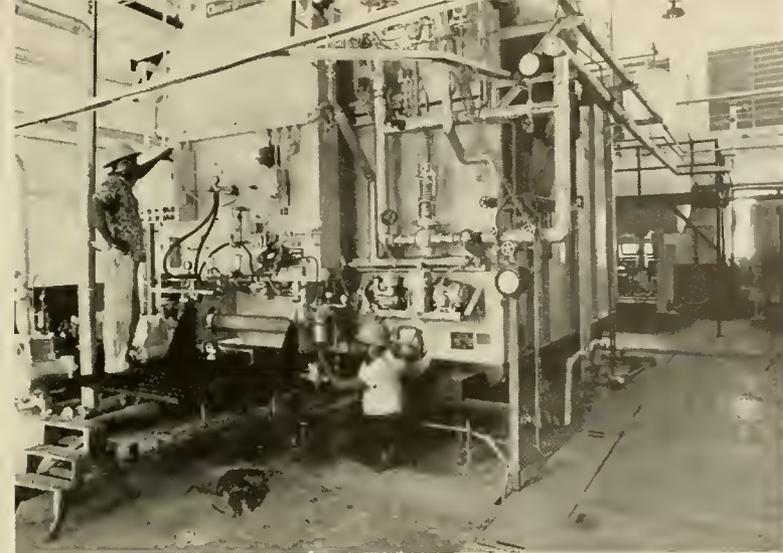
Vessels took on coal at Cristobal from barges or from cars alongside the wharf. It cost \$5.40 a ton and the use of the steam hoist and crane was \$1 an hour. At Balboa, the price was \$1 more per ton.

In addition to coal, fuel oil was available at \$1.30 a barrel at Balboa from the Union Oil Co., the oldest petroleum company identified with the construction and operation of the Panama Canal and the Panama Railroad. A lease granted by President Theodore Roosevelt in 1906 to Union Oil stipulated that the company pay \$500 a month for the support of the public schools in the Canal Zone and furnish the Isthmian Canal Commission and the Panama Railroad all the oil they needed at 90 cents a barrel.

Later, the lease was amended by doing away with the monthly payment



Above left: Fernando Romero, one of the three fuel distribution system foremen on duty 7 days a week, gives instructions over the VHF radio as he coordinates bunkering operations at the La Boca Tank Farm. At left: Froilán Díaz, Arcadio Batista and Manuel López hook up a 2,300 barrel per hour bunkering meter.



At Mount Hope, James Dodd stands at the control panel of a new package boiler while coworker Henry Fergus drains the filter.

Walter F. Boyd, wears safety ear protectors, as he works at the Mount Hope Plant.

for the schools, exempting the company from taxes in the Canal Zone, fixing the price of oil at \$1.10 a barrel, and limiting the volume to 60,000 barrels a month. Oil consumption, however, increased at such a rate that supplemental agreements had to be made. Union Oil constructed the first pipeline across the Isthmus in 1907. It was the first pipeline across the Continent and was removed by the War Department after the Canal was built.

In 1914, when the Canal opened, 89 percent of the world's shipping depended on coal, while by 1936 only slightly over 50 percent was using coal. Black smoke pouring from the funnels of vessels was still a common sight at the Canal until the early 1950's but coaling days were coming to an end.

During and shortly after World War II, the U.S. Navy converted most

of its ships to oil and the two coal plants became less and less important. Business picked up slightly during the war when a few of the old coal burners were pressed into service.

