

# IWV United Fund Drive Report

Individuals and business interests in the Indian Wells Valley pledged a total of \$23,533.87 in the recent United Fund Drive according to figures recently released by Robert C. Nelligan, treasurer of the organization. As of December 19, 1955, cash contributions totaled \$19,926.62; the remainder, \$3,607.25 represents pledges payable quarterly during the year.

In commenting on the figures, Mrs. Sylvia Tillett, president of the U.F. board of directors took pleasure in pointing out that the total represents more than twice the amount collected in any previous Community Chest Drive. "The workers and the communities can be proud of the showing they made," she said, but added: "We can't consider the job complete, as yet, for we are still nearly \$4,000 short of meeting the goal set for the drive."

Elsewhere on this page is a recap of the allocations to be made from funds already pledged. Notable are deficits of \$1,000 for Boy Scouts, \$800 for Girl Scouts, \$750 for Family Service and \$270 for the Recreation Council. On the national scene, earmarked pledges exceeded the target figures of the American Heart Association and the Salvation Army, and very nearly met the target figure set by the American Cancer Society.

A total of 41 other health, welfare and recreational agencies were singled out for support by residents of the Indian Wells Valley. Write-in pledges came to a total of \$2,185.17. Agencies to receive more than \$100 are as follows: American National Red Cross, \$908.02 (241 pledges), National Polio Foundation (March of Dimes) \$220.50 (67 pledges), Father Flanagan's Boys' Town \$118.00 (45 pledges), National Association for Crippled Children and Adults \$103.50 (32 pledges) and Navy Relief \$186.65 (118 pledges).

George Todd, fund drive chairman, had this to say about plans for meeting the \$3,935.65 deficit. "The shortages are most pressing on the agen-

INDIAN WELLS VALLEY UNITED FUND  
Post Office Box 42  
China Lake, California

December 10, 1955

Captain F. L. Ashworth, USN, Commander  
U.S. Naval Ordnance Test Station  
China Lake, Calif.

Dear Captain Ashworth:

The Board of Directors of the Indian Wells Valley United Fund wishes to express its appreciation to you and the entire Station administration for the generous assistance you have given in so many ways to the recent United Fund Drive.

It is because of the splendid help so many people have given that greatly improved services in the welfare field will be available to residents of the valley this year.

Very truly yours

Sylvia P. Tillitt  
President

cies that are trying to make the Indian Wells Valley a better place to live, particularly for the kids. I'd like to make a special invitation to parents of school age children to give just a little more so as to ensure sound and ever expanding programs for scouts, Family Service, and the Recreation Council." He also noted that five of the most prominent business interests in Ridgecrest had not, as yet, made a contribution. Efforts will also be made, he said, to enlist the support of contractors who have employees more or less continually assigned to this area. "It is in their best interests to help us make the Indian Wells Valley a good place to bring families and thus a place to which their employees will be pleased to be assigned."

As a last request Mr. Todd asks that each United Fund worker strive to get \$5 or more. "We are already 86% of the way. A little more of a push and we can go over the top. Please send future contributions to the United Fund, P.O. Box 42, China Lake."

Agency	Budget	Pledges Earmarked	Pledges Undesignated for Distribution	To Agencies	Deficit
			*Proration of Total Available		
Boy Scouts	\$ 6,143.00	\$ 1,492.65	\$ 3,590.00	\$ 5,082.65	\$ 1,060.35
Girl Scouts	4,559.00	1,026.49	2,730.00	3,756.49	802.51
Desert Area Family Service	4,426.00	1,156.68	2,520.00	3,676.68	749.32
Desert Area Emergency Relief	1,000.00	717.52	217.00	934.52	65.48
Indian Wells Recreation Council	1,500	339.45	890.00	1,229.45	270.55
Rand District Cemetery	200.00	130.85	53.00	183.35	16.15
SUB-TOTAL	\$17,828.00	\$4,863.64	\$10,000.00	\$14,863.64	\$2,964.36
Am. Cancer Society	2,500.00	\$2,477.36		\$ 2,477.36	22.64
Am. Heart Assoc.	1,300.00	1,570.66		1,570.66	
Salvation Army	1,000.00	1,626.84		1,626.84	
U.S.O.	984.00	143.35		143.35	840.65
U.C.D.S.	211.00	103.00		103.00	108.00
SUB-TOTAL	\$ 5,995.00	\$5,921.21		\$ 5,921.21	\$ 771.29
41 Write-in Agencies Reserve (includes Reserve (includes Campaign costs)		\$2,185.17		\$ 2,185.17	
GRAND TOTAL	\$12,970.02	**\$10,563.85	\$23,533.87	\$23,533.87	\$3,935.65

\*Tentative—subject to ratification by United Fund Board of Directors.  
\*\*Total of all undesignated pledges.

## CS Commission States Policy On Conversion

Indefinite and temporary employees who were not eligible for conversion on January 23, 1955, the date the new career-conditional program went into effect, but who later obtained regular civil-service appointments through competitive examinations do not need to serve a new probationary period in their new positions, the Civil Service Commission announced today.

The Commission's decision puts these employees on an equal footing with indefinite and temporary employees now qualifying for conversion under provisions of Public Law 380, enacted at the last Congressional session. The new regulations are retroactive to November 10.

In its formal notification to all agencies, CSC pointed out that employees who qualified through examination had been appointed, in many instances, to positions different from those in which they were previously serving and their previous service was not counted toward completion of the 1-year probation required for all competitive appointees. Employees qualifying under Public Law 380 are not required to serve a new probationary period.

"In effect, those qualifying by examination are being penalized for their successful efforts to attain career appointments in a competitive manner," the Commission said. "Probationary employees have lesser job retention rights."

To remedy the situation, the Commission ruled that all service in a competitive position dating back to the last break in service will be credited toward completion of probation for employees who can meet three conditions.

The employees must have had a cumulative total of three years' service in a competitive position from January 23 to November 10, 1955. Finally, it must be established that they would have been recommended for conversion under Public Law 380 if they had not already qualified through examination.

