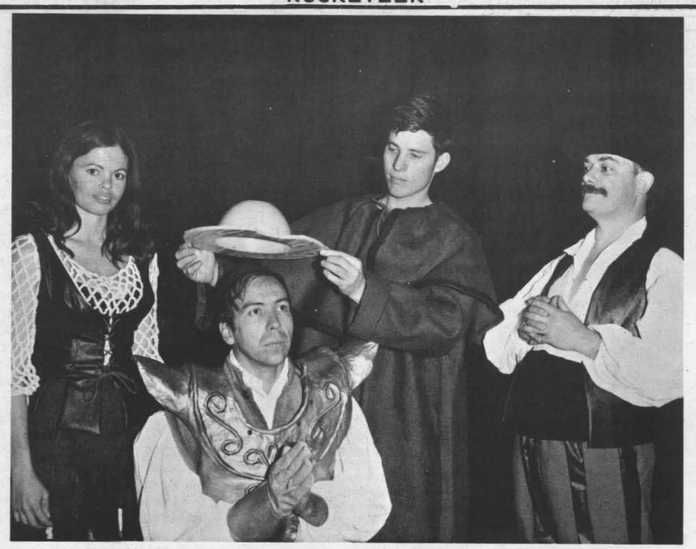
Research Society To Feature Cal Tech's Long

Plans for the forthcoming "Grand Tour" planetary exploration program will be described by James E. Long of the Caltech Jet Propulsion Laboratory at the fall meeting of the Research Society of America, China Lake Branch, next Tuesday evening at the Commissioned Officers' Club. Long is Senior Study Leader for Outer Planet Missions at the Pasadena space lab which developed the Ranger moon probes and the Mariner vehicles which recently explored both Mars and Venus.

During the next decade the outer planets - Jupiter, Saturn, Uranus, Neptune and Pluto - are in a favorable alignment which occurs once in 175 years. It permits a space craft to fly past each one in turn using the gravitational pull of one to accelerate it on to the next. The feasibility of such "Grand Tour" flights has been demonstrated by computer simulation, and many of the navigation and communication systems are now in the breadboard stage of development. The speaker will describe the problems of extended space flight posed by the outer planet journeys, which may take up to ten years, and tell some of the exploratory objectives selected for the scientific payloads they will carry.

The RESA dinner at 6:30 p.m. will be preceded by a no-host cocktail hour. It will be followed by the induction of new members who have been nominated this fall. Tickets for the dinner are available from RESA officers or from Don Moore at extension 2835.



BARBER'S BASIN—Don Quixote, "The Man of La Mancha," portrayed by Wayne Carpenter (2nd left) mistakes a barber's basin for the Golden Helmet of Mambrino, and in this scene from the play the Padre, played by Doug Smith, presents the "helmet" to Quixote. Karen Diebold, l, who plays Aldonza and Chuck Wilcox, r, seen as Quixote's manservant Sancho, watch the ceremony. The CLOTA production will be performed tonight at 8:15 at Murray School, and again December 4 and 5. Tickets are priced at $2 for general admission and $1 for students, and are available at the door on the nights of performance, or from members of the cast; the Center Pharmacy; Desert Arts Pharmacy, or the Gift Mart.

—CLOTA photo

SHOWBOAT

FRI 27 NOVEMBER

"THE WALKING STICK" (91 Min)
David Hemmings, Samantha Eggar
7:30 p.m.
(Drama) Polio-crippled girl reluctantly allows herself to be drawn into a love affair with a local artist who plans only to use her in a robbery. This is a masterful, poignant drama exceptionally well done. (GP)
Short: "Pacific Paradise" (14 Min)

SAT 28 NOVEMBER

—MATINEE—
"THE DARING HAME" (100 Min)
Lloyd Bridges
1:00 p.m.
Shorts: "Wonder Dog" (7 Min)
"Knight Knight Bugs" (7 Min)
—EVENING—
"THE MERCENARY" (105 Min)
Franco Nero, Jack Palance
7:30 p.m.
(Western) Kowalski had a gun for hire and it helped a band of revolutionaries in their daring raids in old Mexico. It's a tale of torrid action tinted with dashes of humor (GP)

SUN and MON 29-30 November

"THE ODD COUPLE" (105 Min)
Jack Lemmon, Walter Mathau
7:30 p.m.
(Comedy) The hilarious classic has Jack moving in with Walter, a poker-playing slob who lives in a messy apartment. Jack, a dust detesting, sanitary type proceeds to foul up their plans for "men's Lib." (G)
Short: "Tiger Trouble" (7 Min)

TUES and WED 1-2 December

"A CANNON FOR CORDOBA" (104 Min)
George Peppard, Giovanna Ralli
Pete Deuel
7:30 p.m.
(Adventure) General "Black Jack" Pershing's orders were to capture Bandido Cordoba alive, and destroy the six cannons he had taken. Historical adventure is filled with action and exceptional camera work. (GP)
Short: "Pink in the Clink" (7 Min)

THURS and FRI 3-4 DECEMBER

"RIDER ON THE RAIN" (115 Min)
Charles Bronson, Marlene Jobert
7:30 p.m.
(Suspense Drama) Stylish French chiller is filled with visual and psychological details about a woman who hides a self-defense illing and is plagued by a mysterious man who demands the truth. (GP)

Burroughs' Band to Present Review

For the first time in the Indian Wells Valley, the Burroughs High School Marching Band, under the baton of director Russell J. Parker, will present a Marching Band Review. Offering musical highlights of the 1970 marching season, the program will be held on Friday, December 4, at the Burroughs High School Multi-use room, beginning at 7:30 p.m.

The public is invited to attend for an invigorating concert of good music of varied types, which will include parade marches, movie themes, university fight songs, and Broadway musical overtures.

Opening the program, as it has opened the home football pre-game shows, will be the theme from the movie "2001." Originally composed in 1895 by Richard Strauss, the fanfare was adapted for use in the opening sequences of the movie, and has proved to be a favorite with marching bands this year.

Also performed will be other music from the pre-game and half-time shows, including the music from the 1970 Homecoming half-time, which combined the Murray and the Indian Wells Valley Junior High School Marching Bands with the Burros Band to pay tribute to major American universities.

Highlighting the program will be the performance of the marching overtures of "On a Clear Day You Can See Forever," "Paint Your Wagon," "Camelot," and "The Fantasticks," which were originally played during the post-game mini-concerts. Including the best-known melodies of these Broadway musicals, these overtures have been well-received by students and adults alike after the home football games.

Spotlighted will be the 1970 Majorette Corps, led by Head Majorette Mellissa Zammerron, who will re-create routines that were seen on the field and in parade competition. Members of the Majorette Corps are Val Benson, Virginia Keyte, Teresa Bell, Val Kuletz, Terrie Paine, and Sandy Kincheloe.

The program finale will be the march "Manchester England," which is from the musical "Hair," and will be played in competition by the band in the Palmdale Christmas Parade on December 12. Upcoming events in the Music Department schedule include the Christmas Concert on December 17, as well as the Palmdale Parade. The Burroughs High School Band has been practicing hard for this concert and hopes to draw a large crowd for this first of its type. There will be a small admission charge of 50 cents per person to help defray band expenses.

STWP To Feature Conservationist Max Linn At December Meeting

Max Linn, a national leader in the movement to preserve the environment, will be the speaker at a meeting on December 8 sponsored by the local chapter of the Society of Technical Writers and Publishers.

Linn's address, sponsored by the Sierra-Panamint Chapter of STWP, will be at 7 p.m. at the Hideaway in Ridgecrest on December 8. All persons concerned with obtaining better information on environmental issues are invited to attend. Tickets for the dinner should be obtained before December 3 from Byron Butler (Stran Steel No. 1); Loretta King (Lobby Michelson Lab); Barbara Auld (TID Bldg.)

Linn is a conservationist who not only talks about the environment but also does something about it. He is president of the John Muir Institute for Environmental Studies, a non-profit organization that assumes the conservationist's cause is good and his heart in the right place, but that he deserves better information. Objectives of the organization include promotion of research to fill in the gaps on man's knowledge of his environment and the development of ecological conscience in all professions.