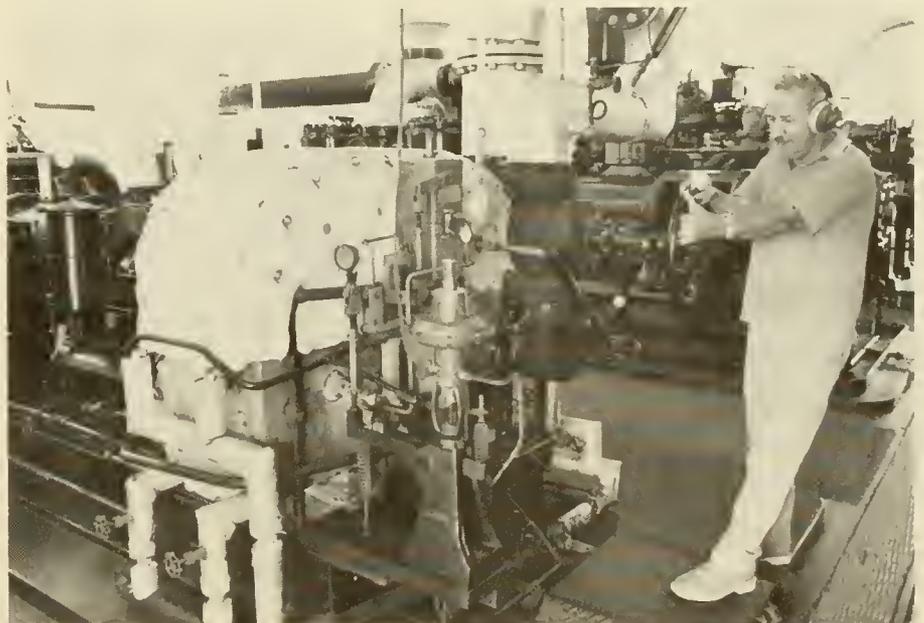
But sale of coal declined so steadily after the war that the Panama Canal retired from the coaling business. Part of the equipment at the Balboa Plant had already been altered to handle sand and gravel and the plant was closed as a coaling station in December 1947. The Cristobal Plant was closed in December 1951 and the entire plant scrapped.

Bunkering operations were until recently handled by a section of the Terminals Division. Because of the importance of these operations to the Canal's basic mission, the volume of business, and the complexity of bunker-



ing functions, marine bunkering operations were made an independent unit, becoming in 1974, the Marine Bunkering Division.

Above right: Jack Ruoff, left, General Manager, Harbor Terminals Division and Edward H. Bensen, Acting Manager, Bunkering Division, discuss operations. At right: Mike Kandrin, Fuel Distribution System Operator, starts up a 4,000 barrel per hour turbine screw pump to deliver fuel to a customer.



At right and on opposite page,
workmen install new fuel lines
for bunkering and tanker
service at pier 16 in Cristobal.



Marine Bunkering operates two major oil handling plants, one on each side of the Isthmus. The plants are equipped with storage tanks, pipelines, hundreds of valves, pumps, boilers, hoses and other equipment to receive, store and deliver fuel to ships. Both oil handling plants were placed into operation in 1914 and a number of the original tanks, pipelines, pumps and other equipment are still in use.

On the Pacific side, a tank farm and pumping plant are located in La Boea with pipelines to and installations on or under Docks 4, 6, 7, 14, 15, 16 and Pier 18.

On the Atlantic side, the tank farm and pumping plant are at Mount Hope with pipelines to and installations on or under Docks 9 and 10 and Piers 6, 7, 8 and 16. Docks 6 and 7, Balboa, and Pier 16, Cristobal, are primarily tanker discharge and bunkering facilities. Other docks and piers are used for combined cargo operations and bunkering.

The common pipeline system includes about 28 miles of pipeline of various diameters at each terminal. There are 47 storage tanks of 1,885,600

barrels working capacity in active service on the Pacific side and approximately 2,095,500 barrels of space in 44 tanks at Mount Hope, including Panama Canal, commercial and some U.S. Navy facilities. Included in the operations is a direct pipeline tie-in from the refinery at Las Minas. Daily pumping of fuel is provided for the electric plant in Panama City.

When oil is to be pumped to or from a pier, hoses, adapters, blenders, meters and other equipment have to be brought out, assembled and after use disassembled and stored. Other equipment includes hose trailers and cranes for lifting hoses into position. Connecting and disconnecting hoses and blenders may take from half an hour to two hours and the total bunkering time varies with the number of barrels lifted and the pumping rate.

Approximately 185 employees working three 8-hour shifts, 24 hours a day throughout the year, attend to Marine Bunkering activities on both sides of the Isthmus. Their duties include the discharge of petroleum products from tankers and providing for the basic fueling services of bunkering on the

piers. The shoreside pumping, gauging of tanks, and dockside assistance service an average of 15 vessels a day. At the real core of the operations at both plants are the pumps, manifolds and boilers manned by Fuel Distribution System Operators, Boiler Tenders and Fuel Distribution System Workers.

Fuel Distribution System Operators, highly skilled employees, are responsible for round-the-clock operation of the manifold, pump and boiler systems.

