



JIMMY CROW of Ridgecrest gives last minute instructions to Pete, a desert tortoise, before post time for the traditional "Turtle" race held each year at the Desert Empire Fair, Ridgecrest. This year's Fair, the thirteenth annual, runs from September 18th through the 22nd.

Naval Air Reserve Dance Sept. 28 to Have 15-Man Band

To highlight the various training programs available in the Naval Air Reserve, local area reserve personnel at China Lake have scheduled a gala dance at the Community Center, Saturday, Sept. 28, commencing at 8:30 p.m.

The famous 15-man dance band from the Naval Training Center, San Diego, will provide top entertainment with a variety of the latest sweet-and-swing numbers.

Young men and women of the first enlistment age, veterans interested in continued association with a military organization, and men and women with civilian-developed skills, are invited to attend the dance. Admission is FREE.

"The purpose of the Naval Air Reserve training program is to provide a pool of trained technicians to augment the regular Navy forces in the event a national emergency is declared by the President of the United States," said Cdr. Robert R. Sizemore, USNR-R, administrator for Patrol Squadron 7709 based at Los Alamitos.

"Many people residing in the Ridgecrest-China Lake area, and having applicable civilian skills, may qualify for advanced ratings in the Naval Air Reserve at this time. Further promotion comes with additional training and experience.

"Personnel entering the Naval Air Reserve are required to participate in training activities at the Naval Air Station, Los Alamitos, one week-end each month and two weeks during the summer.

Two Public Works Men Get 30-Year Service Pins

Two veteran Public Works Department men, A. A. "Al" Tewksbury and Harry F. Bird, were presented 30-year Federal Service pins by Capt. Charles Blennman, Jr., ComNOTS, in ceremonies last Friday.

Al— or Tewks, as he is known by his many friends—is "sort of" retiring and will live in the Denver, Colo. area, but Harry figures on working a few more years.

By "sort of" retiring, Tewksbury says he plans to take up a new career, maybe in sales engineering or with an engineering services firm.

Al came to NOTS in December of 1954. From Head of a section to Project Design Engineer, he has been active in facilities and utilities studies evaluations and reporting, long range shore station development planning, specification writing for construction and maintenance of facilities by contractors, and electrical facilities design.

In 1933, after receiving his degree in electrical engineering from the University of Denver, Tewks joined the Bureau of Reclamation to work on many hydroelectric projects as the Hoover, Grand Coulee, Parker and Davis dams.

He and his wife, Rachel, and son, David will live at 67 West Broadmoore drive, Littleton, Colo.

Bird has been at China Lake since February, 1949, when the Public Works Design Office was still in temporary Building No. 931. He has held several positions in the Engineering Design groups and presently is in the Specifications Branch.

Harry began his Civil Service career in 1931 with the Department of Agriculture at Madison, Wis. Two years later he joined the Corps of Engineers and worked on plans for navigation locks and dams on the upper Mississippi River.

In following years he worked for the Corps in West Virginia and Pennsylvania on various flood control projects along the Ohio River. Then came his transfer to the Navy and his arrival here in 1949.

Harry's wife, Gladys, is employed in the Aeromechanics Division of the Weapons Development Dept.

All \$12 Seats Sold For Concert Series

All seats in the \$12 section have been sold for the coming season of the NOTS Civic Concert Association, Dr. G. S. Colladay, chairman of the ticket sales campaign, announced.

Renewal subscribers are being urged to turn in their cards as promptly as possible so that the remaining seats in the \$10 and \$8 may be offered to new season subscribers, Dr. Colladay said. The sales committee estimate is that approximately 200 seats remain for sale out of the 1100 seats in the Station Theatre.

The series begins Nov. 13, starting Basil Rathbone in an evening of poetry reading, Sam Hinton, ballad singer, co-stars with Alan Mills, Canadian folk singer, on Dec. 4; Rise Stevens, Metropolitan opera star, sings on Feb. 4; Jose Greco & Company, Spanish ballet, on Feb. 18, and the series concludes March 11 with the Alice Schoenfeld Ensemble in a program of chamber music.

Ticket inquiries may be directed to ticket manager Lou Bagge at 7243231 or to any of the following ticket salesmen: Mel Bens, Russ and Beth Bjorklund, Bob Blaise, Carroll Butler, Sue Brune, Jean Christman, Ann Clerley, Marcia Clark, Fay Couch, Jean Dillinger, John DiPol, LeRoy Doig, Ron Erickson, Carroll Evans.

Cal Fallgatter, Ed Fay, Doris Firsh, Mickey Freedman, Bel Frisbee, Aileen Fullerton, Beulah Glidewell, Al Gordon, Doris Hammer, Dovie Hampton, Ray

Harrison, Ray Haugner, Terry Haycock, Betty Heflin, Dean Hewitt, Ken Heyhoe, Russ Huse, Dorothy Jackson, Eleanor Johnson.

Jim King, Earle Kirkbride, Marian Licwinko, John Lindberg, Rosalie Lindholm, Ernie Long, Earl Love, Bill McBride, Lorraine McClung, Roy Metcalf, Fred Nathan, George Ortedal, Mary Pennington, Carrie Reck, Joe Rice, Ken Robinson, Willa Schaniel, Esther Schilberg, Helen Schoess, Bud Shull, Jim Sims.

Ellen Skaar, Marge Sorenson, Bob Stirton, Marilyn Thixton, Sylvia Tillitt, Charlotte Walker, Hildegard Weinhardt, Clarence Weinland, Bruce Wertenberger, Mary Wickenden, Eldon Williams, Genevieve Wise.

Reception To Honor RAdm. E. E. Fawkes

Rear Admiral E. E. Fawkes, USN, Assistant Chief for Research, Development, Test and Evaluation, Bureau of Naval Weapons, is touring the station today and tomorrow.

In honor of Admiral Fawkes there will be a reception at the Commissioned Officers Mess this evening from 6:30 to 8 p.m. All members are invited to attend.

United Fund Drive Starts Wednesday

Twenty-six NOTS United Fund Drive representatives met yesterday with Capt. F. F. Reck, director of the drive on the Station, to organize plans for the campaign which gets underway next Wednesday throughout China Lake, Ridgecrest and Inyokern.

The 1964 goal has been set at \$48,000. Nine local, one national and several other miscellaneous health and welfare agencies will benefit from the IWW drive.

J. B. McKernan, the area campaign chairman, announced that the Kern County Chapter of the American Cancer Society will be included in this campaign's beneficiaries.

NOTS Representatives The NOTS representatives coordinating with Capt. Reck, and their respective Codes, are Fred Richards, 003; Alice Thorpe, 113; David Peck, 121; L. S. Licwinko, 1501; LCDr. G. A. Savage, 16; R. M. Glen, 174; Lt. E. P. McBride, 18; Les Fairall, 201; N. G. Lynn, 2591.

