









**GENTLY NOW!** — A giant crane gently lowers a shelter unit containing an emergency radio at the site of Junction Ranch in NWC's northern range area. Three of these radios are now operational at remote sites. The photovoltaic panels visible on top

of the shelters provide sufficient power to maintain the batteries for the radios. The use of photovoltaic panels to power remote site radios and other equipment is cost effective because these units no longer would need either power lines or generators.

### Sun used to power equipment in remote areas

NWC employees whose vehicles break down, hunters who are injured, and others who experience emergencies in the remote upland range areas of the Center will have reason to be grateful to the Federal Photovoltaic Utilization Program (FPUP), for which the Naval Weapons Center is the lead Navy laboratory.

Emergency radios, powered by photovoltaic systems, have been installed in small shelters at Coles Springs, Junction Ranch, and at the head of Mountain Springs Canyon in the upland range area.

#### Solar Cell Panels Power Batteries

Each radio is powered by two solar cell panels that keep a set of batteries charged. Instructions will be printed and enclosed in each of the small shelters so that anyone who has need for the radios will be able to turn them on. The radios have a spring-loaded switch so that when the transmission is complete, the radios will automatically shut off.

NWC is involved with FPUP because of its continuing efforts to use alternate energy sources for the improvement of both NWC and other Navy ranges, and to get such new technology introduced into the Navy.

#### Potential Sites Examined

As lead laboratory, NWC is examining potential Navy sites around the world at which photovoltaic systems would be appropriate, and developing program proposals to submit to the Department of Energy for promising Navy applications. Small photovoltaic applications are installed by NWC; larger ones planned under Phases II and III of the FPUP operation will be installed by contractors. All systems will be purchased off the shelf.

Phase I of FPUP aims to decrease the cost of solar cells by providing an increased market, and to provide opportunity for customers to become familiar with solar cell technology.

In Phases I and II, the systems will be small and, usually, remotely-sited. These are cost-effective at today's prices on a life-cycle basis.

Phase III of FPUP will involve larger systems which are projected to be cost-effective by 1982, and Phases IV and V are

#### Energy conservation tip

Clean reflectors below the heating elements on your stove will reflect the heat better and shorten cooking time. Energy for cooking will also be saved.

planned for industrial and housing use.

NWC's involvement with FPUP Phase I applications goes beyond the three emergency radios. A solar panel has been installed at the site of a seismic sensor located in Wilson Canyon. This panel and those for the emergency radios were built by Motorola Inc.

#### Another Local Application

Another local application under Phase I is the provision of power for AM radio repeaters at Pinion Point. Solar cells and batteries for the repeaters have been received, but the stand provided by the contractor for the solar panels was found to be inadequate to withstand the very high wind velocity at the mountaintop location. The Civil Engineering Branch of the NWC Public Works Department has redesigned the stand, and it will be installed in March or April 1980, as soon as weather conditions at that remote site permit.

Phase I projects under NWC cognizance include obstruction lights at El Toro Marine Corps Air Station in Santa Ana, Calif. These lights are now operational, and have proven to be very cost-effective because the expense of periodically changing batteries in the eight lights located in the hills around the station is avoided.

A radio repeater station similar to the one slated for Pinion Point at NWC will also be installed at the Marine Corps Base at Camp Pendleton. The system has been received and will be installed atop Mt. San Onofre in the spring.

#### Other Installations Planned

Four radio boresight beacons to be used for aligning test radars at NWC and four television systems for weapons scoring on local ranges are also planned for FPUP Phase I funding. Four portable meteorological stations will also be installed at NWC. Off-Center projects include beacon lights at Point Mugu, Calif.; Charleston, N.C.; and Rota, Spain.

Phase III projects that have been approved for NWC include power for the range instrumentation sites, for the Fixed Point Test Site at Randsburg Wash, for the billeting at Coso Peak, for two uprange FM repeaters, for the Garden Spring test site at Airport Lake, and for a timing repeater to extend the instrumentation capabilities uprange. Two UHF repeaters at two sites will also be built with Phase II funds to improve upland range communication capabilities.

Fourteen off-Center projects will provide

power at the Naval Air Development Center, Warminster, Pa.; the Naval Research Laboratory on the Chesapeake Bay; Naval Coastal Systems Center, Panama City, Fla.; and Diego Garcia in the Indian Ocean.

Procurement will begin on these Phase II projects as soon as the expected funding arrives. Phase III projects are now in planning stages and await a judgment by DoE in December.

Phase III submissions include three projects at NWC, and 13 systems at Twentynine Palms, Calif.; Camp Pendleton, Calif.; Palau, Micronesia; and other locations.