Bunkering crews usually consist of a leader and four employees who perform the hook-up of the heavy hoses. Once a vessel orders bunkers, the leader goes aboard the vessel and checks with the engineer to verify the ship's requirements. He then reports to the Operator at the operations plant verifying the amount and type of bunkers to be taken on.

Crews must accomplish their duties promptly as vessels usually want to move in and out of the ports quickly due to high operating costs. Various types of mechanical bunkering devices have been developed to reduce a ship's time in port, an important economic aspect in shipping operations.

While the petroleum industry has intensified its efforts to eliminate oil spills at terminals and elsewhere, accidents inevitably occur due to human error or equipment failure. Bunkering crews worry about these spills and guard against oil pollution of Canal Zone waters. Bunkering personnel constantly monitor hoses and shore connections to detect any leaks. Containment and clean-up equipment are available at both ports on a standby basis, and in case of a spill, quick action is taken to stop the discharge and contain the spill, with the aid of Dredging Division's Oil Pollution Control Unit.

The heart of the distribution system at each terminal is a manifold which allows products received from tankers to be directed to the proper tanks and from the storage tanks to various pumps which then direct it through pipelines to piers, Panama Canal powerplants, or to other storage tanks.

There are seven oil transfer pumps, ranging from 5 to 60 years old, at each terminal plant, varying in capacity from 600 to 4,000 barrels per hour. Power to operate the majority of these pumps is supplied by three modern "automatic" steam boilers of approximately 700 horsepower each. The old brick boilers were not automatic and

required hard physical labor to operate them.

Joseph Drake, a husky boiler tender whose service with bunkering operations goes back to 1939, recalls that his work was more difficult in the old days before the new bunkering devices and wharf equipment were developed. "We used block and tackle to hoist the hoses up to the ship. The hoses were heavy and the 50-pound flanges on each end made them quite a load. Carrying a 4-inch hose on my shoulders, sometimes quite a distance down the pier, was a hard job even for a big fellow like me. A less able-bodied man would have buckled under the weight," Drake remarked.