Chief O. R. Nichols, 28; Beatrice Tucker, 29; James J. Galviano, 300214; Robert Root, 35-101; Dr. E. E. Benton, 4056; Foy McCullough, 453; L. Neal Webb, 502; J. Defes, 55402; Alice Day, 65; W. R. Hattabaugh, 70305; Beverly Johnson, 7502; Alma Cowan, 851; R. R. Johnson, DT1, 87; Chief C. T. Goodreau, 88; Lt. (jg) J. M. Stanfill, 90; S. P. Boguehall, Burroughs High School, and V. N. Wall, China Lake Elementary Schools.

Big Dance Planned One of the highlights of the campaign will be a dance at one of the hangars at the Naval Air Facility here. Lt. McBride, chairman of the dance committee, announces the tentative date for the gala is Friday evening, Oct. 4. All proceeds from admission charges will go to the United Fund.

At least three dance bands and some big-name entertainers from out of town are scheduled to appear. Valuable prizes, donated by merchants of the area, will be given to fund drive supporters. All residents of Indian Wells Valley and surrounding areas are invited.

Assisting Lt. McBride on the dance committee are Chief William Dobbins, Denny Lyons, Bill Stephens and LaV McLean.

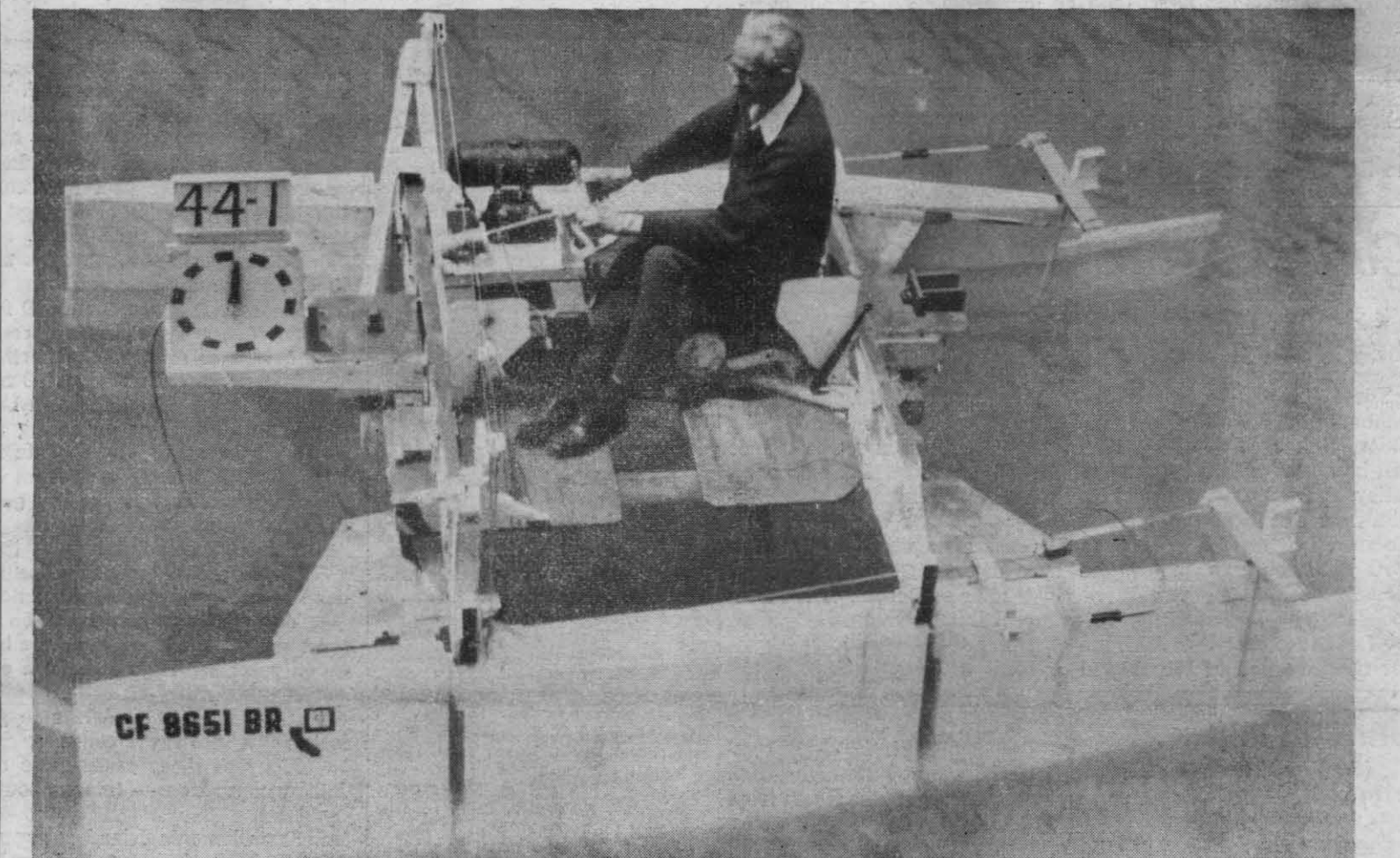
Stephens is also coordinating the campaign in Ridgecrest, and Don Rogers is organizing the

NOTS ROCKETEER FROM UNDER THE SEA TO THE STARS

Vol. XVII, No. 36 NAVAL ORDNANCE TEST STATION, CHINA LAKE, CALIFORNIA Friday, Sept. 13, 1963

Runs Silently, Leaves No Wake!

'Swimming Boat' Under Tests at Morris Dam



GLENN BOWLUS, designer of the swimming catamaran, guides his unique little craft through the calm waters of Morris Dam. Sawdust on the water's surface disclosed very little water disturbance.

(The Navy is surely interested in higher efficiency and less noise for its ships, but will swimming submersibles achieve these objectives in a practical way?)

NOTS, PASADENA — While employed at NOTS in the Torpedo Development Division, Glenn Bowlus suggested that torpedoes and submarines should swim to achieve self-locomotion instead of being pushed forward by propellers. He said then that he could build a swimming boat which could be tested at Morris Dam as a forerunner of the future swimming submersible.

Of course, the idea seemed ridiculously impractical to those who were responsible for directing the Navy's research programs. But this attitude only served to increase Glenn's determination to build and test a boat that swims.

Determination Pays Off On July 10, several months after his retirement from Hydrodynamics Group, Glenn's purpose regarding the test of a swimming boat was accomplished. He returned to Morris Dam, where he had spent many months in construction work as an electrical and mechanical engineer. This time he brought with him a swimming catamaran which had been built by his son, Bob, and grandson, Dave, to Glenn's design. His boys came along to launch and operate the unusual type surface craft.

The double-pontoon catamaran is 12 feet long and 6 feet wide and will carry two people. The draft is about 18 inches of water.