## P-TA Discussion Meeting Scheduled

A twin bill program of intimate concern to all parents is offered by the Sherman E. Burroughs Parent-Teacher Association in its meeting next Thursday, Jan. 12, at 8 p.m. in the high school cafeteria. Darwin Howe will conduct the first presentation with a panel chosen from high school students and from parents and teachers of the High School Discipline Committee.

Complementing the discussion of discipline will be a report by Community Manager R. C. O'Reilly on the recreational plans being made for 'teen-agers in the community.

## Kinard Candidate For Area Honors

(Continued from Page 3)

dertake any assignment regardless of the difficulties involved. She is an employee of unusual initiative, possessing the ability to devise procedures to help her carry out her assignment in the most efficient and expeditious manner. She has a faultless memory and quietly discharges a multitude of duties.

"She is one of the most attractive, well-groomed, and tactful secretaries employed at NOTS Pasadena. Because of her pleasing personality she is widely known and highly respected and admired by her friends, fellow-workers, and supervisors."

Julia graduated from Pasadena City College with the Associate in Arts degree. Her husband, Harry J. Kinard, has worked in the material division, Supply and Fiscal Department, at the Annex since 1949. With their three young daughters, they live in Temple City.

As secretary to the head, publications and photography branch, product engineering division, Underwater Ordnance Department, she composes correspondence, takes dictation, transcribes from shorthand notes and tape recordings scientific material for technical publications, takes minutes of meetings, acts as liaison between her branch and other departments both in Pasadena and China Lake, maintains familiarity with federal and Navy secretarial procedures, coordinates complicated processes of publishing all technical reports put out by this branch, is in charge of time records for the entire branch and classified files of more than 2,400 published reports. In addition, she performs secretarial duties in the editorial section, technical library, and photographic laboratory.

Washington (AFPS) — All Navy fighters now in production are being fitted with equipment enabling them to be refueled in flight.

### THE WEATHER

Partly cloudy over the weekend with scattered showers in the surrounding areas. Light, variable winds in the mornings increasing to 10 to 20 knots in the afternoons with gusts to 30 knots.

# Rocketeer

TEMPERATURES (Housing Area)

	Max.	Min.
Dec. 29	52	21
Dec. 30	54	19
Dec. 31	62	29
Jan. 1	59	26
Jan. 2	60	27
Jan. 3	61	24
Jan. 4	63	20

VOL. XII, NO. 1

U.S. NAVAL ORDNANCE TEST STATION, CHINA LAKE, CALIF.

JANUARY 6, 1956

## BuOrd Chief Commends NOTS For Work on Bomb Director Set

BuOrd Chief Rear Admiral F. S. Withington commended this activity for its work in the evaluation, tests, and design improvements of Bomb Director Set AN/ASB-1, in a letter to Captain F. L. Ashworth. The letter, dated 9 December 1955, outlines a recent report made to the Bureau of Ordnance by a fleet unit comprised of 12 AJ "SAVAGE" aircraft which used the bomb director set.

Admiral Withington's letter states in part, "... The Navy's Bureau of Ordnance has just received a report of a recent operational readiness test of a fleet of 12 AJ "SAVAGE" aircraft utilizing the Navy's latest Bomb Director Set. This operation, conducted from an aircraft carrier, indicates that the equipment has reached a satisfactory level of reliability.

"It is realized that this achievement could have been brought about only by the wholehearted cooperation of enthusiastic, persevering and determined people who put into the project that "little bit extra" needed to solve new and exceedingly difficult problems.

"These problems are well known to all those who have had a hand in the project, for when the equipment failed to meet the high standards imposed, the shortcomings were thoroughly aired. But good performance, in the Navy, is considered normal and we are loathe to brag, consequently you seldom hear the good things about your product. The Chief of the Bureau of Ordnance believes that those who deserve credit for this success should be so informed.

"The Chief of the Bureau of Ordnance commends you all for the

part you played in increasing the combat readiness of our Navy and asks you to continue to give "that little bit extra" that means timely improvement of our nation's defense."

NOTS' part in the evaluation, tests, and design of the Bomb Director Set began with a military group known at that time as the Bomb Director Systems Officer and was under the direction of the NOTS Experimental Officer. Cdr. C. C. Callaway (now Executive Officer at NAF) was in charge of the project. He was succeeded by Cdr. John Refo and Cdr. Halford Woodson. In March 1954, the project was assigned to the NOTS Aviation Ordnance Department and placed under civilian control. AOD assigned the project to the heavy attack branch which was then under the direction of John Keyes.

The then heavy attack branch is now called the all weather attack branch and is under the direction of John Cronhardt. This branch is now a part of AOD development division 1 under the direction of John Keyes. Members of the all weather attack branch who worked on the Bomb Director Set are: Alford Ferris, James Flint, Francis Guthleben, Alvin Hall, Robert Hayashi, Peter Kim, Frank Kirby, Ronald Knight, Francis Martin, Robert Olsen, Edwin Park, Richard Leech, Henry Leet, Gaylen West and Sheila Jensen.

Lt. L. E. Kirkemo, and 8 Navy enlisted men also assisted.

## Jan. EMCO Elections

Ballots for nomination of candidates for department employee council offices are being printed and will be distributed to chairmen of existing councils in time for the January departmental council elections.

Nominations for unit representatives are to be submitted by the third Monday in January. Departmental elections will be held on the fourth Monday in January. LeRoy Jackson, Executive Secretary of the China Lake Employee - Management Council, has announced that employees in any unit desiring to elect representatives to a department council and the China Lake EMCO may secure ballots and information about EMCO by contacting Employee Relations Division, Code 651, Ext. 72018.

Lt. L. E. Kirkemo, commanding officer at the Naval Air Facility, is now a captain. Captain Ewoldt, pictured above, received final word on the promotion this week and added the fourth stripe to his uniform last Wednesday.

Additional information about the program may be obtained by calling Mrs. Nova Semeyn. She may be contacted at extension 74953. The titles of the films were not known at press time.