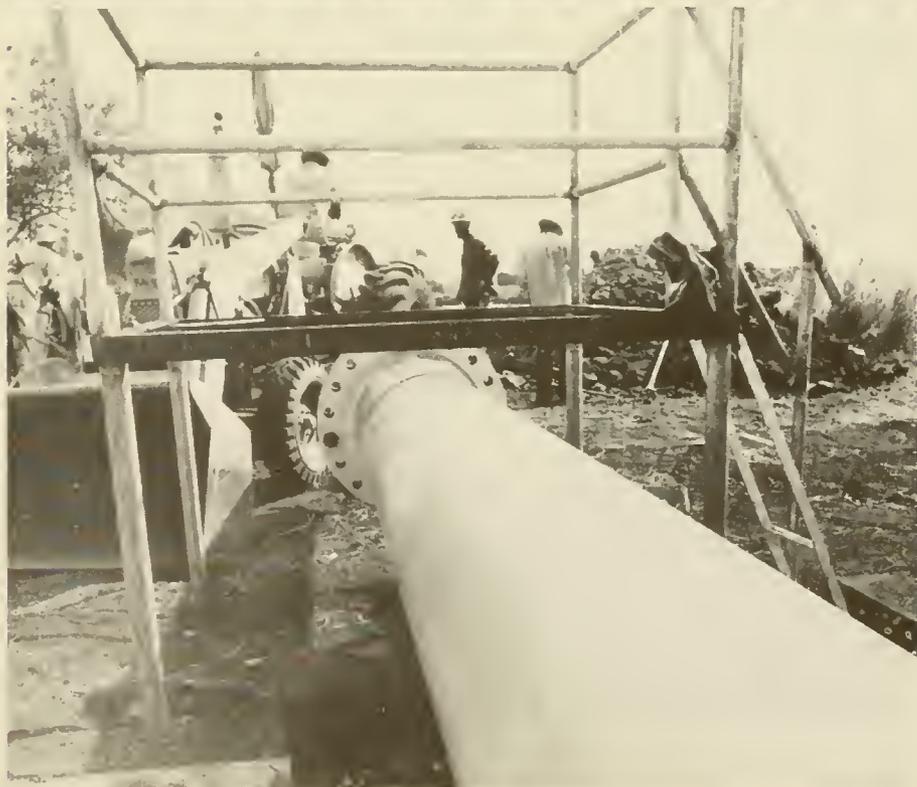
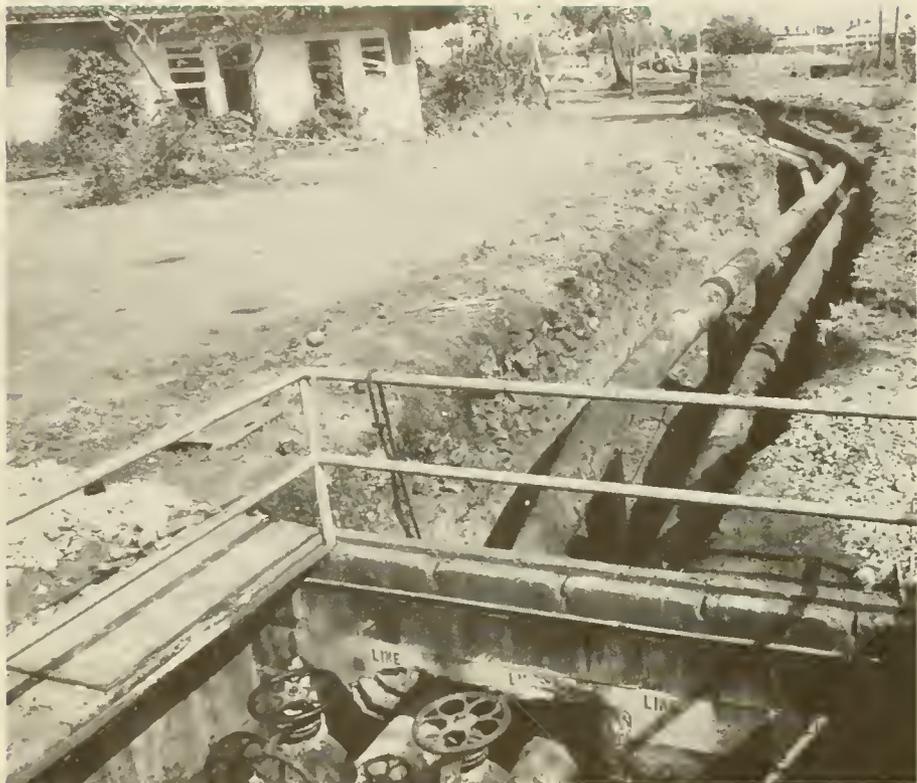
He noted too that the location of a vessel's intake connection often created a problem as ship designers apparently did not take into consideration the necessity for fueling until the design was complete and piping connections were added any place. As a result, the manifold on one vessel was found amidships, on another it would be near the bow, and on another, at the stern.

Newer vessels have adequate piping and connections are conveniently located, but some of the old ones still in operation provide real challenges to ingenuity. For instance, where do you hook a block and tackle arrangement to lift and support bunkering hose for a connection located on the vessel's galley overhead with nothing above but the blue sky?

Drake recalled that since fewer ships were coming through the Canal in those pre-war days, the men had time to perform other duties on the piers or at the plant. On a slow night, it was not unusual for a couple of the men to get out the lawn mowers, turn on the flood lights and cut the grass near the plant. One fringe benefit the bunkering men had in those days was the good meals they were offered aboard the vessels they were working on. "We could have all the food we wanted, be it breakfast, lunch or dinner," said Drake wistfully. This practice was changed a few years ago and the men no longer are permitted to accept invitations to go aboard vessels for meals.

Gauging tanks and assuring that they are not overfilled are the duties of gaugers at the Balboa and Mount Hope tank farms. A gauger needs to be alert and agile while climbing the tanks or moving in and out and around the tank farm. He also soon develops a skill

Improvement projects have totaled more than one million dollars annually for the past few years



From steamships to supertankers



In 1917, when this photograph was made, the Cristobal Coaling Station was the largest coal receiving and distributing plant in the world.



A vessel takes on bunkers at Pier 16 in Cristobal. In the foreground is a tanker discharge riser for loading and off-loading fuel.

with mathematics and knows that each $\frac{1}{8}$ inch of petroleum product in a large storage tank equals a certain number of barrels for the different size tanks. In the petroleum industry, a barrel is 42 gallons. Fuel oil, gasolines, diesel oils, solvent and toluene (resembling benzene, used as a solvent and anti-knock agent for gasoline) are stored in the more than 90 tanks at Balboa and Mount Hope. A rigid accounting system is necessary for the various commercial firms to follow and monitor these highly valued commodities.