District Operations Officer, Cdr. J. F. Hutto, USN, gave the welcoming address after roll call and introduction of the conferees. Other speakers during the 3-day conference, programmed by China Lake's Fire Chief James P. Davis, included D. W. Jacobson, R. L. Swift, Fred A. Trask, D. P. Eadens, O. C. Gilson, and E. S. Lynds, Jr. Assisting Davis in arranging for the conference were Fire Protection

representatives attending 14th annual 11ND Fire Chiefs' Conference here. Left to right are D. P. Eadens, L. M. Green, D. W. Jacobson, H. S. Lynds Jr., R. L. Swift and F. A. Trask. (Continued on Page 3)

SHOWBOAT

FRIDAY SEPT. 13 "THE CARETAKERS" (98 Min.) Robert Stack, Polly Bergen

(Drama) Young doctor has a policy battle with veteran head nurse regarding treatment of borderline mental cases. To use or not to use group therapy is the question with Polly as "Guinea Pig." (Adult) SHORT: "Greedy Gabby Gator" (7 Min.)

SATURDAY SEPT. 14 — MATINEE — "WILD STALLION" (70 Min.) Beng Johnson

1 p.m. SHORT: "African Diary" (7 Min.) "Iron Horse '11" (16 Min.)

— EVENING — Kent Taylor, Miriam Colon, Jeff Morrow. 7 p.m.

"HARBOR LIGHTS" (68 Min.) (Mystery) Gambler goes to Puerto Rico to assist brother and finds him dead. Case is solved with action and intrigue. (Adult)

(DOUBLE FEATURE WITH FOLLOWING) "POLICE NURSE" (64 Min.) Ken Scott, Merry Anders

(Mystery-Drama) Handsome policeman and a nurse track down a killer and a black-market-for-babies ring. (Adult)

SUN. - MON. SEPT. 15 - 16 "A GATHERING OF EAGLES" (115 Min.) Rock Hudson, Rod Taylor

7 p.m. (Air Drama in color) New Commander of Strategic Air Command Base steps on lots of toes as he sets out to improve a station that failed an alert test. Men and giant planes form the background as you see many facets of their interesting routines. (Adults and young people)

TUES. - WED. SEPT. 17 - 18 "SAVAGE SAM" (103 Min.) Brian Keith, Tommy Kirk

(Western-Drama) Disney tells of three youngsters who are carried off by Comanches and how they are found by the son of Old Yeller who leads a posse. Lots of Action. (Adults and young people)

SHORT: "Lighthouse Keeper" (7 Min.) THURS. - FRI. SEPT. 19 - 20 "CARRY ON REGARDLESS" (90 Min.) Sidney James, Kenneth Connor

7 p.m. (Comedy) Here's that "Carry On" gang of fumble-fingers as a group placed in various jobs by an employment agency—selling bubble bath, window cleaner, safety belts and toys. This is a real "sleeper" of wacky, rollicking comedy. (Adults and young people)

SHORT: "One Weak Vacation" (7 Min.) "Gun Play" (10 Min.)

CROSSWORD PUZZLE Answer to Previous Puzzle. Includes a grid and a list of clues for across and down words.

From _____ PLACE STAMP HERE TO _____



"FAIRY SHRIMP" DISPLAY CASE is given some final touches by Dr. Harold Bennett, Sylvia Winslow and Dr. Jean Bennett (l-r). Many thanks go to the Bennetts for the weekends and evenings they spent building the case. Mrs. Winslow will design the background for the display which will be completed soon for viewing at the Maturango Museum.

NOTS Pasadena News

Virginia E. Lane — Ext. 481

'Flu' Immunization Clinic

In response to the many requests by employees for influenza immunization, permission has again been received for the ESO to sponsor an influenza clinic for Civil Service personnel.

A clinic will be held on Friday, Sept. 20, from 10 a.m. to 12 noon at the Foothill Dispensary. The charge for inoculation will be \$1 per person.

Since influenza infections are in a large measure preventable

or reduced in severity by prophylactic vaccination, immunization of individuals in all age groups is desirable.

Employees who have been immunized since September 1, 1962, require only one inoculation. Employees not previously immunized require a series of two shots. A second clinic will be announced later for those employees requiring the booster shot.



RECENTLY RECOGNIZED for 20 years of government service are — Anthony J. Stec, Security Police Supervisor; Lynne Jordan, Head of the Communications Branch; and Jack S. Hughes, Fire Protection Inspector. The trio has served a combined period of 43 years with NOTS Pasadena — Lynne and Fire Inspector Hughes each with 15 years and Sergeant Stec, almost 13 years.



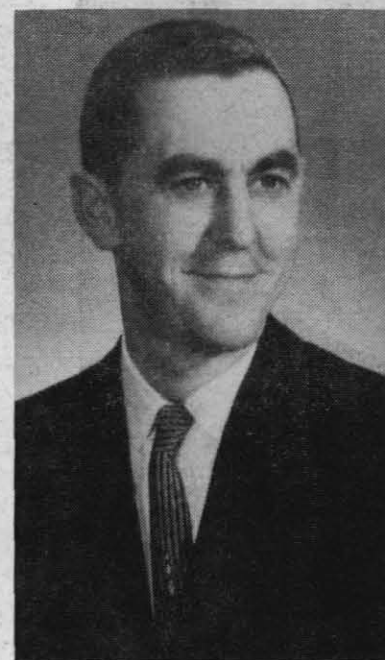
TOP KEGLERS — Taking first place in the NOTS Friday Nighters Bowling League are the Four Aces. Left to right, they are: Don and Carol Curtis, Janet Cardwell, and Clyde Flynn. Second spot goes to the Tigers (not pictured) — Irene and Bill White and Nova and Leonard Semeyn.



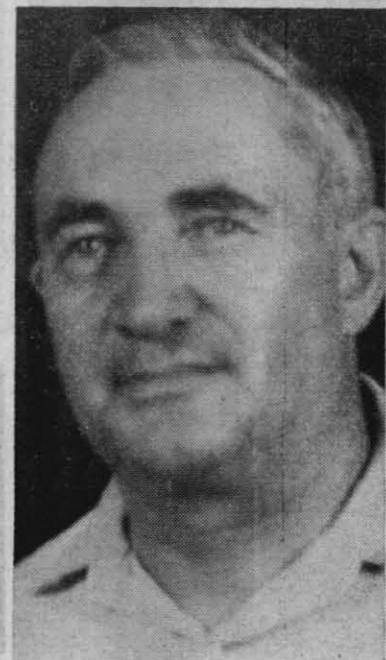
SEASON HONORS — Taking top honors for season play (l-r) are: Clyde Flynn, Men's high game with 262; Phyllis Henry, Women's high series with 606; Dorry Aitchison, women's high game with 230; and W. D. Aitchison, men's high series with 670.