### Fed'l Women's Program, EEO to join for annual banquet, awards

The Federal Women's Program Committee is sharing its award ceremony with the Equal Employment Opportunity Program at a dinner to be held on Wednesday, Nov. 28, at the Community Center.

Guest speaker for the occasion will be Philip C. Russell, Public Affairs Officer for the Civil Engineering Laboratory, Port Hueneme, Calif. He has been active in feminist causes since 1973, and has authored "Women and Federal Jobs," and "Dynamic Job Interviewing for Women."

#### Basis for Awards

The Federal Women's Program awards will be presented to one or more women who have made significant contributions to their field of science or engineering, and to one or more women who have made significant contributions in technician positions.

A perpetual trophy will also be presented to a department at NWC that has continuously shown support for the Federal Women's Program. Also presented will be an individual award to a deserving individual who has contributed greatly to and supported the Federal Women's Program.

#### EEO Contributions Valued

The Equal Employment Opportunity Award demonstrates the value that management places upon employees, supervisors, and managers who actively and effectively contribute to EEO.

The three categories for this award include supervisors and managers who excel in promoting EEO within their organizations, EEO program leaders who have specific responsibilities for equal employment opportunity, and employees within program projects or activities with

### B-29 restored . . .

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Through the hot summer months the work went on in the barren, shadeless aircraft scrapyard, where contractor employees and Bottomley wrestled with the many and varied problems that had to be overcome in order to obtain flight certification from the Federal Aviation Administration for the old bomber.

The task of rebuilding the aircraft's auxiliary generating plant and the installation of control switches was some of the work handled by Bob Weinhardt, an electronics technician in the Explosives Technology Branch of the NWC Ordnance Systems Department. Weinhardt had been contacted by Bottomley for assistance when he learned of the Center employee's work here in preparing B-29s for use as targets.

The important job of serving as liaison between NWC, the British purchaser and the contractor under the arrangements that were made for restoration of the B-29 was taken care of by Don Hart, logistics support manager in the NWC Aircraft Department.

Plans call for flying the B-29 to the airport at Mojave prior to proceeding to Tucson, where some internal equipment (including that needed for communications) will be installed before beginning the flight scheduled to terminate in England.

Except for one that is preserved in Korea, the B-29 allocated to the Imperial War Museum will be the only aircraft of this type outside the United States. In addition to the one owned by the Confederate Air Force at Harlingen, Tex., there also is a B-29 Superfortress that is kept in "mint" condition at the American Air Museum in Oakland, Calif.

Other than for historical interest in the B-29, which was the aircraft used to drop the atomic bombs on Hiroshima and Nagasaki—actions that ended the war against Japan and ushered in the nuclear age of warfare—the Imperial War Museum wished to obtain a B-29 for its collection of wartime memorabilia because the U.S. loaned nearly 90 of the B-29s to the Royal Air Force in 1950. This was a stopgap measure between the demise of the British bomber fleet of World War II and the introduction of the Air Force's jet bombers.

EEO implications, such as training and recruitment.

The banquet at which the awards will be presented will begin with a social hour at 6, to be followed by the Federal Women's Program award presentation made by Burrell Hays, head of the Laboratory Directorate, at 7 p.m. The EEO awards will then be presented by a representative of NWC Command.

Following dinner Russell will speak on "The Professional Woman: A Sporting Chance."

Reservations are required to attend the banquet. Tickets for the dinner are priced at \$6 each, and may be reserved by telephoning Eloise Burkland, NWC ext. 2634, by the close of business hours on Monday, Nov. 26.

### Dr. Stine to discuss energy monitoring at FMA lunch Tuesday

Dr. Clifton Stine, Energy Conservation Officer for NWC, will be the guest speaker at a lunch meeting of the Federal Managers' Association (FMA) on Tuesday at the Enlisted Mess.

He will discuss the Center's energy monitoring program.

The meeting is open to all interested employees. Reservations are required, although diners have a choice of ordering from the menu or going through the buffet line.

Reservations may be made by telephoning Debbie Dyarman at the Enlisted Mess, 446-6929.