## "O Ratings" for P&E Personnel



OUTSTANDING PERFORMANCE ratings are presented to Propellants and Explosives Department personnel as shown above. Pictured are (seated l. to r.) M. E. Trimble, recipient; Laura Patton, recipient; Q. E. Elliott, department head; Earlene Melia, recipient; and E. L. Moon, recipient. Standing are their supervisors (l. to r.) R. Sutton, R. C. Anderson and H. A. Taylor who proudly witness the awards.

## Promoted



Lt. L. E. Kirkemo, commanding officer at the Naval Air Facility, is now a captain. Captain Ewoldt, pictured above, received final word on the promotion this week and added the fourth stripe to his uniform last Wednesday.

## 6-Month Time Limit Set on Agency Action

A time limit of 6 months has been set by the Civil Service Commission for agency action in recommending employees for civil service status when their jobs are brought into the competitive civil service. Previously there was no time limit on agency recommendations, CSC said.

The time limit is applicable to agency action under the overseas conversion program, which becomes effective April 1, 1956, and will bring 20,000 positions under civil service, as well as to similar action last August 1 on 10,000 positions in Alaska.

In the case of jobs that were brought into the competitive service before the change in policy, recommendations must be submitted no later than June 15, 1956. This provides a minimum of 6 months in all cases.

The Commission said the new policy will afford agencies adequate time to evaluate the employee and also will benefit the employee by assuring him that his case will be considered more promptly.

In order to obtain civil service status when his position is brought under civil service requirements, an employee must pass an appropriate examination, as well as being recommended by his agency.

The Commission emphasized that the new policy changes do not apply to conversions of temporary and indefinite employees to career or career-conditional status under the terms of Public Law No. 380. Time limits for action under this law are set by the law itself.

## NOTS Overseas Club To See Travel Films

Members of the Overseas Club, a local organization, will view several films next Tuesday evening, through the courtesy of the Kern Travel Service of Bakersfield. The program, which is open to the public, will be held at the Richmond School auditorium, starting at 7 p.m.

Additional information about the program may be obtained by calling Mrs. Nova Semeyn. She may be contacted at extension 74953.

The titles of the films were not known at press time.

# Rocketeer

Published every Friday at the  
UNITED STATES NAVAL ORDNANCE TEST STATION  
CAPTAIN F. L. ASHWORTH, UNITED STATES NAVY  
Commander

The Rocketeer, an authorized Navy publication is printed weekly by Hubbard Printing, Ridgecrest, Calif., with appropriated funds and in compliance with NAVEXOS P-35, Rev. November, 1945. The Rocketeer receives Armed Forces Press Service material which may not be reprinted without AFPS permission. All photographs are official U. S. Navy photos, unless otherwise specified. Deadlines: News stories, Tuesday, 4:30 p.m.; photographs, Tuesday, 11:30 a.m.

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Office: Building 35, Top Deck — Telephone 71354, 72082, 71655

## More Navy Enlisted Personnel Wanted In Nuclear, Missile Jobs

Washington (AFPS)—Two new programs giving many more sailors the opportunity to specialize in the nuclear power and guided missile fields have been established by the Navy.

Career enlisted men in 23 rates, who are qualified submariners, now can volunteer for nuclear training that eventually will lead to an assignment aboard an atomic-powered submarine.

The navy said that only the "highest caliber" personnel will be chosen for the program. Volunteers must have four year of obligated service to be eligible for the training, which begins at the New London, Conn., Submarine School and is conducted at various nuclear reactor sites.

In the past, EM were specifically selected for nuclear training and no volunteers accepted.

The Navy said that an increasing emphasis upon guided missiles had created a rapid increase in the requirements for qualified personnel.

As a result, men in 23 ratings now can apply to change their rates to guided missileman. Those who qualify will receive to specialized courses, one at an electronics

school and the other at a guided missile school.

Personnel who fail to complete the training will be reassigned in their old rates. Eligible EM must have five years of obligated service.

Further requirements for guided missile training are outlined in BuPers Instruction 1440.16 published Dec. 5. The nuclear training program is explained in BuPers Instruction 1306.53 of Dec. 8.



Starting Times: 6 and 8 p.m. daily  
Kiddies' Matinee (Special Movies)  
1 p.m. Saturday  
Matinee: 1 p.m. Sunday

TODAY JAN. 6  
"SQUARE JUNGLE" (87 Min.)  
Tony Curtis, Pat Crowley  
Shorts: "Tree Medic" (7 Min.)  
"Mambo Madness" (15 Min.)

SATURDAY JAN. 7  
"DEMETRIUS AND THE GLADIATOR" (101 Min.)  
Vic Mature, Susan Hayward  
Shorts: "Ozzie Nelson's Orchestra" (10 Min.)

MATINEE  
"PHANTOM OF THE JUNGLE" (75 Min.)  
Jon Hall  
Shorts: "Carnival Courage" (7 Min.)  
"Sea Hounds No. 7" (18 Min.)

SUN.-MON. JAN. 8-9  
"THERE'S ALWAYS TOMORROW" (85 Min.)  
Barbara Stanwyck, Fred MacMurray  
Shorts: "Pappy's Puppy" (7 Min.)  
"It Happened To You" (20 Min.)

TUES.-WED. JAN. 10-11  
"SHACK OUT ON 101" (80 Min.)  
Frank Lovejoy, Terry Moore  
Shorts: "Fish Are Where You Find Them" (10 Min.)  
"Dog In the Orchard" (20 Min.)

THURS.-FRI. JAN. 12-13  
"INDIAN FIGHTER" (87 Min.)  
Kirk Douglas, Elsa Martinelli  
Shorts: "One Froggy Evening" (7 Min.)  
"Sauter-Finnegan Orchestra" (18 Min.)