DR. TED WU



DR. JACK HOYT



HOWARD KELLY

'Swimming Boat' Tested

(Continued from Page 1)

water. It appears to be more effective the deeper it runs. There is a very small (1½ HP) air-cooled engine, but there is no propeller. In this respect the swimming catamaran is unique.

This is the first boat to use segmented hulls to achieve self-locomotion. The boat was intended to demonstrate the future use of a segmented torpedo or submarine. At present it is a slow speed vehicle because it uses such a small engine, but when the correct principles of operation are determined, more power may be applied. The extra weight of a larger power plant has been provided for.

Could Be Submerged

It is true that the Bowlus Swimming Catamaran is a surface operating vehicle, but the hulls could be completely submerged as far as self-locomotion is concerned. Only one hull instead of two would be required for complete submergence. All the machinery would be contained within the outside shell. The truly streamlined submersible would provide ample room within for the crank mechanism with which the body undulations would be produced.

While operating the boat at Morris Dam, high speed motion pictures were taken from a high vantage point by Wally Dow. The swimming action was documented as the boat passed through the water upon which had been spread several handfuls of brown sawdust. This disclosed that the boat did not disturb the water as in the case of a propeller-driven boat. The swimming boat, by mechanically produced hull movements, uses the water to produce pressures on its en-

tire hull surfaces that are favorable to overcoming the drag. The propeller driven boat, on the other hand, pushes violently upon a small portion of the water to obtain a forward thrust for overcoming the drag of the rigid hull. Propellers make objectionable noise, whereas the swimming boat is silent.

This principle of eliminating the propeller and of producing self-locomotion by activating the large exposed surfaces of the craft, is also applicable to aircraft and hydrofoil boats. High efficiency and silent operation are indicated. (See Report TN 40606-4 pages 148 and 176, especially the chart on page 150).

One characteristic of the swimming catamaran is easily seen without special photography, it leaves no wake in its path. It does leave some low energy swirls that show in the movies. These records are to be analyzed by hydrodynamicists as an aid in developing theories on "how a boat swims." These theories may be analogous to those which answer the question, "how does a fish swim?" Dr. Ted Wu of Caltech has written a paper on this subject.

A point of human interest may be mentioned here, Wally Dow, who took the above mentioned pictures, helped to carry out a suggestion made by himself several years ago, namely, that someone should try to learn "how a fish swims." Wally referred, of course to the porpoises which he had seen many times on his trips by boat to San Clemente Island.

Three Hinged Points

He gave this suggestion to Glenn while working for the Propulsion Division at Morris Dam. The suggestion was taken seriously and now Glenn has demonstrated that a man-made fish, with only three hinge-points in its hull, can swim like a fish which has many hinge-points in its body.

There is a question concerning the proper amplitude of the side motion of the pontoons. Observations of fast swimming fish or dolphins, as reported to Glenn by Wally Dow, indicated that the amplitude of the body undulations is quite small. Because of these unknowns, it was necessary to make a series of tests with different combinations of amplitude and frequency to determine the arrangement which

would give the highest speed with least power.

Through the cooperation of Jack Hoyt of the Research Division, and Roy Cornford of the Range Branch, a week of testing was scheduled in June, and another in September.

Pre-Tested at Caltech

To complete this story, it is noted that the swimming catamaran is similar to the 8" long hinged hydrofoils which were tested in the Free Surface Water Tunnel at Caltech. Glenn started on this research work shortly after his mandatory retirement in 1957. It was finished sometime later, during a special half-time work arrangement. The Caltech research was supported by the Weapons Development Division at China Lake. The theory for the hinged hydrofoils was developed by Howard R. Kelly (Code 40606) in cooperation with Dr. Ted Wu of Caltech.

Some movies have been prepared which show both the experiments at Caltech and the swimming catamaran. After the analysis of the more recent documentary films taken at Morris Dam, a more complete picture story of the swimming boat may be available.

For more complete information on the construction of the Swimming Catamaran, and the theory which has been developed since its successful operation, see Report TN 40606-4 by Glenn H. Bowlus and Howard R. Kelly dated April 25 1963, pages 137 through 147.

(Editor's note: Howard Kelly left NOTS last month for Pennsylvania State College to begin study toward his Ph. D in aeronautical engineering under a fellowship for advanced education sponsored by the Navy and Penn State).

Fire Two Polaris A2s Within Minutes

Washington — The Navy is training its submarine crews on the techniques of near-instant launching of Polaris A-2 missiles. The most recent "blastoffs" took place at sea off the coast of Cape Canaveral when two of the missiles were fired within minutes of each other.

The firings demonstrated the readiness of the submarine and crew for operational service on patrol.

Work Progresses on New TV Relay Station

Vastly improved television reception for the China Lake area looms closer and closer as work progresses on the new microwave relay station of "B" Mountain.

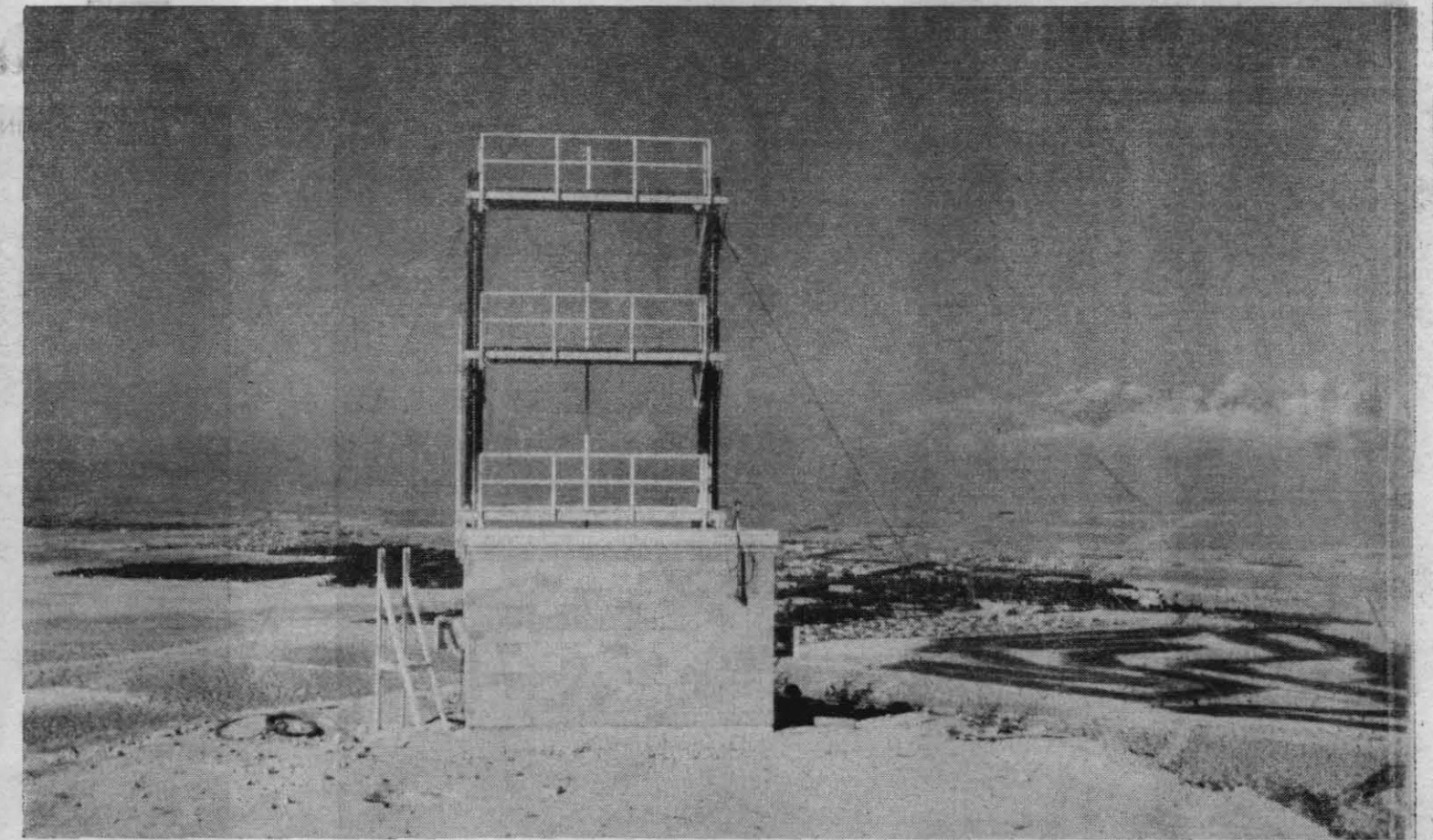
The equipment building and antenna support structures are now completed. The new power line is under construction.