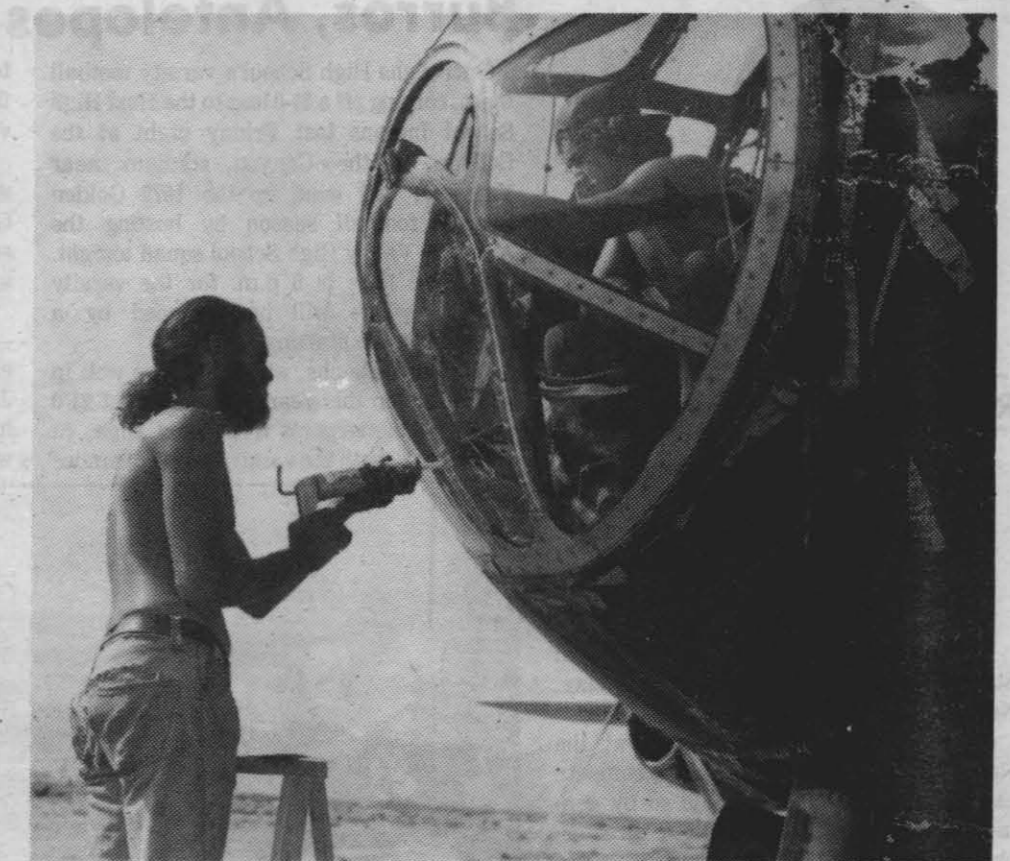
**A LARGE CRANE** is used to extract a turret from another aircraft in the scrapyard for eventual installation in the restored B-29 destined for England.



**THE LAST STRUCTURAL** problem to be remedied was replacement of the outer wing on the port side—a precaution deemed necessary when corrosion was found. As this photo was being taken, the outer tip of the wing was being fastened in place.



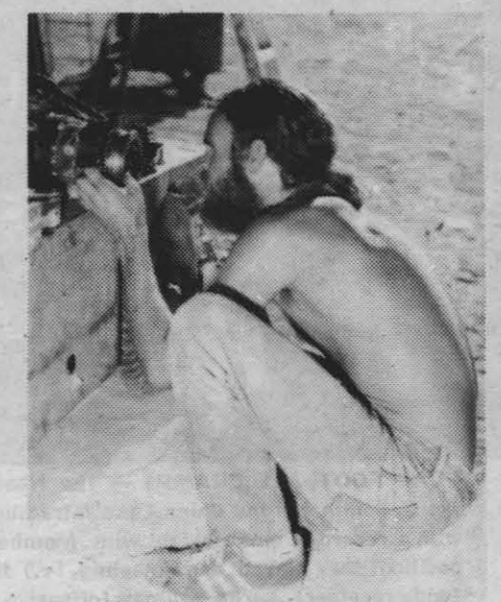
**TOWED BY A TRACTOR**, the B-29 aircraft is moved to the gun buff area on the north side of Armitage Airfield, where the final work of preparing it for flight was carried out. Takeoff for a hop to



**USING A GLAZING COMPOUND**, J. R. Kern (at left) and Louis Picchirro (inside aircraft), both employees of Aero-Services of Tucson, Ariz., seal joints in the glass nose cone of the B-29 aircraft.



**EVERY OTHER B-29** aircraft in the target scrapyard at China Lake was cannibalized for parts that went into the Superfortress being restored for the Imperial War Museum in England. Seen here, an upper foregun turret is removed from another B-29.



**A FUEL INJECTOR** pump is examined by J. R. Kern as it goes into the restored B-29 aircraft.

**Photos by PH2 Tony Garcia and Ron Allen**

Tucson, Ariz., had been scheduled Tuesday afternoon but, due to mechanical problems, the B-29 was still grounded on Friday morning.