Linn's speech on "Laws and Subsidies: Environmental Liabilities" will point out some of the generally unrecognized influences adversely affecting the environment. He will show how some of the social and economic forces are biased against improvement.

Linn's interests as an outdoorsman and supporter of conservation activities led to his efforts in 1968 as the founder of the John Muir Institute. He is regularly employed as Director of Information at Sandia Laboratories, Albuquerque, New Mexico. In this position he is responsible for public relations, employee information, and technical publications.

From _____

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TO _____

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PLACE STAMP HERE

PROMOTIONAL OPPORTUNITIES

(Continued from Page 2)

GS-3 may advance to GS-4.

File applications for above with Naomi Campbell, Bldg. 34, Rm. 206, ext. 3118.

Employee Relations Assistant, PD No. 6965018, GS-203-6, CODE 651— This position is located in the Employee Management Relations Division of the Personnel Department. It is the purpose of this position to provide secretarial (steno) and clerical assistance to the Division. In this capacity she performs advisory and coordinating functions under the supervision of the division head. Must be familiar with the regulations and policies relating to the Division's programs. Use of good judgment and tact are requisites in all areas, particularly in matters of grievance hearings and union negotiations. Answers phone; schedules meetings, other secretarial duties. **Minimum Qualification Requirements:** As stated in X118. **Job Relevant Criteria:** Steno preferred.

File application for the above with Sue Prasolowicz, bldg. 34, Rm 206 ext 2577

General Foreman I, Electrician (Lineman), WS-28006-12, Code 70— See Announcement No. NWC-14-70 issued 30 November 1970 for the Description of Duties and Basis of Rating and Qualification Requirements. Applicants must file Standard Form 172 (Supplemental Experience or Qualification Statement) and Supplemental Wage Grade Supervisory Information Sheet.

Foreman (Maintenance), WS-47040-10, Code 70— See Announcement No. NWC-15-70 issued 30 November 1970 for the Description of Duties and Basis of Rating and Qualification Requirements. Applicants must file Standard Form 172 (Supplemental Experience or Qualification Statement) and Card Form NAVEXOS-4155A/B.

The area of competition for the above listed positions, General Foremen I, Electrician (Lineman) and Foreman (Maintenance) is: (1) Career or Career-Conditional employees or Career-Conditional employees of the Naval Weapons Center, China Lake and Corona; the Voluntary Application File and the Centralized Referral System; (2) the minimum area of consideration will be systematically extended as needed in accordance with Naval Weapons Center Merit Promotion Policy, when it fails to produce three or more qualified candidates that can be referred to the selecting official.

Forms to apply for the positions of General Foreman I, Electrician (Lineman) and Foreman (Maintenance) listed above may be obtained in the Personnel Bldg., Room 100, China Lake. The completed forms must be filed with the Special Examiner, Code 652, Naval Weapons Center, China Lake, California 93555, to be received or postmarked not later than 14 December 1970. However, employees who have been demoted (except for cause or at their own request) from this or a higher level position and who held the position on a permanent basis, must file a Standard Form 172 with Head, Personnel Service Division, No. 2, Code 657, Personnel Bldg., Naval Weapons Center, China Lake, California 93555.

Clerk - Typist GS-322-2, 3 or 4 PD No. 655100 Code 3571— Provides typing and clerical services support to project office personnel. Maintains office files. Makes travel arrangements and maintains records of itineraries. Procures supplies, equipment and maintenance services. Receives and screens telephone and business callers. **Minimum Qualifications:** GS-2, 6 months experience or highschool education; GS-3, 1 year experience; GS-4, 2 years experience, as outlined in CSC Handbook X-118. **Job Relevant Criteria:** Tact, good judgement in dealing with people, knowledge of good grammar and typing practices. **Advancement Potential:** GS-4.

File applications for above with Joan MacIntosh, Bldg 34, Rm 212, Ph. 2371

Clerk - Typist, GS-322-3 or 4, PD No. 7030130, Code 30102— This position is located in the Aircraft Gun Systems and Survivability Office, Code 30102. The incumbent provides typing and clerical services support to office personnel. Maintains office files; makes travel arrangements and maintains records of itineraries. Procures supplies, equipment and maintenance services; receives and screens telephone and business callers. **Minimum Qualifications:** GS-3, 1 year experience; GS-4, 2 years experience as outlined in the CSC Handbook, X-118. **Job Relevant Criteria:** Tact, good judgement in dealing with people, knowledge of good grammar and typing practices. **Advancement Potential:** GS-4.

File above applications with Beverly Saiger, Bldg. 34, Room 212, Ext. 2514.

IN AN EMERGENCY CALL:
446-3333

CFC Exceeds '69 Total Donations

Chairman Bell Elated Over Final Contributions

$67,454. That's the amount collected thus far in the Combined Federal Campaign, stated Jesse A. Bell, Chairman for 1970. This year's return exceeded the amount collected in 1969, continuing the trend of surpassing each succeeding year since the CFC's inception in 1965.

"The ever mounting sum clearly demonstrates a growing and deepening concern by the China Lake community for local and national requirements as represented by the United Fund, National Health Agency and International Service Agency," Bell said.

"I wish to express my most heartfelt and sincere thanks to all China Lake personnel who contributed so generously and profusely to this year's campaign," the chairman stated.

Many charitable organizations and international and national agencies were the recipients of the CFC contributions. Included were agencies of the Indian Wells Valley, such as the American Red Cross, Boy Scouts of America, Campership Welfare Fund, Salvation Army, Children's Hospital of Los Angeles, Desert Area Emergency Relief, Desert Area Family Counseling Service, Indigent Patient Fund, United Service Organization, Girl Scouts, IWV Council for Retarded Children, Campfire Girls, Teen Challenge, Help Line, China Lake Mountain Search and Rescue Group, Reality Program, and Traveler's Aid.

National Health Agencies which benefited from the campaign included: American Cancer Society, American Heart Association, Crippled Children's Society, Muscular Dystrophy Association of America, National Foundation March of Dimes, National Multiple Sclerosis Society, and the Society For The Prevention of Blindness.

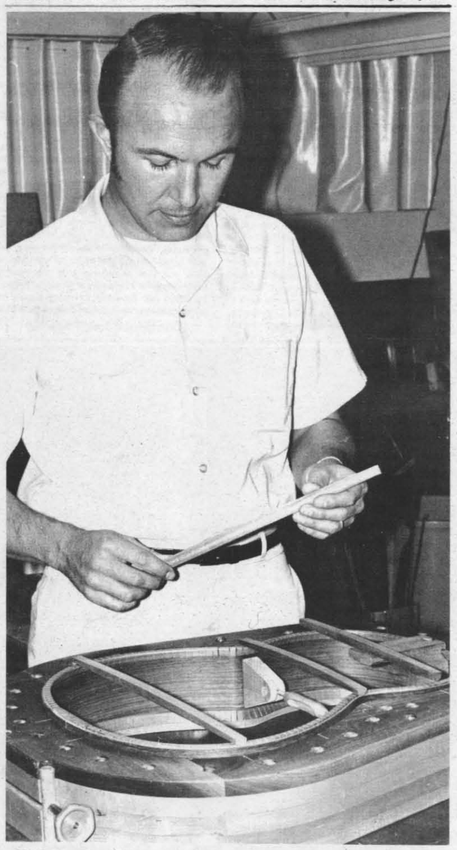
International Service Agencies will also benefit from this year's contributions. These Agencies include: The American Korean Foundation, CARE, Planned Parenthood, World Population, and Project Hope.

According to Jim McGlothlin, who is the permanent Chairman of the Indian Wells Valley Combined Federal Campaign, the results of

(Continued on Page 6)

DYNAMICS AND STATICS TESTING—The Central Engineering Test Branch, under the leadership of Edward P. Donoghue, is another interesting area of the Center. A vital part of the mission of the Engineering Department, the branch is responsible for providing support in both environmental and test engineering. An in-depth treatment of the capabilities of this branch appears on pages 4 and 5 of this issue.