Minor modifications to the Laurel Mountain facilities are also completed.

Collins Radio Co. of Dallas, the contractor assigned to the conversion project, expects to deliver and install equipment in the new relay station during November, Bill Haffabaugh, president of the Community Council, reports.

When finished, the signal strength will be increased nearly 100 per cent, engineers said.

Existing antennas on homes need not be removed. However, they may not be necessary when the new relay station goes into operation. Broadcast evaluations will provide answers.



HELLO OUT THERE IN BETTER TV LAND! — New microwave relay station building and antenna support structures overlook part of China Lake area which will get highly improved television reception when equipment is installed.

Household Shipment Weight Limitations To Be Boosted

Washington — Weight limitations for shipment of household goods are to be increased 500 pounds for officers up to O-4 grade and all enlisted men entitled to such shipment.

Officers in the O-5 grade will receive a 1,000 lb. increase bringing them to the maximum permitted by law, 11,000 lbs.

No definite date for the increase was given, but Defense Department officials said it was just a matter of changing the existing Joint Travel Regulations with regards to weight limitations.

The change resulted from a study instituted by the Assistant Secretary of Defense (Manpower) Norman S. Paul when it was discovered that increasing numbers of uniformed personnel were finding themselves in debt to the government for over-weight shipments.

With the change, E-4s with over four years service will be allowed 5000 lbs.; E-5s, 5500 lbs. and each next higher grade an additional 500 lbs., up to the E-9s 7500-lb. limitation. O-1s and W-1s will have the same maximum as E-9s; O-2s and W-2s will be allowed 8000 lbs.; O-3s and W-3s, 9000 lbs.; O-4s and W-4s, 10,000 lbs., O-5s and above 11,000 lbs.

The 11,000-lb. limitation now in effect for O-6s and above is to be the subject of another study and possible legislative request for an increase. — (AFPS)



ENSIGN STUART H. MANN reports aboard as Information and Education Officer at Naval Air Facility. Ensign Mann comes to NOTS from the USS Estes where he was the Ass't. Combat Information Center Officer. He received a BS Degree in Mathematics from the University of Illinois. He and his wife Susan are now residing on the station.



Louise Mitchell

Louise Mitchell New President Beta Sigma Phi

Louise Mitchell, Administrative Assistant for Aviation Ordnance Department, was installed last week as President of the Chi Alpha Chapter of Beta Sigma Phi.

She brings 15 years of membership and experience to the office, having joined the international sorority in 1948 in Hawaii.

As a charter member of Chi Alpha, Louise has held social, publicity and program chairmanships and last year was parliamentarian for the group. During the past six months she has acted as member advisor for Alpha Alpha Psi chapter.

Long Beach to Aid NOTS In Disbursing Services

Effective some time after Oct. 1, the Navy Finance Office, Long Beach, will assume responsibility for providing disbursing services to the Naval Ordnance Test Station.

This change in responsibility is a part of a nation-wide move to centralize the management of disbursing functions under offices reporting directly to the Navy Comptroller.

Agreement has been reached between Commander, NOTS and the Officer in Charge, Navy Finance Office, Long Beach that the officer and 20 civilian billets assigned to the Disbursing Division in the Central Staff at China Lake will be transferred "on paper" only to OinC, NFO, Long Beach.

Personnel assigned to the disbursing function will continue to perform their duties in residence at China Lake, but will report to OinC, NFO for administrative and technical guidance.

Lt. (jg) F. J. Gomez and Mrs. P. J. (Barbara) Kasal, Disbursing Officer and civilian Deputy, respectively, will continue to supervise these functions at China Lake.

They have stated that it is expected that the level of disbursing services provided to the Station will improve under the new arrangement, whereby the central office at Long Beach will provide back-up support for the

local office.

For example, whenever there is a significant backlog of unpaid travel claims at the Station, the Long Beach office plans to assist in processing the paperwork and thus effect earlier settlement than would be possible otherwise.

Fire Chiefs

(Continued from Page 1)

Inspectors John W. Seguire and Cec H. Wade.

In addition, the "visiting firemen" heard informative talks by NOTS Executive Officer, Captain J. A. Quense, USN, and Dr. Pierre Saint-Amand, on the Station's research and development programs.

According to Green, the conference arrangements and program coordination at NOTS far exceeded those of the district's former yearly meetings.

"We are all impressed with your excellent organization and facilities here. This meeting has been a profitable experience that should benefit each one in this particular field of operations," he said.