## Bird Specie Census Conducted at NOTS

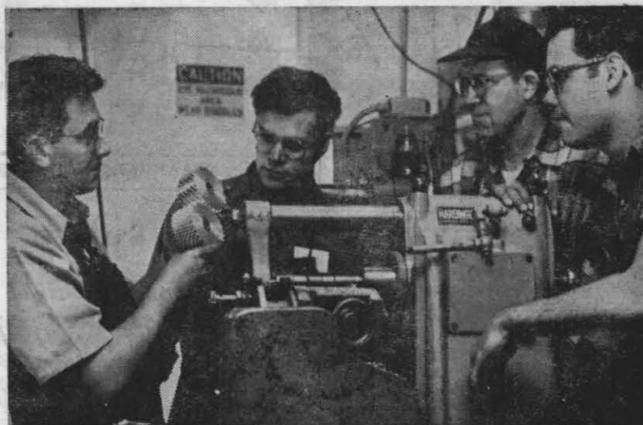
A total of 46 different species of birds was reported in this area recently following a census taken during the holidays. The list of birds was compiled by a group of amateur ornithologists.

According to the report the starling, a small bird resembling the sparrow and a pest in the eastern portion of the United States, appears to be moving into this area and is now on the verge of over-running the West.

The group conducting the survey included Wanda Shomate, Lenore Palmer, Mary Bishel, Lloyd Brubaker, Ronald Henry, Carl Heller Don Moore.

According to a statement made by the group, "over 160 species of birds have now been observed in Indian Wells Valley, many of which are newcomers to the area since the Station was founded."

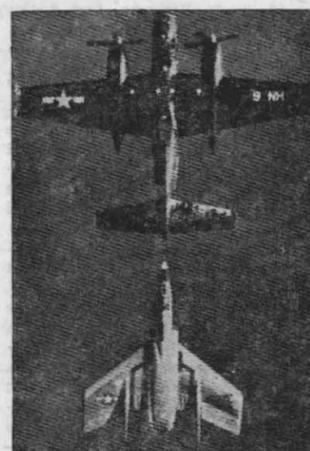
## Apprentices at Work



OPERATION OF A MILLING MACHINE is explained to three participants in the Station apprentice program by Al Sievert (left), instructor. Listening to his explanation of the machine's functions are Fred Ladda (center), Dave Welch, and Louis Jeanjaquet (right).



FUNCTION of a circuit analyzer and the ways in which it is employed in the electrical trade is explained by Joe Striffler (right), an instructor in the Station apprentice program. Watching the demonstration are Kenwood Benton (left), Robert Rasmussen and Tom Crookshanks.



'BALANCING ACT' between Navy Cutlass and AJ-2 during refueling in flight calls for split-second timing. —All Hands

## Congressional OK Asked by DOD for 50,000 More Men

Washington (AFPS)—The Defense Department will ask Congress for authority to increase the manpower ceiling of the armed forces by 50,000 men during the next fiscal year, Defense Secretary Charles E. Wilson has disclosed.

The 2,900,000 figure to be requested in the new DOD budget represents a ceiling, and strength levels will not go that high unless the additional men are needed, Mr. Wilson pointed out.

"We're trying to get enough flexibility in our force levels to meet any new missions or assignments that might arise," the secretary explained. By next June 30, the end of the current fiscal year, the armed forces are scheduled to have a total of 2,850,000 men.

## Local Boy Scouts, Navy Render Aid To Northern California Flood Victims

Boy Scouts of Indian Wells Valley turned out in force recently and, aided by valley residents and businessmen, collected some 6,000 pounds of clothing, blankets and food for the destitute families made homeless by the raging floods that struck northern California during the holidays.

Station scouts, along with others from Ridgecrest and Inyokern, gathered the supplies from donors throughout the surrounding area and turned it over to the Navy for forwarding to the flood victims. Chief Petty Officer Cliff Adams, who is associated with local scout troop 3, took the matter of transportation to Captain L. E. Ewoldt, NAF commanding officer. Permission for use of an RD4 transport plane was granted by the 11th Naval District.

After loading the supplies at NAF, a volunteer enlisted crew took the plane north intending to land at Eureka, however, the runway at that field was too short for such a plane to land so they landed at Arcata. In charge of the aircraft during the trip were CPO "Red" Park, ADC, AP, and CPO Jack Smith, ADC, CP.

Other loads of supplies were gathered and forwarded by Gus Mead, an employee at NOTS, Gerald D. Scranton and Robert L. Johnston, two members of Inyokern Civil Air

Patrol Squadron 82.

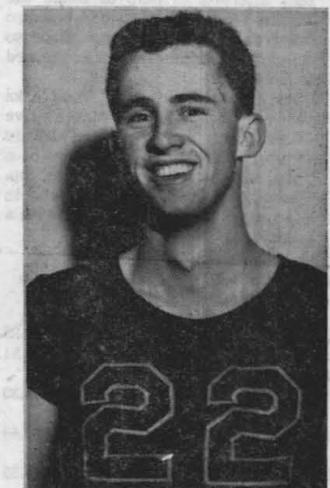
Among the Station Boy Scouts participating in the drive for needed items were Doug Chartier, Jerry Segler, James Powers, Joel Adams, Mike Miller, Gary and Eddie Greenmun, Fred Dille, Mike Robertson, Clifford Adams, and Dan Peresich.

## Leaves NOTS



W. C. ADAMS, formerly a sergeant with the Station security branch, has terminated to accept a position with the Southern California Air Force Procurement District. Mr. Adams had been an employee of NOTS since 1946.

## Rockets Sportraits



ROBERT CULPEPPER, SA, plays one of the forward positions for the Rockets and is a native Californian who hails from Pasadena. Bob is 6'1" and weighs 170 lbs. Experiencewise, Culpepper played 4 years of high school varsity basketball, 1 year with the Pasadena Junior College, and 2 years of independent play with church teams and boot camp groups. This is his first year with the Rockets and Coach Alex says he is doing a great job.

## Job Opportunities

Electronic Engineer, GS-9. Work involves production engineering of aircraft fire control systems and missile guidance. Employees in allied fields of engineering and physical science are urged to make inquiry. Call extension 71393.

Clerk-Stenographer, GS-4. Central Staff, management engineering division. Secretary and clerk to members of the planning and coordinating branch.

Telephone Operators, GS-3. Several vacancies. Command Administration Department. Call Ext. 71393.

## Evening High School Classes Begin Jan. 30

The spring semester for Burroughs Evening High School and Bakersfield College Extension will begin on January 30. Prospective students wishing to complete work for a high school diploma, who have not made a formal application, should do so as soon as possible.