Before tankers are allowed to discharge any product into the pipeline system, tests are made on samples taken from the vessel. Tests for flash point are made and products must meet certain minimum or maximum standards. Pointing out how important it is for the right fuel to be routed to a certain tank or a vessel to receive the product it has requested, manifold operator Manuel Aparicio recalled an incident several years ago when a vessel supposedly unloading heavy diesel discharged ammonia instead. It took 2 years to clean out the tank and make it serviceable again. "A nightmarish mistake, yes, but it can easily happen nowadays when vessels often carry three or four different products—gasoline, diesel, crude or a blend", said Aparicio, adding that, luckily, he had nothing to do with that costly blunder years ago. He checks samples of product every half hour when loading or unloading to make sure it is the right product and is going where it should.

Since vessels of many nations receive bunkers at Canal Zone piers

PANAMA CANAL TRAFFIC

	TRANSITS (Oceangoing)		
	First quarter FY 1977	First quarter FY 1976	Transition quarter
Commercial-----	2,887	3,031	3,037
U.S. Government--	21	25	18
Free-----	5	7	4
Total-----	2,913	3,063	3,059
	TOLLS °		
Commercial-----	\$38,167,041	\$32,728,464	\$35,286,837
U.S. Government--	180,176	257,773	168,585
Total-----	\$38,347,217	\$32,986,237	\$35,455,422
	CARGO °° (Oceangoing)		
Commercial-----	31,851,363	29,953,719	30,888,300
U.S. Government..	49,469	69,296	55,383
Free-----	-----	18	-----
Total-----	31,900,832	30,023,033	30,943,683

° Includes tolls on all vessels, oceangoing and small.
°° Cargo figures in long tons.

NOTE: Effective 10-1-76 the fiscal year for all U.S. Government agencies was changed from July 1 through June 30, to October 1 through September 30. For continuity purposes, July, August, and September 1976 were designated the Transition Quarter.

Figures shown for the First Quarter of 1976 correspond to the new fiscal year.

Statistics compiled by the Executive Planning Staff.

through contracts with major oil companies, occasionally a language barrier arises. A selective use of sign language and terms common to the petroleum business throughout the world are normally sufficient to enable bunkering personnel to deal effectively with any vessels wishing to replenish their bunkers.

In addition to routine bunkering operations, the Marine Bunkering Division extends special assistance to vessels experiencing problems while transiting the Canal.

Last year, when the gasoline tanker *Mobil Aero* had its propeller back off the tailshaft and lodge against the ship's rudder in Gatun Lake, it was necessary to make arrangements for transferring the gasoline from one tanker to another. The vessel in distress was moved through Gatun Locks with tug assistance to pier 16, Cristobal. Later 252,474 barrels of gasoline were transferred from one side of the pier through pipelines into the tanker *Mobil Lubc*. The ship transited with the cargo on toward its destination, while the Industrial Division effected the necessary repairs to the *Mobil Aero*.

When the crude oil tanker *Lykomedis* developed hull and other problems this past January, a cargo of 165,000 barrels of crude oil and 30,000 barrels of fuel oil was transferred from this vessel under strict precautionary safety measures to the *Esso Parentis*, another tanker lying alongside the opposite side of the pier.

In both cases, the value of the cargo at today's prices was extremely high, the vessels were anxious to overcome their problems, safely transfer their cargoes and get both ships and cargoes moving on toward their respective destinations.

Currently, the Marine Bunkering Division has numerous plant improvements underway that include line renewal, installation of new pumps, and a meter prover at Balboa. In the last few years improvement projects have totaled over \$1 million annually. Every effort is made to maintain the petroleum distribution system in a first class condition and to continue serving shipping at the terminal ports of the Canal with dispatch and efficiency.