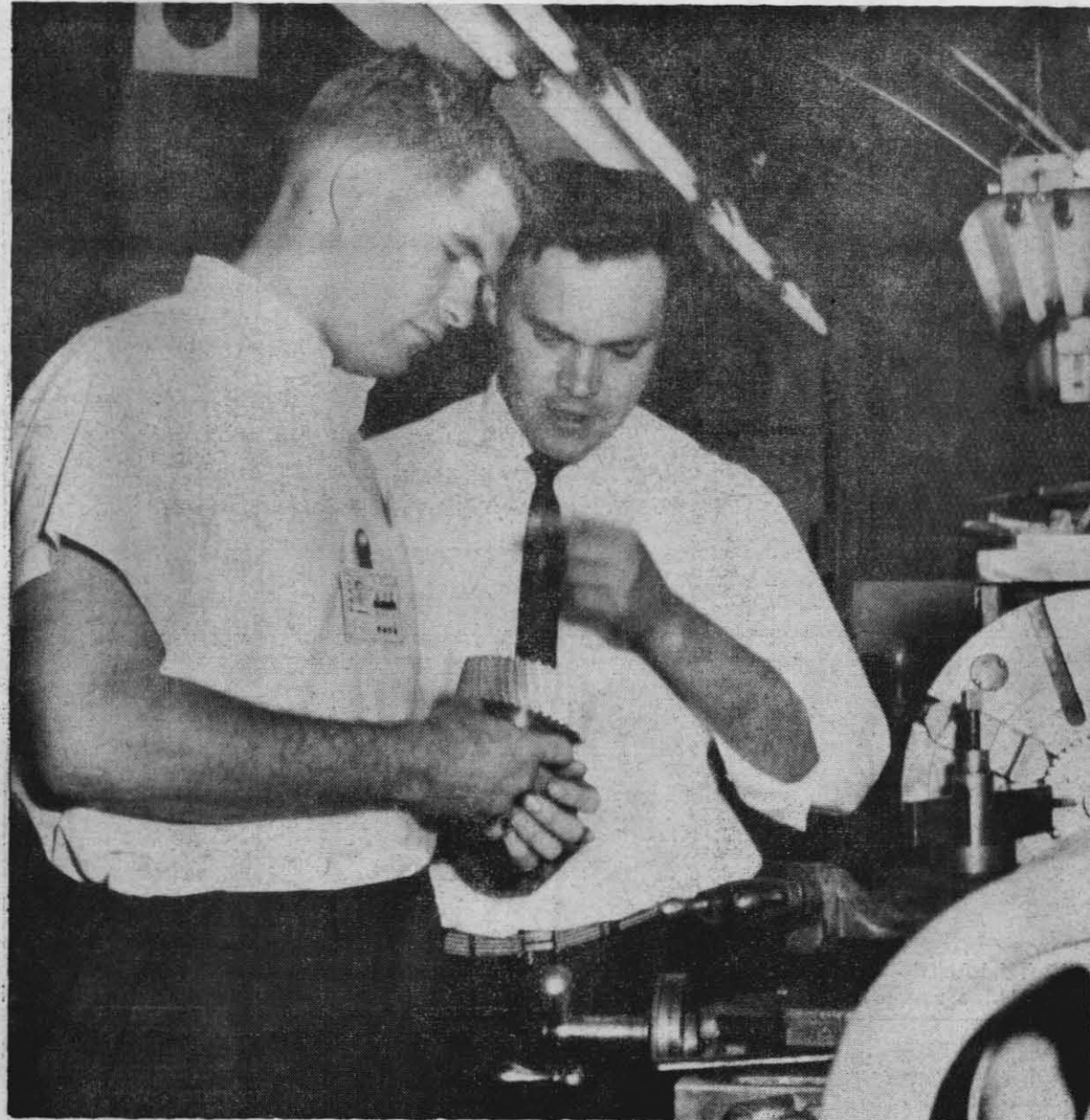
SOME OF the 66 fire chiefs, inspectors and engineers at 11ND conference here



LEE M. GREEN Eleventh Naval District Fire Marshal

29 Embark on New New Careers Here Best Training For the Future

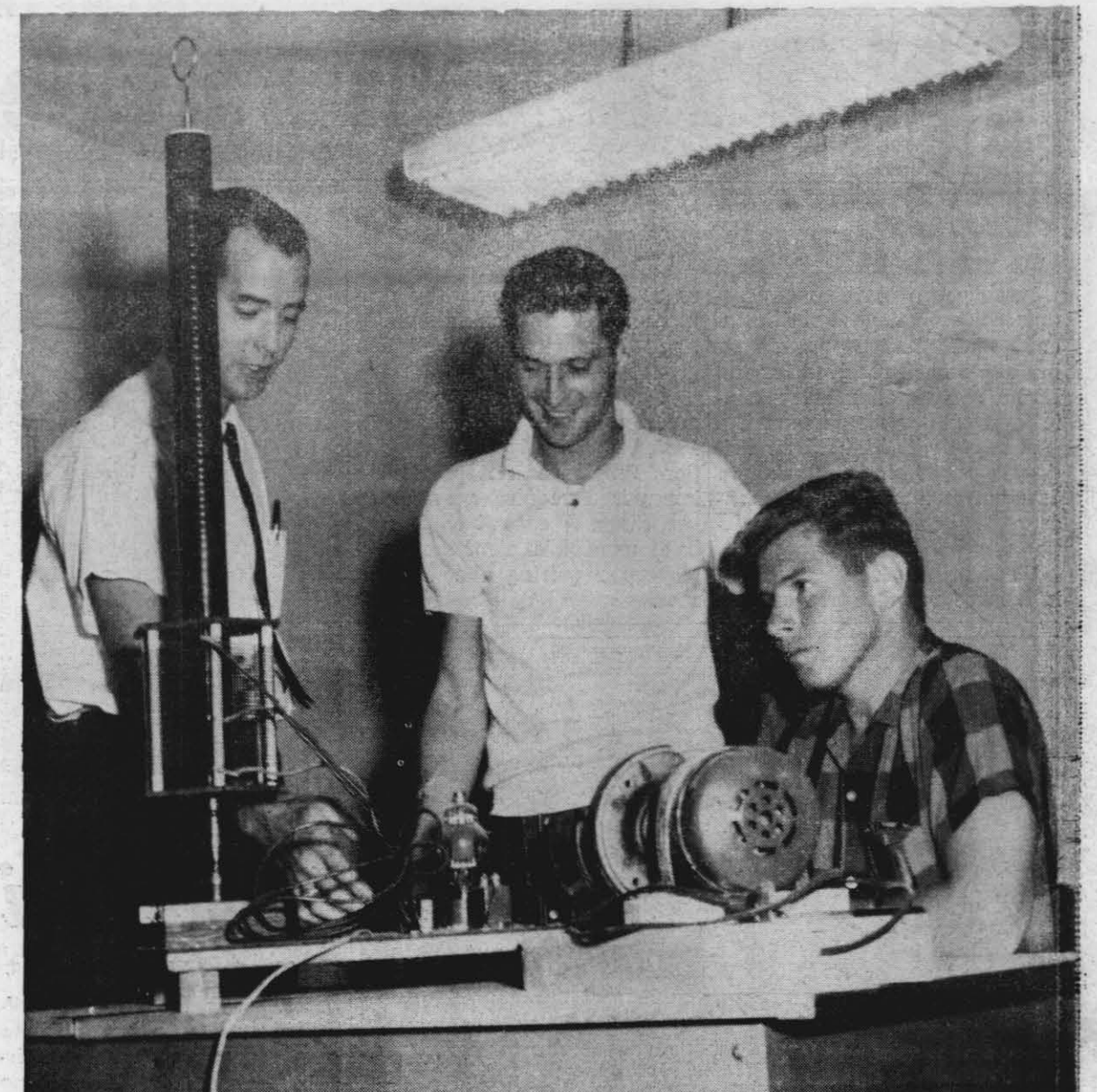
The Apprentice Program



MACHINIST APPRENTICE Ronald Hall (left) Fred Ladda. The 20-year-old first year apprentice pointed out the intricacies of machining a precision gear from machinist instructor before entering the Station's Program.