TWO TRUCK LOADS of supplies gathered for relief of flood victims are shown waiting to be loaded aboard an RD4 aircraft at the Naval Air Facility. These supplies represent many hours of volunteer work on the part of Boy Scouts of this area.



CHIEF PETTY OFFICERS R. L. Chase (left), "Red" Park (center), and Jack Stith, load part of the many boxes and bundles of flood relief supplies gathered by local Boy Scouts. CPO's Park and Stith piloted the aircraft on its trip to the flood stricken area.

## NAF Airdales Take Over Top Honors In Station Intramural Cage League

The high-flying Airdales of the Station Intramural Basketball League have continued their winning ways and are now out in front of the Leathernecks from the Marine Barracks. The Airdales trailed during the first of season play but apparently they have found the range and are presently sporting a record of eight wins against one loss. The Marines have a 7-2 record.

Intramural games scheduled for next week are as follows: Jan. 9—Airdales vs. Terriers, at 6:15 p.m. and Bluejackets vs. Test, at 8 p.m.; Jan. 11—Public Works vs. Apprentices, at 6:15 p.m. and Airdales vs. Test, at 8 p.m. A possible upset in the final standings is in the offing when the fast-improving Terriers meet the league-leading Airdales.

As of presstime the standings were as follows:

Team	Won	Lost
NAF Airdales	8	1
Marine Barracks	7	2
Bluejackets	6	3
Terriers	4	4
Test	2	5
Public Works	1	7
Apprentices	1	7

On tap during the month of Feb-

## Swimming Instruction Program Scheduled

Local residents were reminded this week by Carol Chatterton, Red Cross water safety chairman, that a water safety and life saving class will get underway next Thursday, Jan. 12, at 8 p.m. at the Station swimming pool. This class will be followed by a Red Cross swimming instructors course.

The water safety class is open to everyone 16 years of age and older and the only requirement is good swimming ability, according to Carol Chatterton, who will instruct the class.

Additional information concerning the program may be obtained by calling Ridgecrest extension 87541.

## Some Talk About New Trends In Instrumentation

(Continued from Page 5)

—a very satisfying spectacle. Otherwise automation will have to be the answer."

**Jim:** "Just one moment—there's one thing that still bothers me. Referring back to your statement about automation reducing typical 3-week delays to 2 days—if I figure correctly, that's a factor of seven plus, if you leave out the weekends. Let's just say you claim the final test answers will be in the hands of the researcher in about one tenth the time. That doesn't sound logical. Suppose I shoot a test in the morning. It takes only a few hours to process the film, a few days to read it, another day to get the data back from IBM. Why does it take you 3 weeks?"

**Howard:** "Well, you might suppose it's a matter of workload and scheduling, and that's a big part of the answer. Yours is just one of a dozen tests. There may be twenty cameras on one test. There are thousands of feet of film to be assessed and only a few hands to do it. Data interpretation takes time; measurements have to be translated and combined. Some of that 3 weeks will be spent in just waiting. The rest of the problem goes back to the visual language. Using film means humans get into the act. Now, a lot of nice things are said about the human being—he solves complex problems, he is versatile, has imagination and so forth. (He is even easily manufactured by unskilled labor.) But the fact remains he is slow. A machine can count to 1,000 in the time it takes your eye to focus on a numeral. What's more, a human is prone to making mistakes. You might say he is too smart for his own good—he will make more errors in a routine job simply because he has qualities of braininess and can dream."

**Jim:** "What's wrong with making a few mistakes? It happens all the time."

**Howard:** "Yes, but you can't afford it in a large routine operation where the final result depends on each step being right. Flub there and you really waste time. Try counting a bucket of marbles and you'll see what I mean. In a complex operation with more difficult steps (like the data reduction business) the problem is magnified—you run head on into the immutable laws of probability. These laws are remorseless: even if each step is correct 99% of the time, when you increase the number of steps, the chances of getting the correct final answer the first time shrinks astonishingly."

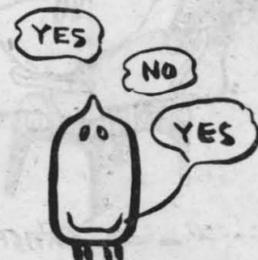
**Jim:** "So what happens? Do you spend a lot of time correcting mistakes?"

**Howard:** "Not at all. But in any work employing humans, operations become cumbersome because you

have to proceed with caution. You are forced to spend time making sure no mistakes can crop up in the end result. The philosophy of double checking permeates the whole business."

**Jim:** "I take it you need 100% reliability."

**Howard:** "Which is achievable only with moronic devices, such as electrical diodes. A diode just sits there and says: 'yes—no—yes—no' in the monotonous sign language of electronics. That is what automation is all about: replacing humans with little electrical robots designed to do only one thing and do it right. Once the bugs are worked out of an automatized system, it is unbeatable when it comes to doing routine jobs in a hurry."



"-A MORONIC DEVICE-"

**Jim:** "Just to have the last word, let me say that I'm convinced. I will quote you as saying automation is inevitable."

### Now In Personnel



**NEWLY APPOINTED** as placement officer for three Station departments is Ashley S. Hallett. Before coming to NOTS Mr. Hallett was employed at the Navy Electronics Laboratory in San Diego. Mr. Hallett, his wife and three daughters reside at 202 Robalo, Desert Park, (Wherry Housing).

### Awards Presented by Personnel Head



**ROBERT W. ANDERSON**, head of the Personnel Department, presents an Outstanding Performance Rating to Robbi Rice while Margaret Trehella, who has just received a \$10 Beneficial Suggestion Award, looks on.

## \$18M Overpaid In '54 Tax Mostly By Simple Errors

(This is the first in a series of eight articles on federal income tax filing for the year 1955. The articles are based on information furnished to AFPS by the American Institute of Accountants, the national organization of certified public accountants.)

The eve of April 16 will see a mad scramble in many households to put together the necessary facts and figures for the Federal income tax returns due on that date. This last minute rush can produce many careless mistakes. (April 15 falls on a Sunday this year, making April 16 the deadline.)