OCEANGOING COMMERCIAL TRANSITS BY NATIONALITY

Nationality	First Quarter 1977 (Oct.-Nov.-Dec.)		First Quarter 1976 (Oct.-Nov.-Dec.)		Transition Quarter (July-Aug.-Sept.)	
	No. of transits	Long tons of cargo	No. of transits	Long tons of cargo	No. of transits	Long tons of cargo
British	261	2,605,611	319	2,916,314	298	2,897,587
Chilean	50	413,020	45	475,918	42	360,422
Chinese, Nat'l.	28	415,677	27	324,208	31	412,129
Colombian	45	76,980	51	70,324	49	77,388
Cuban	20	118,745	13	52,370	20	83,447
Cypriot	24	95,944	24	87,428	22	93,345
Danish	74	550,846	77	496,429	62	503,223
Ecuadorian	43	483,129	36	219,822	51	514,569
French	43	303,344	49	271,962	46	296,937
German, East	26	30,189	19	21,972	15	24,189
German, West	145	970,379	150	890,739	157	856,210
Greek	246	4,174,787	227	3,546,080	279	4,311,095
Italian	43	230,032	65	514,151	57	297,029
Japanese	233	2,439,741	250	2,034,314	229	2,289,244
Liberian	432	7,939,654	402	7,270,529	461	7,150,210
Netherlands	51	348,276	89	508,794	58	413,973
Norwegian	143	2,328,318	160	2,223,375	180	2,674,792
Panamanian	269	1,970,427	235	1,715,370	263	1,789,166
Peruvian	40	341,396	62	656,778	37	393,676
Poland	23	185,693	24	92,823	18	41,109
Singaporean	22	213,022	21	182,055	22	232,898
Soviet	42	262,771	49	170,687	60	249,248
Swedish	78	778,094	80	1,095,785	75	756,804
United States	281	2,341,817	276	1,965,761	248	2,046,044
Yugoslavian	26	207,374	13	69,941	34	321,136
All other	199	2,026,097	268	2,079,790	223	1,802,430
Total	2,887	31,851,363	3,031	29,953,719	3,037	30,888,300

OCEANGOING COMMERCIAL TRANSITS OVER PRINCIPAL TRADE ROUTES

Trade routes	First quarter FY 1977 (Oct.-Nov.-Dec.)	First quarter FY 1976 (Oct.-Nov.-Dec.)	Transition quarter (July-Aug.-Sept.)
East Coast United States—Asia	664	680	695
Europe—West Coast South America	269	258	269
East Coast United States—West Coast South America	237	299	267
Europe—West Coast United States/Canada	220	208	257
Europe—Asia	74	126	63
Europe—Oceania	101	107	101
East Coast Canada—Asia	81	80	71
United States Intercoastal (including Hawaii)	123	102	104
East Coast South America—Asia	87	41	64
West Coast South America—West Indies	95	93	85
All other	936	1,037	1,061
Total	2,887	3,031	3,037

OCEANGOING COMMERCIAL TRAFFIC BY MONTHS

Month	Transits			Tolls (in thousands of dollars) ¹		
	First quarter FY 1977	First quarter FY 1976	Transition quarter	First quarter FY 1977	First quarter FY 1976	Transition quarter
July	---	---	1,037	---	---	\$11,851
August	---	---	1,041	---	---	12,070
September	---	---	959	---	---	11,351
October	976	1,045	---	\$11,488	\$11,150	---
November	968	994	---	12,777	10,846	---
December	943	992	---	13,887	10,722	---
Total	2,887	3,031	3,037	\$38,152	\$32,718	\$35,272

¹ Before deduction of any operating expenses.

NOTE: Effective 10-1-76 the fiscal year for all U.S. Government agencies was changed from July 1 through June 30, to October 1 through September 30. For continuity purposes, July, August, and September 1976 were designated the Transition Quarter. Figures shown for the First Quarter of 1976 correspond to the new fiscal year.

Statistics compiled by the Executive Planning Staff.

PRINCIPAL COMMODITIES SHIPPED THROUGH THE CANAL

(in long tons)

Atlantic to Pacific

Commodity	First quarter	First quarter	Transition
	1977 (Oct.-Nov.-Dec.)	1976 (Oct.-Nov.-Dec.)	quarter (July-Aug.-Sept.)
Petroleum and products	3,745,446	3,397,766	3,888,207
Coal and coke	3,444,108	4,496,014	3,545,265
Corn	2,380,572	1,887,020	2,436,430
Soybeans	1,315,491	1,433,790	1,032,309
Phosphate	864,845	799,149	735,478
Wheat	677,708	664,638	967,607
Sorghum	657,751	478,960	548,075
Ores, various	444,377	358,654	310,266
Metal, scrap	356,439	500,425	200,940
Chemicals, unclassified	278,337	246,943	299,236
Manufactures of iron and steel	185,481	175,989	288,014
Sugar	162,859	175,095	140,767
Fertilizers, unclassified	161,436	89,503	155,643
Paper and products	116,386	121,374	115,888
Machinery and equipment (excluding autos, trucks, and accessories)	110,991	147,466	118,249
All other	2,569,869	2,559,852	2,789,032
Total	17,472,096	17,532,638	17,571,406