ENTERING THEIR FIRST YEAR of the four-year Apprenticeship Program are (kneeling, left to right) Bill Davis, John Ayers, Forrest Thomas, Ray Kelso Jr., Doug Savage, Gary Johns, Lloyd McKinney, and Lloyd Griffin. Second row (l-r) are Hobson Blackwell, Bill Parish Jr., Larry Mulock, Morris Nunez Jr., "Chuck" Okrusch, and Tom Hohenscholt. Third row (l-r) are



ELECTRICIAN APPRENTICES Dave Messmer and Ed Kroupa (seated) follow instructor Jack Whitfield's explanation of a Tesla coil. Messmer served as a Navy electrician from 1955 to 1957. Kroupa holds an AA degree from San Diego State College.

By BUDD GOTT
While millions were returning to classrooms last week to acquire strictly an academic education, a group of 29 men here at NOTS were embarking on new careers under the Station's Apprentice Training Program to fulfill one of the most critical needs of the nation — skilled craftsmen.

Station management fully realizes that there is no substitute for on-the-job training, and they had the foresight to broaden the program to include academic course work equivalent to a junior college education in addition to a full program of trade theory instruction.

The youngest man is 17 and the oldest 48.

Full Program
The apprentices alternate with one week at the training school for trade theory, then three weeks in shop work. In addition they attend Bakersfield Junior College evening classes in industrial and technical mathematics, industrial drawing, social science, technical physics, psychology, English, and speech.

The apprentice may find it necessary to put in as much as 80 hours of homework per month, or about 20 hours per week.

Apprentice School Staff
Carl Flagg, Apprentice Train-

ing Program coordinator, heads up an eight-man staff of full-time and part-time instructors. They include Jack Whitfield, Fred Ladda, Jack Johantgen, Bill Lamb, Bob Sellers, Phil McKay, Walter K. Smith, and Gary Davis.

Flagg, also acts as journeyman-technician development coordinator. A veteran NOTS employee, Flagg is a qualified journeyman and instructor in the sheet metal, plumbing and pipe fitting trades.

The Apprentice Program operates under the cognizance of the Employee Development and Re-

search Division of the Personnel Department. Bob Biller is the division head.

Five Trades Offered
The four-year course offers apprentice training toward journeyman rates in the following trades: Electronic Mechanic, Electrician, Machinist, Sheet Metal Worker, Plumbing and Pipe Fitting.

In the early days, when the Station was building, the apprentice program emphasized the building trades such as carpentry, painting, refrigeration and air conditioning.

When the Station passed its building stage, the apprentice program started emphasizing de-

velopment fields such as the electronic mechanic and machinist trades.

Originally, an apprentice was hired by one department and remained a member of that department during his training, then was hired as a journeyman in the department upon graduation.

This practice was changed in 1953 when it was discovered that some departments offered better training facilities than others. It was decided that a rotation plan which would offer the best all around training required inter-departmental coordination.

Today all apprentices are as-

signed to the Employee Development Division of Personnel Department during their training.

The apprentice training supervisor coordinates assignments among all departments on the Station.

Special Apprentice Award

The Richard F. Beswick Award, established in 1958, is given each year to the outstanding graduating apprentice based on academic and shop performance throughout the entire period of apprenticeship. It carries with it a monetary award of \$200.

The awardee is given a trophy and his name is also engraved

on a plaque in the Training Building.

The Award honors the late Richard F. Beswick, one of the founders of the NOTS apprentice program.

Past Winners

Winner of the first Beswick Award was William Francis. Others have been Eugene C. Kauffman, '59; Paul Steart, '60; Burton Kaucher, '61; Walter Becketl, '62; and Donald J. Davis, '63.

School Performance Awards

Each year in June, nominations are considered by the Apprentice Training Coordination Board for the outstanding apprentice in

each of the first three classes. The first, second, and third year nominees receive a monetary award of \$50.

250 Graduates

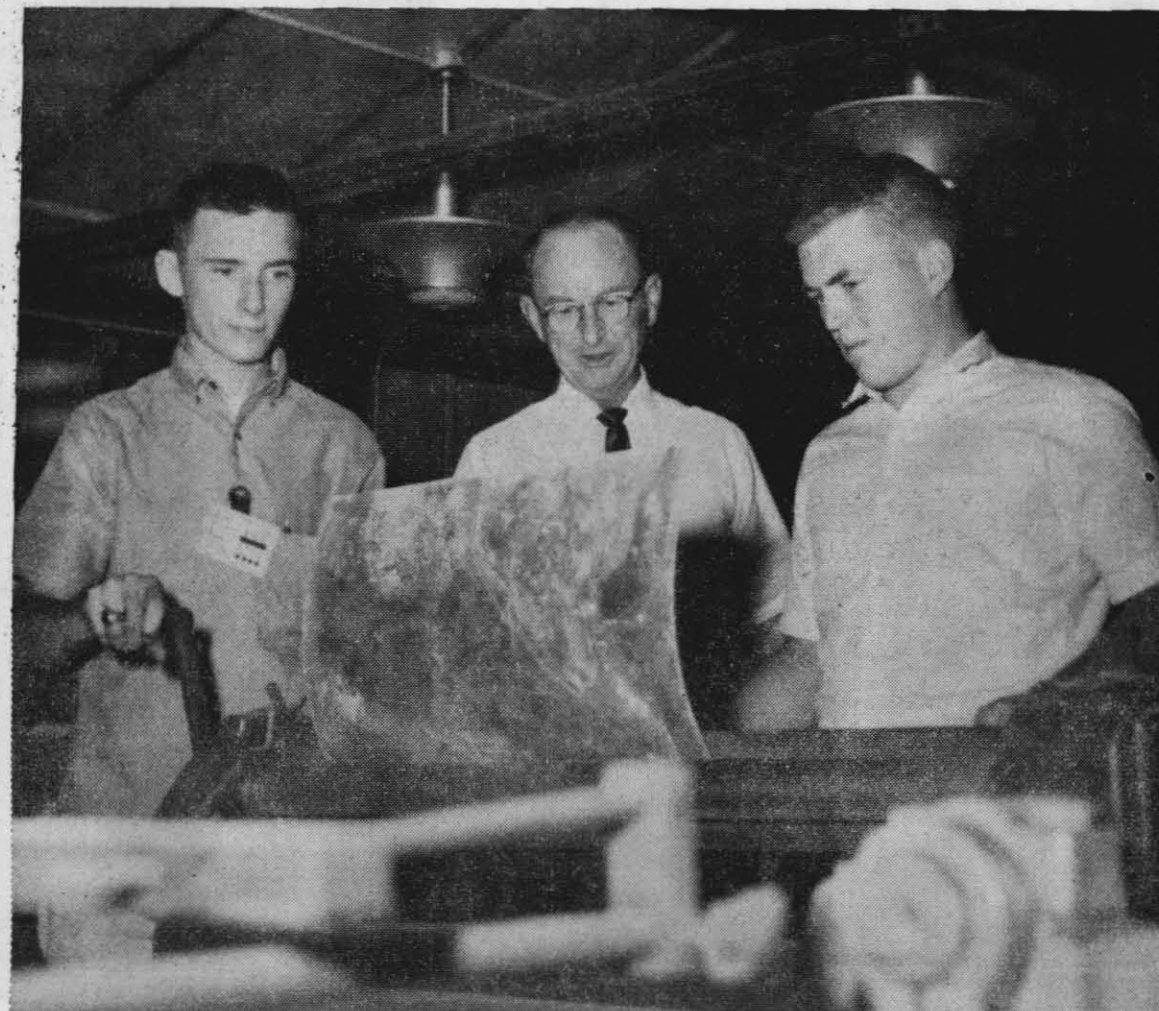
Since the inception of the apprentice program at NOTS, over 250 apprentices have joined the journeyman ranks. NOTS has good reason to be proud of its apprentice training program. Its skilled graduates are assisting the Station in its mission of strengthening our national defense.