—Photo by PH3 Anthony Curiale



GUITAR MAKER AT WORK—R. C. Valitchka, an NWC engineer, assembles a guitar in the workshop behind his home on the Center. This guitar will take approximately 150 hours to complete, beginning with wood selection and ending with the finish. Valitchka's guitars will be played by the four Romeros, classical guitarists, who will give a concert December 7 on the stage of the Center Theater. For more details on the Valitchka guitars, see page 3 of this issue.

ROCKETEER (NWC)
Vol. XXV No. 47 Naval Weapons Center, China Lake, California Fri., Nov. 27, 1970

IWV First

Christmas Parade This Weekend

"Children's Christmas Fantasies" is the theme of Indian Wells Valley's first annual Children's Christmas Parade which begins at 12 Noon Saturday, November 28.

Santa Comes to Town

Heralded by a helicopter from the China Lake Naval Air Facility, the parade to bring Santa Claus to town will proceed down China Lake Blvd. from Graaf St. to the Burroughs High School access road. Leading the parade will be Earl Fike, Chief of the Ridgecrest Police Department and grand marshal of the parade.

The Civil Air Patrol will provide a color guard for the parade entries which number about 50. Half of these will be floats decorated in the Christmas parade theme. Also, there will be costumed equestrian units, decorated vehicles with special guests, marching groups, and motorcycle clubs.

Judging will begin at 10:30 a.m. and paraders must be in the Graaf St. area off China Lake Blvd. before 10:30 the morning of the parade. Late arrivals will not be eligible for awards although they will still be included in the parade. Parade officials will be on hand to distribute entry numbers and direct the parade line-up.

Free Matinee and Prizes

A free matinee will be presented at the Ridge Theater after the parade breaks up on the high school access road. Parade trophies will be awarded from the stage of the Ridge Theater. There will be a sweepstakes, grand prize and first, second, and third prize awards in the various categories of floats, marching groups, equestrian groups and singles. All units taking part in the parade will receive a ribbon of "participation in Indian Wells Valley's First Annual Children's Christmas Parade."

The store windows painted by students in a Christmas decoration contest will be judged and the prizes — a camera and two gift certificates — will be awarded later.

Open House

At the close of the matinee, Santa Claus will be at his Candy Cane House located in the Bank of America parking lot at Panamint and Sanders St. to talk to all the little ones.

How It Began

Plans for the parade began last year at the Community Council's Christmas party when Mrs.

(Continued on Page 7)

CHILDREN'S PARADE PUBLICIZED—Victor and Hazel Albers stopped by the China Lake Nursery School last week to be sure all the youngsters were informed about Indian Wells Valley's first Annual Children's Christmas Parade to begin at noon, Saturday, November 28. The Albers will ride with the Hi-Desert Riders in the parade. The parade forms at China Lake Blvd. and Graaf St.

THRIFT SHOP SUCCESS AIDS NAVY RELIEF—Alice Zilmer, treasurer of the Thrift Shop operated by WACOM, presents WACOM's gift of $650. to Chaplain Robert E. Osman, Executive Secretary of the local Navy Relief Society, and to Mrs. A. E. May, Chairman of Volunteer Women, Navy Relief. The successful operation of the Thrift Shop has permitted WACOM to give a total of $2,650. to Navy Relief and Indian Wells Valley charities this year.

—Photo by PH2 Delmar E. Hart

Sick Call Hours Listed

REGULAR WORKING DAYS

Active Duty Military	8 - 9 a.m.
	12:30 - 2:30 p.m.
Retired Military	8 - 9 a.m.
Dependents (Except Pediatrics)	9 - 10 a.m.
	12:30 - 2:30 p.m.
Pediatrics (Under 14 years of age)	7:30 - 10 a.m. (Except Tues)
	1 - 3 p.m. (Fridays Only)
Civil Service Personnel	7:30 - 11:30 a.m.
(Dispensary Permit Required)	12:30 - 4:30 p.m.

AFTER HOURS ON WORK DAYS

All eligible personnel	6 - 7 p.m.

SATURDAYS, SUNDAYS, AND HOLIDAYS

All eligible personnel	10 - 11 a.m.
	6 - 7 p.m.

After hours on working days and Saturdays, Sundays, and Holidays sick call clinics are to be used for acute medical conditions and minor emergency type cases arising spontaneously that should be seen before the next regular sick call period & those cases wherein patients cannot make the regular sick call clinic without undue inconvience or hardship on the family. Remember, should any laboratory, X-ray or other tests be needed which require a technician to perform you may have to return later on a working day to have them done.

Except for the hours posted above, only emergency care is available.

Help line Inc
Crisis Intervention
CALL 446-5531

The Rocketeer

Official Weekly Publication
U. S. Naval Weapons Center
China Lake, California

RAdm. W. J. Moran, USN
NWC Commander

H. G. Wilson
Technical Director

K. H. Robinson
Head, Technical Information Department

William P. Valenteen, Jr.
Editor

Jack C. Lindsey
Staff Writer

Lucille Edwards
Editorial Assistant

PHCS C. E. Bruce, PH2 Delmar E. Hart, PH3 Anthony Curiale, PH3 Ronald G. Mills.
Staff Photographers

DEADLINES:

News Stories ..... Tuesday, 4:30 p.m.
Photographs ..... Tuesday, 11:30 a.m.

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Phones 3354, 3355, 2347

DIVINE SERVICES

Protestant (All-Faith Chapel)—
Morning Worship—10:00 a.m.
Sunday School—8:30 a.m., Chapel Annexes 1, 2, 4 (Dorms 5, 6, 8) located opposite Center Restaurant.

Roman Catholic (All-Faith Chapel)—
Holy Mass—5:00 p.m., Saturday (Fulfills Sunday obligation); 7, 8:30 and 11:15 a.m. Sunday.
Daily Mass—11:30 a.m. in Blessed Sacrament Chapel. First Saturday, 8:30 a.m.

Confessions—4 to 5 p.m. Saturday, and 8 to 8:25 a.m. Sunday.

NWC Jewish Services (East Wing All-Faith Chapel)—8 p.m. every first and third Friday.

Sabbath School—10 a.m. to noon, every first and third Saturday.

Unitarian Fellowship—(Chapel Annex 95, 95 King Ave.)—Sundays, 7:30 p.m.

PROMOTIONAL OPPORTUNITIES

Employees are encouraged to apply for the positions listed below. Current applications (SF-171) or Standard Form 58 bringing your work history up-to-date should be forwarded as described below. The fact that positions are advertised here does not preclude the use of other means to fill these positions. Part of the ranking process of those rated as basically qualified will be a supervisory appraisal form that will be sent to the employees present and most recent previous supervisor. Selection shall be made without discrimination for any non-merit reason and without favoritism based on personal relationships or patronage.

General Supply Assistant, GS-2001-06, PD No. 670018 AMI, Code 704—The primary function of this position is to assure that all materials and services requested by the various Divisions of the Public Works Department are delivered on time, as requested (unless an equivalent is acceptable), and in the most efficient and economical fashion. Incumbent has authority to approve increases on orders both in quantities and monetarily, to authorize air shipments when the situation warrants it, and in problem areas may arrange for company representatives to visit this activity to resolve them. **Qualification Requirements:** 3 years general experience and 6 months specialized as outlined in X-118. **Advancement Potential:** GS-2001-07.

File applications with Dora Childers, Code 657, Room 210, Phone 2393.

Aerospace Engineer, GS-862-12, CODE 3501—Incumbent assists in the planning, design and development of various aircraft and missile systems for development programs under the cognizance of Code 3501 such as the HARM AND STARNDARD ARM Programs. **Minimum Qualification Requirements:** 3 years of professional experience in appropriate subject matter fields.

File application for the above with Sue Prasolowicz, Bldg 34, Rm 206 ext 2577.