Most of the errors are very simple. For example, about a million returns are filed every year with signatures missing.

Little slips in arithmetic last year resulted in **OVERPAYMENTS** by taxpayers of \$18,000,000. Although these overpayments are returned eventually, the taxpayer shouldn't rely on the government to save him from all his mistakes.

Mistakes of arithmetic favoring the taxpayer were more numerous—perhaps not entirely by coincidence. All returns are checked and when an overpayment is discovered the government collects the difference—plus interest.

Apart from obvious mistakes, many taxpayers overlook opportunities to claim exemptions and deductions, and other ways to reduce their taxes.

To help you avoid such pitfalls, AFPS is publishing this series that may save you money.

The first step, whether or not to file a return, is fairly well resolved for service personnel. In most cases, gross income for 1955 was more than the minimum of \$600 and few, if any, servicemen were 65 or older with less than \$1,200 gross income. Thus a return is required.

Don't forget that a tax excess may have been withheld on your service pay and the only way to recover this money is to file a

return.

A common mistake is the filing of a separate return by a wife who had a small income. If she files a separate income, she is not permitted to file another return jointly with her husband, nor is her husband allowed to claim an exemption for his wife on his separate return.

Most married couples will save money by filing a joint return. This "splits" their income—as though each had received half the total income.

There are unusual cases, however, such as those involving capital losses, in which separate returns might result in a saving. If this is a possibility, it is best to figure your tax bill both jointly and separately before deciding which way to file.

The instructions that come with your tax forms provide valuable guidance. Help also is available from the Internal Revenue Service, which urges you to consult a properly qualified advisor if you need outside help.

(Next article: Save money with the right form.) (AFPS)

### REGISTER TRAILERS

Trailer coaches, whether used on the highway or not, must be registered with the Department of Motor Vehicles, the Automobile Club of Southern California reminds motorists.

## News from Pasadena

### Becomes Member of Caltech Faculty

Dr. Julius Miklowitz has joined the faculty of the California Institute of Technology as Associate Professor of Applied Mechanics. Dr. Miklowitz, who headed the applied mechanics branch of the research division, Underwater Ordnance Department, has been at the Annex since February, 1951. He will continue in a WAE status here until the end of January.



Julius Miklowitz

### 'O' Rates Given To 11 People

The Performance Recognition and Rating Panel at its meeting of December 19 approved eleven outstanding performance ratings for the last rating period, in addition to those recently announced.

Receiving this honor were Leo Brennan, J. A. Halminski, Don Hollis, D. A. Kunz, C. C. Little, Jasper Long, Robert L. Marimon, H. S. McCammon, Elizabeth B. Roche, Clifford Stock, and Emiko Yamasaki.

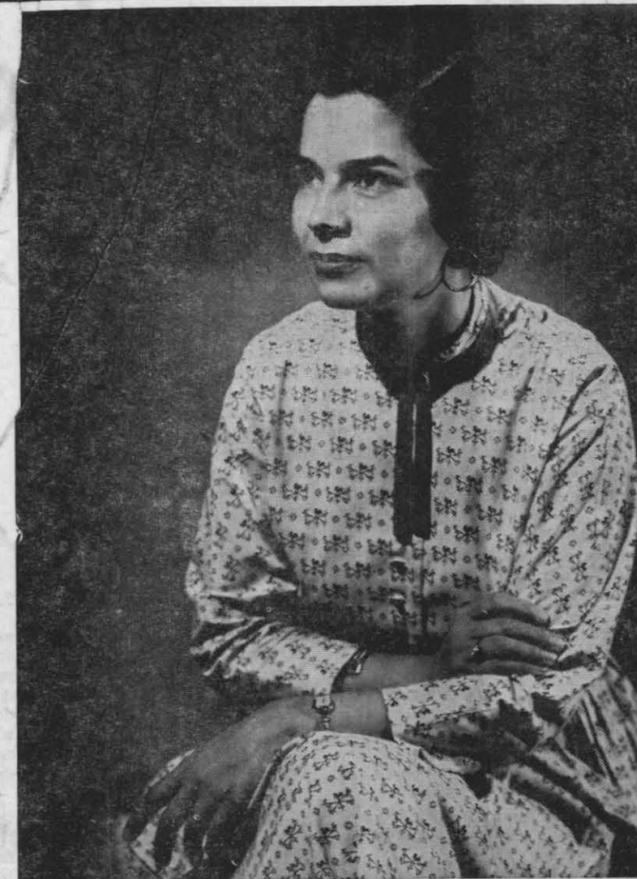
### Commission Team Inspects Annex

Beginning its work on Tuesday, January 3, an inspection-classification team of the 12th Regional Office of the Civil Service Commission is presently reviewing various aspects of the personnel management program at the Annex. The review will include a post audit of the classification of some individual positions.

### New Sign at Morris Dam Test Range



**ALL ANNEX LOCATIONS** are starting the new year under impressive new signs. This one, at Morris Dam, was installed by Gaylord Francisco and Richard Oschman (on roof of guard house), Amos Rudesill and Lowell Rickard, behind the sign when this picture was taken, and LeRoy Reynolds, who operated the Bay City crane.



**REPRESENTING PASADENA ANNEX** in the contest for "Miss Federal Secretary" is Julia Kinard of the publications and photography branch. One secretary from the Los Angeles area will be selected to receive this honor in connection with the commemoration of the 73rd anniversary of the United States Civil Service system. The award will be presented at the Hollywood Palladium on the evening of January 21.

### Candidate for Area Honor

Eleven years of federal service form the background for the selection of Julia Kinard as the representative NOTS Pasadena Annex secretary. She began her seven years here in 1948 after four years with the U. S. Army Engineers, Los Angeles.

Captain W. T. Groner, in a letter to Federal Civil Service Week headquarters, submitting Mrs. Kinard as

the NOTS candidate, said:

"As stated by her division head, 'This girl's performance record is tops. Everyone for whom she has worked praises her extravagantly.' She has always been known to be extremely cooperative, willing to un-

(Continued on Page 8)

### I. A. of M. Elects 1956 Officers

At a recent regular meeting of the International Association of Machinists, Mt. Wilson Lodge No. 1548, new officers were elected for 1956. Several incumbents were re-elected, with installations to be made in January.