As Dr. James B. Conant, former president of Harvard University, once said: "In the whole range of scientific and techni-

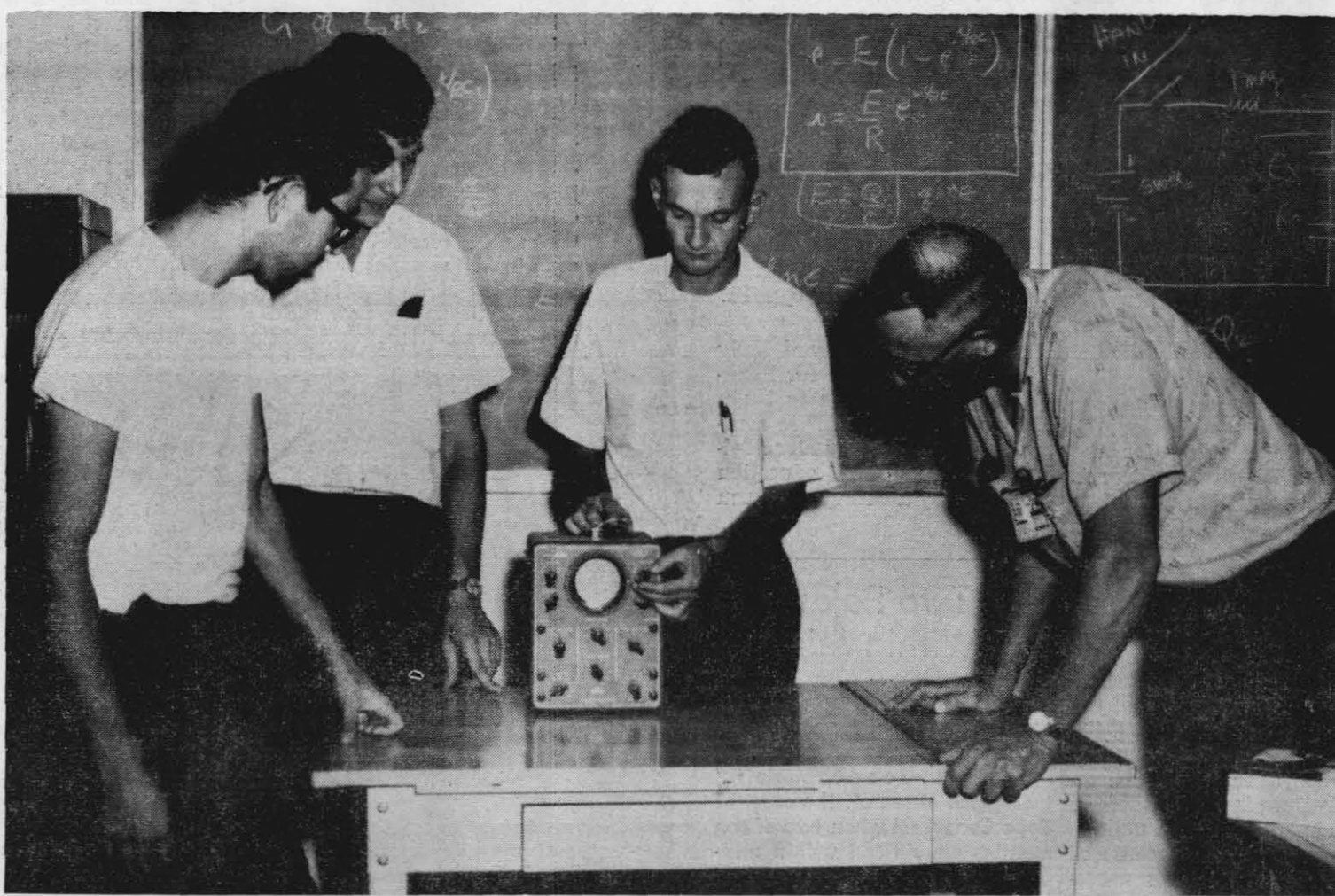
cal activities, there is no substitute for a first-class man. Ten second rate men can't replace him."

It is a safe prediction that the 29 young men who are entering the Station's Apprentice Program this month will in a few years be working with many tools, materials, and processes which are only in the minds of NOTS scientists.

We can be assured that these men four years from now will be more versatile, more knowledgeable in many things, including science and math, and have more practical experience in their chosen trade.



SHEET METAL APPRENTICES Lloyd Griffin (left) and Bob Palmer (right) get their first instruction in metal forming from Carl Flagg, Apprentice Program coordinator. Griffin is a graduate of Coronado High, San Diego. Palmer attended Southwestern Jr. College.



ELECTRONICS APPRENTICES Gary Johns, Carl Wilson, and Howard Carl get their first check out on an oscilloscope by instructor Bill Lamb (center). Johns has attended Pasadena



BLUE PRINT READING is interpreted to electronics apprentices Tom Northrup (left) and Bill Davis (right) by instructor Walter K. Smith. Northrup is a Bakersfield High graduate. Davis served a five-year hitch in the Navy. Both attended Bakersfield College.