Clerk-Typist, GS-00322-03 or -04, 1 Vacancy, PD No 7050023, Code 5041—This position is in the Fuze Branch I, Code 5041, Development Division II, Fuze Department, Naval Weapons Center, China Lake, California. Incumbent types technical reports, manuscripts, correspondence, memoranda, procurement actions, etc., from hand-written drafts, and verbal instructions. Material typed covers a variety of technical projects and subjects involving mechanical and electronic engineering terminology. Incumbent receives visitors and telephone calls, receives and distributes incoming mail, maintains a variety of files and records; maintains timekeeping for the Branch; arranges travel itineraries, makes reservations, and types Travel Orders; compiles and assembles Vouchers; performs all other duties related to the position. **Minimum Qualification Requirements: GS-03 level** - Progressively responsible experience which includes, as a significant part of the work, the performance to typing. **GS-04 level** - Two years of the same in accordance with X-118. Previous applicants need not re-apply.

File applications for the above with Linda Grossman, Bldg 34, Rm 204, X 2925-2676.

Supervisory Fire Fighter (General), GS-081-09, PD No. 7084016, Code 842—This position is that of Deputy Fire Chief in the Fire Division, Security Department, Naval Weapons Center, China Lake, California. The incumbent will provide assistance to the Fire Chief in the overall administration and management of the Fire Division. This includes personnel management, budget planning and training as well as the technical aspects of fire fighting. **Job Relevant Criteria:** Incumbent must be thoroughly familiar with all phases of fire department operation. Must have experience in structural, brush and crash fire fighting techniques. Must have administrative and supervisory ability. **Minimum Qualifications:** Applicants must have three years of general fire fighting experience, one and one-half years Airfield fire fighting experience and one and one-half years supervisory fire fighting experience. **Promotion Potential:** Predicated upon incumbent's development in the position and assumption of responsibilities, GS-10.

File applications for the above with Linda Grossman, Bldg 34, Rm 204, X 2925-2676.

Electronics Engineer, GS-855-12, PD No. 7040124, Code 4041—This position is located in the Guidance and Control Systems Division, Weapons Development Department. The incumbent will do analysis and synthesis work in missile guidance and control systems, navigation and reference systems and inertial guidance systems. **Minimum Qualification Requirements:** Standards for GS-12 as listed in Handbook X-118. **Job Relevant Criteria:** Formal course work at the Masters level in the areas of modern control theory and inertial navigation instrumentation. Three years or greater work experience in the modern control theory and inertial guidance theory areas. Capability for efficient scientific use of the digital computer, including Fortran Coding, Time Share and 1108 Machine Language.

File applications for above with June Chipp, Bldg. 34, Rm. 204, Phone 2676.

Supply Clerk, GS-2005-3/4, 2591— Incumbent receives Telmart orders by telephone from all locations on the Center. Responsible for the accuracy of information on the orders, and advises the caller on how to get material not available locally. Keeps records of out-of-stock items by customer and notifies them when material is available. Keeps records of all orders received and their disposition. **Minimum Qualification Requirements:** One year of general clerical or office work for the GS-3; one year of general plus one year of specialized work in supply or a related field for the GS-4. **Job Relevant Criteria:** Supply experience is desirable. **Advancement Potential:**

(Continued on Page 8)

Dr. Frederick W. Brown

1908-1970

Local friends and former associates of Dr. Frederick W. Brown, Technical Director of NWC from 1951 to 1954, were saddened recently to learn of his sudden death following a heart attack at his home in Rockville, Maryland, on October 24.

Sincere thoughts of sympathy, symbolizing the respect and friendship felt for Dr. Brown by those who served under his leadership, were conveyed to Mrs. Brown in a letter from the Command. His sincerity, quiet enthusiasm and warm appreciation of the worthwhile opportunities of life are well remembered. His dedication to the importance of family and community life and its great influence on the technical quality of the Center was a highlight of his three years as Technical Director.

Dr. Brown joined the Pasadena Annex of the Naval Weapons Center in 1949 as associate head of the Underwater Ordnance Department, then was named Associate Director for Research and Development at the China Lake facilities in March 1950. He succeeded Dr. L. T. E. Thompson as Technical Director of NWC in October 1951. Dr. Brown left China Lake in 1954 to become Director of the National Bureau of Standards Laboratory at Boulder, Colorado.

Born in 1908 at Enid, Oklahoma, he received the degrees of Bachelor of Science in engineering and Doctor of Philosophy in physics from the University of Illinois. His post-doctorate training included services as a National Research Fellow under Dr. J. R. Oppenheimer of the University of California and the California Institute of Technology.

His career included teaching physics at the University of Illinois and at Kansas City University; senior physicist at the U.S. Bureau of Mines; as group leader at North American Aviation he was in charge of work on nuclear physics projects; and he served as the Scientific Attache at the U.S. Embassy in Buenos Aires from 1962-65.

He is listed in the American Men of Science, and he had 25 years of Federal Service when he retired in 1967 as Chief Planning Analyst for the Environmental Science Services Administration.

Dr. and Mrs. Brown last visited China Lake during the Center's 25th Anniversary celebration, November 8, 1969.

TOKEN OF APPRECIATION—The Rug and Needlecraft Club recently presented Chaplain Robert E. Osman, Senior Chaplain at NWC, with their annual Thanksgiving gift of food. Mrs. H. M. Platzek, president of the Club, also presented the Club's check in the amount of $115. Back in 1958 when Chaplain Robert Q. Jones obtained a meeting place for the Club, the ladies made a commitment among themselves for each to give one can or more of food per month and a total of $50. annually from the Club to support the Chaplain in aiding the needy, particularly during the holidays. Due to their success at WACOM's Charity Bazaar, the amount was increased this year to $115. Saturday, November 28, the Chaplains will observe the 195th Anniversary of the Navy Chaplain Corps.

—Photo by PH2 Delmar E. Hart

FIANCE ATTENDS CEREMONY—AC2 M. G. Williams, a tower operator at NAF, recently reenlisted in a ceremony attended by his fiance, Miss Carol Simons. Williams, who recently reported from New York, has been in the Navy for 21 months. Capt. R. E. McCall, r, Commanding Officer at NAF officiated at the ceremony.

—Photo by PH3 Ronald Gray Mills

First Christmas Parade . . .

(Continued from Page 1)

Wardna Abernathy mentioned that the community ought to have a Christmas parade for the children of the Valley. Although it was too late to plan a parade then, John Emery, president of the Community Council, said: "We'll have it next year and Mrs. Abernathy is appointed Chairman of the Parade Committee for the Community Council."

Indian Wells Valley has bustled with activity in the past six weeks — resembling a "Desert Work Shop for Santa" as preparations have progressed for the parade. Last week the Christmas trees were placed along the parade route by the Ridgecrest Chamber of Commerce, and merchants began decorating for the event.

In early October clubs and organizations were invited to participate in the parade. Merchants were contacted for community wide support by Mrs. Abernathy and her coordinators: John Emery; Gordon Chantler, member of the Ridgecrest Chamber of Commerce; and Ernie Loscar, local businessman. The merchants of Ridgecrest, Trona, and Inyokern have been quite generous with donations for parade expenses. The award ribbons have been made by Mrs. Ernie Loscar, local commercial artist. Other members of the Community Council assisted in the distribution and collection of parade entry forms.

Anyone who submitted an entry application but who has not received a subsequent letter of instruction should contact Mrs. Abernathy at 446-2272.

CHECK FOR FIRE HAZARDS

RECEIVES 20 YEAR PIN — R. W. Rusciolelli, center, Technical Presentations Coordinator, receives a 20 year Federal service pin from RAdm. W. J. Moran, NWC Commander. H. G. Wilson, NWC Technical Director, watches the ceremony. Rusciolelli has been at NWC since 1950 with the exception of a four-year break for duty in the United States Air Force.

Environmental Tests . . .

(Continued from Page 5)

tropneumatic and gravity drop equipments are employed for conventional shock tests. Vibration systems are used to meet special shock requirements.

In an effort to simulate the aeroacoustic environment of aircraft and missile flight, the Environmental Section is now developing an experimental acoustics test capability. Equipment to synthesize and record sonic environments has been acquired and is being checked-out. Construction of a small, portable reverberation chamber should be started soon. The Test Section expects to begin free field acoustic experiments in the near future.