Those elected to pilot the Pasadena local next year are: Walter Brown, president; Marvin Coleson, vice-president; Merlin Vance, recording secretary; Lloyd Berghagan, financial secretary; and Martin Nuss, treasurer. The shop committee to aid Mr. Brown in labor-management relations is Mr. Coleson and Mr. Nuss.

### Annex Employees NFFE Officers

Local No. 1101 of the National Federation of Federal Employees enters the new year with Pasadena Annex employees as five of its seven officers. They are Joe Halminski, Homer Cain, and Joaquin Vergara as first, second, and third vice-presidents, Nadine Robinson, secretary, and Cora Harding, treasurer. President of the group is Winona Harper of LAOD, and Jack P. R. Robinson of Army Audit is guide and guardian.

# Talking About New Trends In Instrumentation

## You Have Heard Much About Automation — Now Try This One!

Editor's Note: The following interview is between Jim Tracey, a technical editor, and Howard Viellenave, a scientific staff assistant, both in Test Department. Cartoons are by Nancy Glover.

**Jim:** "Howard, you promised to tell me about some new trends in your work, so here I am to collect. Remember I'm just a layman so don't try to snow me under."

**Howard:** "OK, suppose we just start talking and see where it leads. I'll begin with an elementary idea. Like any man-made article, all weapons become perfected through trial and error—testing to find fault. When NOTS tries out a guided missile, it takes place on a test range. There is a flash, a boom, a lot of roaring, until the missile disintegrates in the distance (bent on suicide, as you editors might say). But that likeness to a fireworks display is mere deception, for what really matters takes place along the sidelines where the business of instrumentation is being conducted."

**Jim:** "I hear the word 'instrumentation' used all over—strikes me as somewhat vague."

**Howard:** "It has to fit so many definitions. For our purpose, let's regard it simply as a process of recording and analyzing observations. In other words, the gathering and interpreting of raw data, so-called."

**Jim:** "Why 'raw'?"

**Howard:** "Oh, just a term. Actually, this data is called raw because it consists of a vast quantity of minute

'bits,' or units of data. These bits are undigested pieces of intelligence, carefully marked down within the flow of 'real' time (by which I mean the time of the actual occurrence)—the tick of a chronograph, the edge of a dial, an oscillating line, a row of electrical pips, and so forth."

**Jim:** "While we're picking on fog-words, just what do you mean by 'interpreting' raw data?"

**Howard:** "Well, the point is that only after a great deal of interpretation (which means translating, combining, manipulating in computers and plotting or tabulating) do these bits of evidence begin to take form as a legible history of the missile's performance."

**Jim:** "I suppose you're implying that while this processing goes on, the test program grinds to a halt."

**Howard:** "That is correct. The test engineer wants his answers within hours, to proceed with planning the next day's shoot. The researcher needs his measurements within a few days at least, to begin redesigning components. Instead, both must wait weeks, maybe months, before all the answers finally trickle in. Ever since the early days of ordnance testing, the delays seemingly inherent in data processing have been notorious. Although we've made many improve-



ments, data processing today still accounts for a lion's share of a weapon program's time schedule. This slowdown is not only costly in defense dollars, it aggravates the scientist where he is most sensitive; for if the researcher loves anything, it is to draw conclusions from his test data."

**Jim:** "I understand that among the reasons for this predicament is the fact that the typical trajectory-measuring instrument today is photographic. They say a camera is still the most accurate means of determining position and motion in space, despite years of rivalry from electronics."

**Howard:** "That is true. The inescapable price of accurate photographic coverage is the development of film and the reading of hundreds of individual film frames. If you fired a missile and wanted to know exactly what course of flight it took in four dimensions, you would have to wait about 3 weeks to find out—

if a modern photographic system was used to gather the raw data. But if we had an ideal instrument system using the new trends I am going to tell you about, we could give you the answers within 48 hours or less."

**Jim:** "I didn't know it was that bad, but I have heard that film is being attacked as the greatest single monstrosity in data gathering. No wonder."

**Howard:** "It's pretty bad. Take measurement of missile position. After dunking in various chemical baths, film gives us an image to start with. The image may represent, for example, the position in space of the missile. The distance between the missile and a crosshair is the 'tracking error,' as it is called. It must be translated into a measurement in plane coordinates. At present, this reading job requires a human operator, for no robot has yet been invented clever enough to distinguish between a weak missile image and a strong speck of dust. The distance must then be expressed in electrical

signals which stand for digits, because present-day computers like the IBM 701 deal with numbers in electrical form. (Incidentally, a baby industry in shaft-angle digitizers has been growing up around this problem.) This process, image—distance—electrical digits, must be repeated for each and every film frame. The data, still fairly raw, is then stored (on punched cards or magnetic tape) for later computing and refining. The lesson to be learned here is that the language of pictures is wrong from the start. Man is the only gadget that recognizes pictorial evidence."

**Jim:** "Excuse me if I ask a foolish question, but I can't resist it: why bother to record this cumbersome raw data in the first place; why not use the field instruments to compute the final answer immediately?"

**Howard:** "Two reasons. In the first place, you have to put the raw data into digital form before you can compute with it accurately. Very few instruments have digital outputs. Their language is usually electrical analog signals, or as we have seen, pictures. Secondly, there is ordinarily a vast quantity of data bits needed for any final measurement, especially say, if you are measuring trajectory by optical triangulation. Moreover, everything would have to be done in 'real' time. This would require each instrument system to have its own gigantic high-speed computer—a very expensive proposition. Then too, you may want to recompute later on for another type of measurement. You will always need permanent records. But the question is not so foolish; as a matter of fact, some instruments do have built-in computers that give final answers immediately. An example is the automatic tracking radar that directly plots the course of flight. It is not very accurate, but is being improved."

**Jim:** "Well, I can see where this is leading. Get rid of film wherever possible. Record the data in some form that is readily understood by digital computers—which would mean magnetic tape."