Pacific to Atlantic

Commodity	First quarter	First quarter	Transition
	1977 (Oct.-Nov.-Dec.)	1976 (Oct.-Nov.-Dec.)	quarter (July-Aug.-Sept.)
Petroleum and products	2,403,579	2,467,486	1,890,777
Manufactures of iron and steel	2,089,971	1,937,352	2,062,439
Ores, various	1,492,487	826,339	1,507,073
Lumber and products	1,162,362	754,709	1,135,666
Sugar	856,625	675,059	782,232
Barley	517,284	166,091	100,960
Woodpulp	484,978	252,802	478,752
Food in refrigeration (excluding bananas)	412,509	404,560	479,795
Bananas	375,251	391,904	370,669
Metals, various	353,993	283,513	389,289
Sulfur	255,406	341,737	371,905
Molasses	231,582	161,106	256,002
Autos, trucks, and accessories	194,037	245,490	199,187
Fishmeal	170,457	161,218	268,915
Paper and products	153,988	80,667	134,596
All other	3,224,758	3,270,086	2,888,637
Total	14,379,267	12,420,119	13,316,894

CANAL TRANSITS—COMMERCIAL AND U.S. GOVERNMENT

	First quarter 1977 (Oct.-Nov.-Dec.)			First quarter 1976 (Oct.-Nov.-Dec.)	Transi- tion quarter (July- Aug.- Sept.)
	Atlantic to Pacific	Pacific to Atlantic	Total		
Commercial:					
Oceangoing	1,422	1,465	2,887	3,031	3,037
Small ¹	98	78	176	141	204
Total	1,520	1,543	3,063	3,172	3,241
U.S. Government:					
Oceangoing	12	7	19	25	18
Small ¹	54	16	70	32	36
Total	66	23	89	57	54
Grand Total	1,586	1,566	3,152	3,229	3,295

¹ Vessels under 300 net tons, Panama Canal measurement, or under 500 displacement tons.

NOTE: Effective 10-1-76 the fiscal year for all U.S. Government agencies was changed from July 1 through June 30, to October 1 through September 30. For continuity purposes, July, August, and September 1976 were designated the Transition Quarter. Figures shown for the First Quarter of 1976 correspond to the new fiscal year.

Statistics compiled by the Executive Planning Staff.



Complete control of the U.S.S. "Elliot" can be carried out from the ship's spacious bridge which is equipped with a display console (foreground) to keep the commander constantly in touch with the status of targets being tracked by the Combat Information Center below decks while direction and speed of the ship can be automatically controlled from the central console at left.

Another new destroyer transits the Canal

THE U.S.S. ELLIOT, ONE OF the 30 new multi-mission destroyers being built for the U.S. Navy, transited the Canal in February. The ship is seen at right in Miraflores Locks.

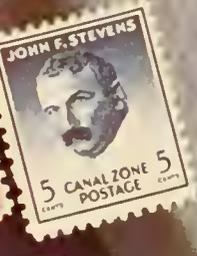
The fourth new destroyer to transit the Canal in recent months, the *Elliot* was enroute from Ingalls Shipbuilding Division of Litton Industries in Pascagoula, Miss., to San Diego, Calif.

The first major Navy combat ships to be powered by jet engines, the destroyers of this class can reach speeds in excess of 30 knots.

Designed primarily for submarine tracking and anti-submarine warfare, they will be able to cope with threats from nuclear attack and missile-launching submarines. They can bombard enemy shore positions, support amphibious assaults, escort military and merchant ship convoys, perform surveillance of hostile surface ships, establish blockades and undertake search and rescue operations.

The *Elliot* is a large destroyer, 563.4 feet long with a beam of 55 feet. Through use of automation and advanced technology in the propulsion, armament and electronic systems, and use of equipment requiring minimum maintenance, the crew size has been reduced to about 250 officers and enlisted men, less than 80 percent of the crew required for modern combat ships of similar size.







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