The Section also performs structural tests to determine or verify the ability of a material to withstand tension, compression, and shear forces. Tension tests of up to 400,000 pounds can be performed using existing equipment. A unique structural test frame is available for static evaluations of structures which must be simultaneously subjected to forces in several directions. The test frame, which is 18 feet square and 15 feet high, will deflect only one hundredth of an inch when subjected to a 60,000 pound force.

An essential element of a successful environmental program is measurement; that is, measurement of the environment a component, assembly or missile experiences during actual operation. Environmental and dynamic measurements must be made, evaluated, and interpreted. A support element of the Test Section, the Environmental Requirements Group, is responsible for these tasks. This Group also estimates environmental parameters for new and advanced systems, and formulates and evaluates specifications related to environmental testing.

Systems Test

The operational response of a test item which is undergoing an evaluation must be measured and recorded. These measurements yield performance data that tells how the item is being affected by the test conditions. The Code 55172 Systems Test Section provides this valuable information by monitoring the complex electronic systems evaluated by the Central Engineering Test Branch.

To acquire accurate and reliable performance data, the Section designs and operates control and recording instrumentation to analyze the response of electronic and electroptical guidance systems tested under extreme altitude-temperature conditions. Recording systems employed by the Section are capable of long-term direct or remote operation to monitor equipment subjected to life tests and other reliability-oriented efforts.

To reproduce the extremes of high altitude flight, the Systems Section operates the giant Environmental Simulation Chamber which is located in the Engineering Test Lab. This massive simulator has a clear volume of 9,200 cubic feet, a test space of 2,160 cubic feet, and can be manually or automatically programmed to provide temperatures from plus 165 degrees F to minus 100 degrees F, at altitudes from below sea level to near space. Interestingly, the chamber's internal temperature can be changed as much as 200 degrees F in only five minutes. Using a wide spectrum of control and recording equipment, the Systems Section can reproduce the complete flight profile of an aircraft or missile.

The Chamber also provides the Section with a unique ability to measure the operational response of missile guidance systems in environments similar to those encountered in actual flight. To illustrate, a complete missile may be subjected to temperatures as low as -65 degrees F, at altitudes as high as 80,000 feet, and then programmed to track a simulated target. During this procedure the missile's guidance electronics are monitored with instrumentation, while its control surface actuation is measured with torque transducers. Gas generators and high pressure air are used as energy supplies for missiles which employ pneumatic control systems.

Reproduction of aerothermodynamic heating environments is another specialized capability of the Systems Section. The Radiant Heat Facility, an apparatus used to simulate a wide range of thermodynamic conditions, can quickly and accurately subject a high-mass test item to thermal environs of up to 1,500 degrees F. Of interest is the equipment's ability to apply local heat--a specimen may be subjected to a small, high intensity spot of heat to study localized thermal effects.

Data Analysis

Principles of mathematics, statistics, and electronics are applied by the Data Analysis Section to record and analyze acoustic, vibration, pressure, and shock information. Using a Time Data Model 100 Digital Spectrum Analyzer, Code 55173 performs real time and delayed time analysis on a variety of information types. Although its primary application has been power spectral density analysis, the Time Data also performs functions such as cross spectrums, auto correlation, block mode convolution, ensemble averaging, as well as direct and inverse Fourier transforms.

The Section's ability to analyze time series information has been significantly expanded by the recent acquisition of a Digital Equipment Corporation, Model PDP-11, General Purpose Signal Processor. The PDP-11 will be used to develop coherence, transfer, and gain phase functions. Interfacing the Time Data analyzer with the PDP-11 will permit automatic calibration of analysis equipment used for on-line and off-line evaluations of dynamics information. Mathematical simulation or modeling will be an additional new capability. Perhaps most important, the Processor will be used to develop automated, real time, digital equalization techniques for use in control of vibration and acoustic test systems.

By combining the engineering and specialized talents of personnel from diverse technical disciplines, the Test Branch presents to the designer and manager a synergistic organization capable of providing support in both environmental and test engineering.

Meeting present needs with versatility and efficiency, yet anticipating future requirements with interest and imagination—the qualities exemplified by the Central Engineering Test Branch.

ROCKETEER SPORTS

VX-5 To Represent Center in MDISL

Champions of the China Lake Football League for the fourth straight year, the VX-5 Vampires will represent China Lake in the Mojave Desert Interservice League football tournament in Barstow December 4-6.

The Vampires take an 8-1 league record into the tournament and hope to give China Lake a running start in MDISL all sports standings.

Last year China Lake finished third, highest finish ever for the Center, and a good performance by VX-5 can give NWC a headstart on its 1969-70 record.

The Vampires represented NWC last year, but did not place. This year's team boasts a stronger defense than last year's team, however, so it is possible that coach Robert McLean's squad could improve on the 1969 performance.

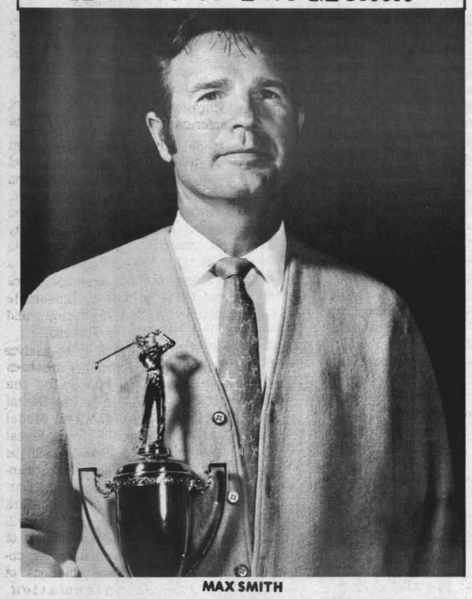
Brig: Gen. Harry C. Olson, Commanding General at USMCSC Barstow, has invited players' wives and children to accompany VX-5 to Barstow for the tournament.

He said accommodations would be available free of charge to VX-5 dependents as guest of the Marine Corps.

Golf Luncheon

The China Lake Women's Golf Club Christmas luncheon will be held on Thursday, December 3 at 11:30 a.m. at the CPO Club. Women attending are requested to bring a $1.50 exchange gift and are also requested to call any of the following for reservations no later than Tuesday, 1 December: Mary McDonald, 446-2245, Phyllis Davis, 446-3664, Mary Ann Castor, 446-3335. All interested women golfers are invited to attend.

Athlete of The Month



MAX SMITH

Seldom has a golfer had a month as Max Smith had from September 20 to October 9.

In that span of three weeks, Smith won the China Lake Golf Club championship, paired with Cal Walker to win the GLGC Invitational, and led the China Lake golf squad to NWC's first title in MDISL competition.

Accordingly, he has been selected as NWC's Athlete of the Month for October.

In truth, the award was a tribute to Smith's competitive tenacity. A former course record holder with a 68, Smith was shut out in CLGC title competition in 1969, but responded to tournament pressure in championship form in 1970.

Leading runner-up Curt Bryan 4-up at the end of nine in the club championship finals, Smith saw his lead wither in the heat of Bryan's back nine charge. However, Smith came through with a par on the first sudden death hole to take the title.

In the Invitational, Smith and Walker took the lead at the end of the first nine and held on to first place--once again despite an eleventh hour rally by Bryan and his partner Pat McDonald.

To complete his triple crown, Smith anchored a 27-stroke rout by China Lake over top golfers from other MDISL teams. He averaged a 5-over-par 77 through the 54-hole tournament to card NWC's best score and rank fourth overall.

Who is Byron Nelson, anyway?

VAMPIRES WIN AGAIN — The VX-5 Vampires have won the flag football league for the fourth consecutive year, finishing the season with an 8 and 1 record. Members of the team (from left to right) are: Front row, John Klopfstein, Willie Stewart, Gary Walter, Reggie Stephens, Roger Smith, Mike Blount, Bill Fernow, Tom Haus, Ricardo Athy. Back row, Coach Bob McLean, Ed Whittaker, Randy English, George Williamson, Fritz Herr, George Bistline, Pat Dornan, Garry Clark, Roger Stewart, Leon Irving.

–Photo by PH3 Ronald Gray Mills

Vampires Victorious Fourth Straight Year

In two of the finest games played all season, VX-5 and NWC each scored 20-13 victories on last minute touchdowns in the China Lake Football League's final week.