**Howard:** "Exactly. That philosophy is what we call automation, which is the new trend in instrumentation. The language of automatic signals is composed entirely of electrical signals, usually carried by magnetic tape."

**Jim:** "Just how does magnetic tape work?"

**Howard:** "Very simple. It is coated with a metallic oxide that can be magnetized. Electrical signals are stored on it in the form of magnetized spots. At the risk of seeming poetic, I might add that magnetic tape is a sort of magic bridge into the realm of electronics. It is one of the fastest and most convenient ways to store information—but it has not

always been so. Before 1951 there was no really good tape recorder on the market that suited our purposes; also, tape quality was low, that is, the unevenness of the oxide coating led to inconsistencies in the recorded data. Today, however, we can record almost anything on tape, and do so at high speeds, very accurately, and very economically."

**Jim:** "You make it sound like a super highway for data processing."

**Howard:** "That's precisely what it is. We expect tape to entirely eliminate the traffic jams. Tapes bearing the test data will be brought to a central assessment facility equipped with tape data assessors; we call them TDAs. These machines will perform the translating and converting—all the interpretations needed to prepare the data for entry into high-speed computers, which provide the final answers. Every type of test data will be stored on this single medium."

**Jim:** "That sounds fine for field instruments whose language is already in the form of electrical signals—Doppler radars, telemetering, track-coil systems, and the like. But what about cameras, film, the language of pictures?"

**Howard:** "I have to admit that's a

problem."

**Howard:** "No. The picture as such has no information value as far as measurements are concerned. The television camera would give a signal that only tells something about the position of the missile it is looking at."

**Jim:** "Well, OK, but I know about several instruments that measure such quantities as speed and position in space without using any kind of visual evidence—for example, electronic trajectory-measurement systems that work with radio signals. Why bother with visual or televisual coverage at all?"

**Howard:** "That question goes back to a fundamental characteristic of ordnance testing. As you know, the missile in free flight is covering a lot of territory, usually with several unexpected maneuvers, and there can be no mechanical connection between it and the observer. You mentioned the electronic trajectory-measurement system, which happens to be one way to get around this—you put a radio transmitter in the missile; it sends position signals to instruments on the ground. But if the missile doesn't have room for a transmitter, your instrument will have to follow the missile from the



position measurement. Keeping a cinetheodolite continuously aimed right on a moving target is plenty tough. In fact, it's impossible. There is always the 'tracking error' I mentioned earlier. Tracking error is the culprit that requires visual coverage."

**Jim:** "I can see that if it weren't for the tracking error, you could measure the line of sight of the cinetheodolite with those shaft-angle digitizers you spoke of, which record directly in electrical signals, and then do away with the film record. Why can't you train the operator to track better?"

**Howard:** "You can, but our present instruments aren't really designed to fit the human. There would be more profit in human-engineering the instrument to take better advantage of the natural reactions and capabilities of the human machine. A lot of things are being tried along this line. New tracking controllers adapted to the full psychology of our motor responses. Animated backgrounds simulated in the tracking telescope for better orientation. Then there is this business of feeding target-position signals from tracking radars to the cinetheodolite operator, by visual cues in his telescope, or perhaps with auditory signals, since hearing is even faster than seeing, which is actually a chemical process. For your information, tracking error is not really correctable. The very process of tracking requires that you must make an error—tracking is actually a process of continually correcting a bad aim. Eliminating this

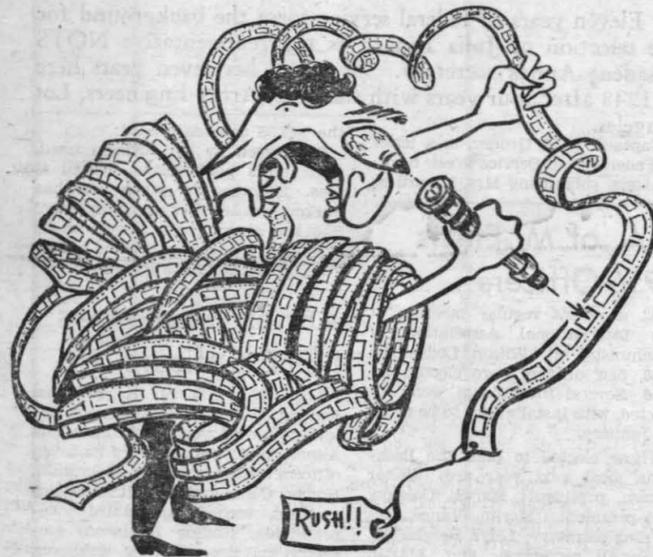
error entirely would take instantaneous feedback and response, which is impossible, or 100%-correct predictions, which is supernatural. Eventually, tracking aids and human engineering will reduce tracking error to a negligibility in many tests, but in the meantime, to get accuracy, the tracking error still has to be accounted for."

**Jim:** "And the best way is through visual evidence."

**Howard:** "At least it's one way. Some day we will have an automatic tracking radar that will follow a missile so closely we can ignore the tracking error. Until then, we'll have to make corrections based on visual tracking. As you've seen, television and magnetic tape will do this better than a camera and film."

**Jim:** "What will the film salesman think of this?"

**Howard:** "Of course, all cameras will not be replaced by television and magnetic tape. We've been speaking largely about missile testing, where it is true film is definitely on the way out. On the other hand, film coverage of some types of tests will most likely always be necessary. For example, midjet rockets, shaped-charge warheads, supersonic fragment dispersion, and other situations where miniature components exhibit high-speed behavior. Also, for many people, there seems to be no substitute for a technicolor production of their favorite missile blasting down a drone (Continued on Page 6)



- THE GREATEST SINGLE MONSTROSITY



- SOUNDS LIKE A SUPER FREEWAY

problem. The answer will probably be to replace the camera with a television camera, which, as everybody knows, can transform a visual display into electrical signals. Infrared scanners could do the same thing."

**Jim:** "You would store the pictures

ground without any such help. In other words, it has to be capable of tracking. This is true of many of our instruments, particularly the cinetheodolite, which must always be pointed at the missile by the operator, because the direction of its line of flight is what determines the final