League leading scorer Mick Rindt turned quarterback and led the Wolves to a 20-13 win over Ace TV by throwing three TD passes, the last a 20-yarder to center Bob Haynes with 1:40 left in the game.

Neither team scored in the first quarter, but NWC took a 6-0 lead when Rindt hit Gary Anderson on a 33-yard scoring pass.

Ace came back to tie the score in three plays, a 29-yard screen pass from Bill Harris to Tony Cozzucoli, a 29-yard sweep by Cozzucoli, and a 2-yard pass from Cozzucoli to Howard Garrish for the touchdown.

NWC took the second half kickoff and scored early in the third quarter on a 27-yard pass from Rindt to Bill Stuart. Rindt threw to Jim Walden for the extra point to make the score 13-6.

On the succeeding play, Harris and Garrish combined for a 60-yard touchdown and Cozzucoli threw to Harris to tie the game.

Midway through the fourth quarter, Ace drove to the NWC 15, but the Wolves' George Weir stopped the threat with an interception at the 11 and returned it to the 15.

Stuart picked up 15 on first down and Ace was penalized 15 yards for tackling to move the ball to the Ace 35.

A pass interference penalty against Ace on the next play put the ball at the Ace 20, and then Rindt hit Haynes at the 15 and Haynes evaded Ace defenders to score the winning touchdown.

VX-5 outlasted NAF, 20-13, in the season finale, as it took the Vampires more than 46 minutes to offset the Hawks' Phil Campbell.

In typical fashion, the VX-5 defense held NAF to -2 yards rushing and 45 yards passing, but twice Campbell intercepted passes by Vampire quarterback Ed Whittaker and turned them into touchdowns.

On the fifth play of the game, Campbell snatched his first aerial and dashed 22 yards to give the Hawks a 6-0 lead.

With 5:00 left in the first half, Whittaker hit Fritz Herr for a 40-yard touchdown and Bill Fernow crashed in for the extra point and a 7-6 lead for VX-5

Four minutes later Whittaker found Leon Irving for a 41-yard score with only :35 in the half to give the Vampires a 13-6 edge.

With 8:00 left in the game, Campbell came through again, grabbing an underthrown Whittaker pass and dashing 33 yards for the touchdown. A pass from Stan Creecy to Kirk Ratliff tied the game at 13-all.

After a VX-5 drive stalled, NAF's Pete Toste fumbled a VX-5 punt at the Hawk 31 and John Klopfstein recovered for the Vampires.

The Vampires then moved to the winning score, as an 8-yard pass from Whittaker to Garry Clark climaxed the seven-play drive with 1: 20 left.

NAF went to the attack on a 21-yard gain from Creecy to Ratliff to the VX-5 39, but Gary Walter stopped the drive with an interception and the Vampires ran out the clock.

STANDINGS

	W	L	T
VX-5	8	1	0
Ace TV	4	5	0
Wolves	3	5	1
NAF	3	5	1

RUSHING

	Att.	Yds.	TD	Avg.
Cozzucoli, Ace	61	241	3	4.0
Fernow, VX-5	36	207	2	5.8
Toste, NAF	45	193	2	4.3
Smith, VX-5	44	153	0	3.5
Harris, Ace	37	110	2	3.0

PASSING

	Att.	Co.	Yds.	TD	Pct.	Avg.
Whittaker, VX-5	137	50	804	10	36.5	5.9
Stuart, NWC	100	49	768	7	49.0	7.7
Cozzucoli, Ace	96	31	443	7	32.3	4.6
Rindt, NWC	80	28	277	3	35.0	4.7
Creecy, NAF	156	60	666	3	38.5	4.3

RECEIVING

	Rec.	Yds.	TD	Avg.
Ratliff, NAF	23	280	3	12.2
Harris, Ace	19	253	2	13.3
Herr, VX-5	17	252	5	14.8
Walden, NWC	14	107	0	7.6
Irving, VX-5	13	273	4	21.0

SCORING

	TD	XP	Tot.
Rindt, NWC	8	1	49
Herr, VX-5	5	1	31
Irving, VX-5	5	0	30
Harris, Ace	4	1	25
Cozzucoli, Ace	4	0	24

Premier Race Still Tight

The race in the Premier League remained tight with Ace-TV still two games in front of B&F Liquor. Ace has won 22 and B&F has won 20, with Allied Vending in third place, tied with Ridgecrest Lanes, each team with 19 victories.

Chuck Cutsinger led the league with a 617 series, which included a 226 game. Bill Esch had a 221-612, followed by Jim Peck's 220.

Midway League

Ernie Lanterman led the league November 17 with a 595 series, followed closely by Thad Brightwell's 591. Lanterman had a 238 and a 202 in his threesome, while Brightwell rolled a 235. Other good games for the evening included a 227 by Dave Simmons, a 213 by Mel Sorge, and a 212 by Ed Sopke.

Ding-a-Lings

Carol Bond led all the ladies with a 190 game and a 458 series. The Blue and Gold fired a 713 single effort and the Twinkle Toes had a 2019 series.

Supply Dept. Mixed

Bob Beyer had a 222 game and a 583 series to lead the scoring last Sunday. His better half Barbara, whipped out a 462 series and Peggy Ames rolled a 160 game to lead the distaff scoring.

The Gutter Gang racked up a 1021 game (with handicap) and the Lo Balls had a 2933 series (with handicap) to lead team scoring.

CFC Campaign Surpasses Last Year's Total

(Continued from Page 1)

this year's campaign are most pleasing. "I am especially grateful to the persons in the Indian Wells Valley who were responsible for the collections and to those organizations, both private and public, who contributed so generously," McGlothlin said.

In addition, Chairman Bell publicly praised the efforts of the keymen on the Center, and their able assistant keymen, for the interest and hard work in the campaign. "The results of their efforts speak for themselves," Bell commented.

"It is a job well done," he concluded.

Concert-Goers Will Hear Valitchka Guitars Dec. 7

When the four Romeros, classical Spanish guitarists, appear in concert on the stage of the Center Theater December 7, they will be playing guitars made by R. C. Valitchka, an NWC engineer.

In fact, the Romeros have used Valitchka's guitars in numerous concerts throughout the country in the past, a situation which came about when Celedonio Romero, father of the three other Romero performers, and leader of the group, played one of the first guitars made by Valitchka some years ago.

Eleven years ago, when Valitchka was taking guitar lessons from a well-known local guitarist, Louis J. Shanteler, he decided to make his own guitar. That first guitar had some basic errors in design and construction which served to inspire Valitchka to try again.

Two years later, after much study and redesign, Valitchka produced two more guitars. Shanteler was so impressed with the instruments that he insisted Valitchka take them to Celedonio Romero for appraisal.

The meeting with the elder Romero and his three sons was quite an adventure for Valitchka. All the Romeros were very impressed with the guitars. Celedonio Romero was so sincere in his praise that Valitchka presented him with his third guitar as a gift. Thus began the interdependent relationship between the novice guitar maker and the artists that exists today.

Working with the Romeros Valitchka decided to experiment with the design of his guitar in an attempt to surpass the quality of the concert guitars in use by the Romeros.

Many experimental guitars were produced over the years at the average rate of two per year. Valitchka did not offer these guitars for sale, but instead kept them to determine their sound characteristics and structural integrity with the passage of time.

The Romeros would take the guitars and play them for several months. When they returned the guitars to Valitchka they would pass on their critique of the instruments.

As the guitar's design evolved, structural weaknesses were discovered and corrected and the sound became more clear, powerful and balanced. According to the Romeros, the present Valitchka guitar rivals the Rodrigues and Ramirez guitars, also used by the Romeros, that sell for over $1,000 each.

The making of a guitar is a tedious and time-consuming labor. Valitchka averages 150 hours for each guitar he makes, from the selection of woods to the finished guitar. Six species of wood are used by Valitchka: Walnut and maple braces; ebony fingerboard; rosewood sides and back; Honduras mahogany arm, and Yugoslav spruce top.

The wood is conditioned for a minimum period of two years under natural environmental conditions prior to being selected for a guitar. Valitchka looks for minute cracks in the wood and inspects it for warping and other characteristics.

When he first began his guitar-making, Valitchka used hide glues (animal glues) much in the same manner as old masters have done for hundreds of years. "I noticed, however," Valitchka said, "that certain failures occurred in expensive guitars which were due to the use of animal glues to bond rosewood. The hide glues do not bond well with rosewood due to a high degree of resin and oil inherent in the wood itself," Valitchka explained.

"So I began to use epoxy and now use it throughout the entire guitar. The Romeros agree with me that the epoxy glue is superior to any other in the manufacture of guitars," Valitchka said.

One other problem in the manufacture of guitars was encountered by Valitchka – that of temperature and humidity. Valitchka has a 20' X 36' workshop behind his home where all his construction work is done. Inside the workshop is an 8' X 8' humidity room where the temperature is kept at 70 deg., and the humidity at 50 per cent relative humidity.

Humidity is an important factor in the construction of guitars. "Guitars which have been built in a dry humidity and then taken to a damp humidity area have been known to suffer failures," Valitchka said. "By keeping the humidity level at 50 per cent, I am attempting to construct a guitar which will not suffer failures or construction breakdowns, regardless of how much cross country traveling a guitarist might make with a Valitchka guitar.

Valitchka has found guitar making to be a challenging and satisfying hobby, "It is especially pleasing," he said, "to see my handiwork come 'alive' in the hands of a gifted musician, such as the Romeros," he said.

Valitchka is eagerly looking forward to the December 7 concert, when all four Romeros will be playing Valitchka guitars.

Employees that have their rent deducted from their paychecks will notice a smaller paycheck next Friday, December 4.

This is a result of the general rent rate increase published in NAVWPNSCENINST 11101. 4P of 28 October 1970.

Employees who have questions regarding the new rent deductions should contact the Housing Office, not the payroll office.

NAF MOTORAMA — Capt. R. E. McCall, Commanding Officer of NAF, gives the checkered flag to an entry in the Motorama held at the Naval Air Facility November 20. The idea behind the competition was to insure that men of NAF would be driving safe vehicles over the holidays. All those who entered were required to get a vehicle safety inspection before being allowed to compete. The competition consisted of time trials over a prescribed course, and prizes were awarded to the best times in each weight class.

Photo by PH2 D. E. Hart

TWENTY-YEAR PINS AWARDED-- L-R, Ed Swann, program director for advanced systems concepts, and Eloise Buck, editorial clerk, both of the Weapons Planning Group, received their 20-year Federal Service pins from C. L. Schaniel, Head of the Weapons Planning Group, during an awards ceremony held this week.

Center To Be Weekend Host To 3,000 Scouts

More than 3,000 Boy Scouts and approximately 900 adult leaders and chaperones of the San Gabriel Valley Council, Boy Scouts of America, will converge on the Naval Weapons Center for the 37th annual Desert Caravan November 27, 28 and 29.

Leaders of the Council, including Vic E. Harris, Chairman of this year's event, Don Nafius, Director of Camping and Camp Development, and Grady H. Lowe, Capt. USN, (Ret.), Director of Finance Development and a former NWC Commander, attended a meeting on September 2 at NWC to coordinate the Caravan with NWC personnel. Cdr. S. S. Bates, head of NWC's Command Administration Department, was named as the chief contact for all requirements. Other NWC members of the Caravan committee include:

K. H. Robinson, Assistant Technical Director for Technical Information and Head, TID; LCdr. R. L. Partridge, NAF Administrative Officer; R. W. Rusciolelli, Visitor Control; Lou Sidney, Public Works Department; and James De Santo, a range Engineer with Code 30.

Local Scout participation will be headed by Howard R. Allen, District Executive from the Southern Sierra Council, Boy Scouts of America.

Scout City

A site on the Randsburg Wash Road, south of the Trona Road, has been selected for the Caravan. According to Harris, a virtual city will be established at this site.

Harris, a four bead Woodbadge Man, will spearhead the committee in developing the details of this year's event. Harris is well qualified to lead the caravan. He is vice chairman of the Council Leadership Training Committee and Woodbadge Course Director in 1970. He is a former Jamboree Scoutmaster and is a holder of the Silver Beaver award.

Self-Sufficient

During their three-day stay at NWC, the San Gabriel Scouts will be nearly 100 per cent self-sufficient. Each Scout troop will bivouac together, along with their adult leaders and advisers.

As part of their Scouting training, the separate units will provide their own mess facilities, latrine facilities, and look after their own interests.

All that NWC has been asked to provide, in addition to the site, is 5,000 gallons of water. However, the Center will also provide a corpsman, who will remain on duty around the clock. In addition, NWC Security will patrol the area and the road to the site.

Religious services will be provided by the NWC All Faith Chapel, and will also be held at the Caravan site.

Scouts who attend this year's celebration will, in the words of Harris, "... catch Chukars, chase lizards, find fools' gold, scrounge for agates, and look for rocks." In addition, Harris said, "the Maturango Museum, which includes a history of rockets and a static aircraft display, will be programmed ..." for the Scouts.

The Caravan will include as a part of the registration fee a beautiful five-color patch. A souvenir coffee mug will also be made available. Included in the preparations for the site will be a Trading Post, manned by Ralph Renner and his staff.

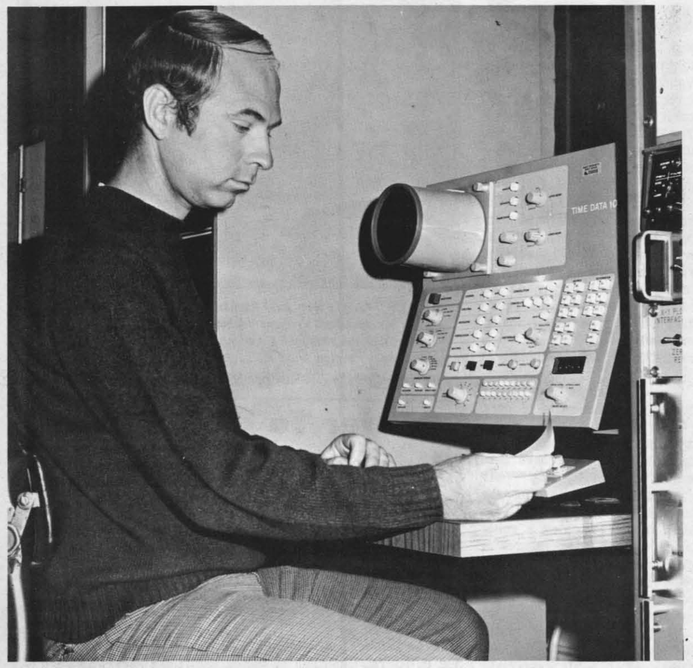
Astro Society To Present NASA Film Monday

A film entitled "Skyward the Great Ships" will be shown at the meeting of the China Lake Astronomical Society, Monday, November 30, beginning at 7:30 p.m. at the Clubhouse, 401 McIntire Street.

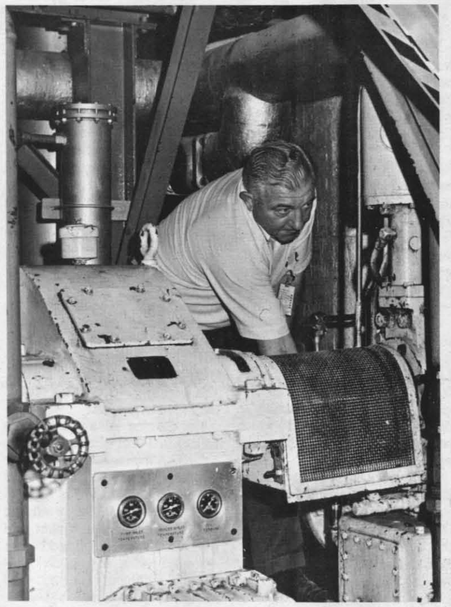
The film, a look behind the scenes at NASA's Lewis Research Center, shows the work being done on various propulsion systems for space missions and the advantages and applications of each. The film illustrates research in chemical, nuclear, and electrical propulsion systems.

All interested persons are invited to attend.

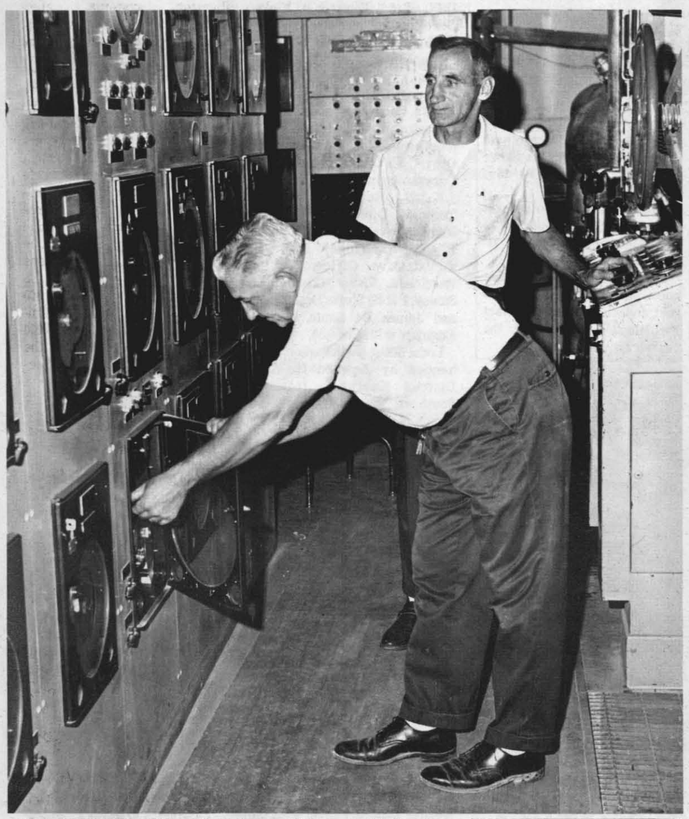
Weapon Systems Get Thorough Environmental Testing At Center



RON BACKMAN programs digital anlyzer for spectral evaluation of acoustic data acquired during recent Shrike flight test. The Time Data Analyzer performs real time and delayed time analyses of both analog and digital information acquired during evaluations.



CORLISS LUX adjusts oil pressure on refrigeration turbine seal. The turbine, driven by a 1,000 horsepower electric motor, is an element of a complex system used to cool and heat the Environmental Simulation Chamber.



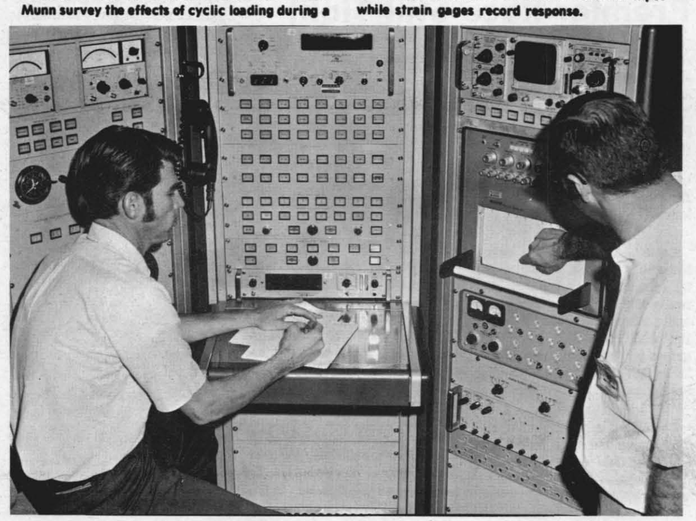
THE ALTITUDE-TEMPERATURE conditions of flight are reproduced by the Code 55172 Environmental Simulation Chamber. As shown above, Corliss Lux sets up test profile while George Harrigal evaluates the Simulator's response. Uniquely, the chamber can change its internal temperature 200 degrees F. in only five minutes.

Photos
By
PH3 Anthony Curiale

MITCH THORNGATE programs electrodynamic vibration system for random wave evaluation of missile guidance section. The dynamic environments (vibration, shock, and acoustics) are the most difficult of all environments to simulate in the laboratory. Thorngate will use more than 50 instruments to synthesize and control the required random vibration inputs. Code 55171 performs experimental and developmental dynamics tests on items ranging from a miniature transistor to a full scale missile.

ENVIRONMENTAL SIMULATOR at ambient conditions with main walk-in door open. Sidewinder guidance unit is being installed in rate table by Jim Dowda.

PETER BOUCLIN, Head, Environmental Test Section, as well as Richard Eubank and Harold Munn survey the effects of cyclic loading during a fatigue test on a newly designed rocket motor tube. A piezo-electric transducer controls input while strain gages record response.



MERRELL LOYD, Right Head, Systems Test Section and Jim Dowda, left, analyze environmental responses of guidance section during flight testing in the Section's Environmental Simulator. Console houses instrumentation to read-out and record the effects of combined altitude-temperature conditions on solid state missile guidance systems.

Future Requirements Anticipated By NWC Engineering Test Branch

by Phil Gill

Will a new missile survive the vibration imposed on it during captive flight and then operate on command? Can a modified electronic assembly sustain the temperature and humidity environment of shipboard conditions and function when required? Just how important are environmental considerations? The answer: very important. In fact, environmental conditions many times dictate the requirements for a missile or weapon. To illustrate, acoustic, vibration, and shock loads often establish the structural configuration of an aircraft or rocket, while altitude, temperature, and humidity conditions frequently limit the selection of electronic components for guidance and control systems. A well conceived and carefully executed environmental test program is a key factor in the successful implementation of a new weapons system. The Central Engineering Test Branch, Code 5517, provides the Naval Weapons Center with a wide range of simulation and analysis capabilities in both natural and induced environments.

Directed by Edward P. Donoghue, the Engineering Branch, which has its offices and test facilities in Michelson Laboratory, Room 120C, performs four major functions which include environmental and structural testing, systems testing, and data analysis. The Test Branch predicts and evaluates environmental requirements for weapons, conducts environmental measurement projects on missiles and aircraft, and manages test programs for various Center activities. Equally, the Branch provides decision-oriented consultation to Center managers concerned with environmental parameters.

To effectively respond to Center needs for developmental and experimental testing the Central Engineering Test Branch is organized in three functional sections.

Environmental Test

The Environmental Test Section, Code 55171, conducts natural and induced environmental tests on components, assemblies, and complete systems. Examples of natural environments, that is, those conditions which exist in nature, include humidity, temperature, and salt fog. These environments are simulated with electronically controlled test chambers equipped to record the test item's response throughout the evaluation. The Section currently has eleven chambers capable of performing salt fog, temperature, and humidity tests.

Excitement, action, and sound--the rumble of low frequency tones almost muted by shrieking high frequency noises--these are the sensations experienced by those observing a large missile being subjected to a high level random wave vibration test. This drama in dynamics is really a laboratory simulation of the vibration experienced by a missile during captive flight on a high performance fighter aircraft. Vibration as well as shock and acoustics are examples of the induced dynamic environments. These man-made conditions are considered the most difficult to simulate and the most complex to analyze. Laboratory reproduction of induced environments requires the use of electrodynamic vibration systems, electropneumatic sound generators, and gravity drop shock machines.

The environmental test specialists of Code 55171 give special attention to the dynamic environments. Developmental and experimental vibration tests are performed on items ranging from a small capacitor to a full scale missile. Sine, complex, and random wave evaluations are conducted using six electro-dynamic vibration test systems. The smallest system can vibrate a one pound item at 25 g s, while the largest system will subject a 300 pound item to 50 g s. Audio amplifiers with outputs of up to 35,000 watts are used to drive the vibration systems. Elec-

(Continued on Page 7)

HAROLD MUNN examines Condor pressure sensors which are undergoing a combined vibration-temperature test. The sensors are being vibrated with an electrodynamic exciter capable of producing vibratory forces of 15,000 pounds. Similar tests can be performed with five other Code 55171 vibration systems.