ALL HANDS

DECEMBER 1973

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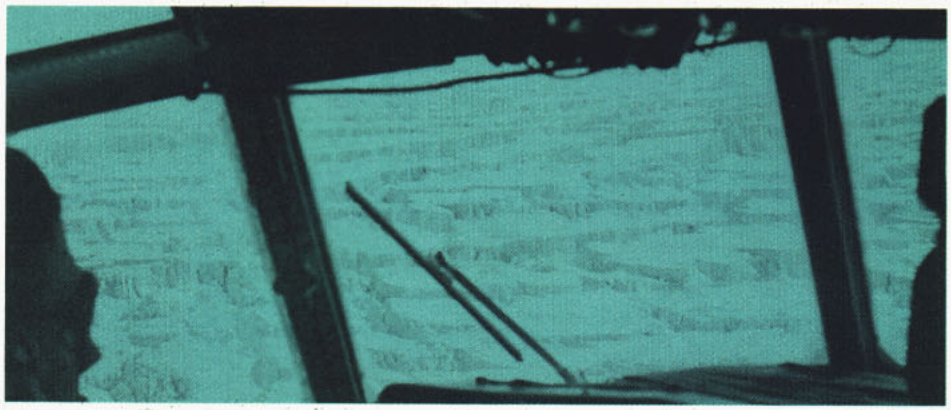
AT LEFT: NAVAL AIR POWER — shows off its might for guests aboard USS Coal Sea. High above the flight deck, a large contingent of "new sailors" enjoy a bird's-eye view of the air show.

FRONT COVER: ICE CAVE — A view of the Ross Sea pressure ridge near the Navy's main camp at McMurdo Station, Antarctica. Photo by PH3 William Curtsinger, USN. (See related article on page 2).



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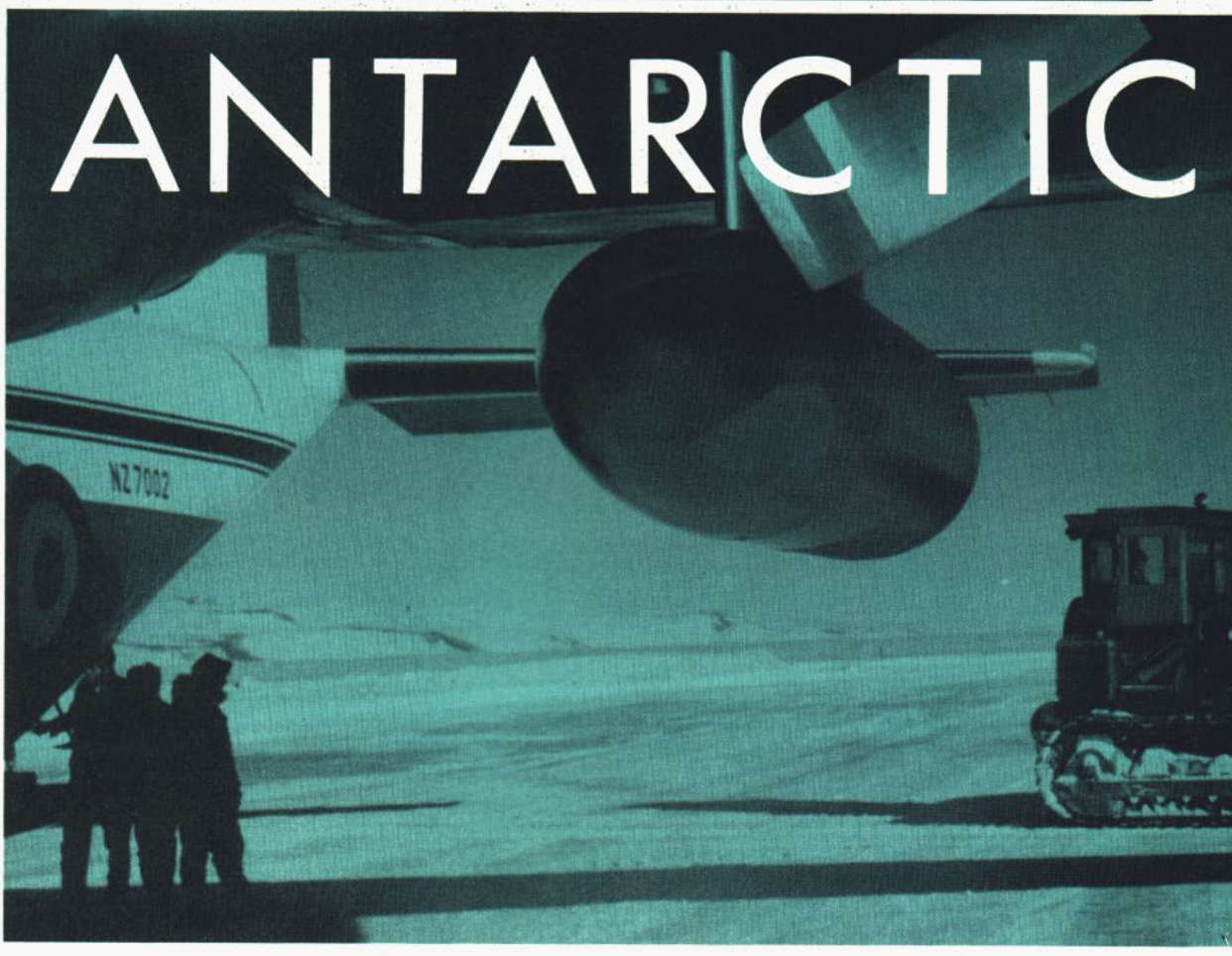
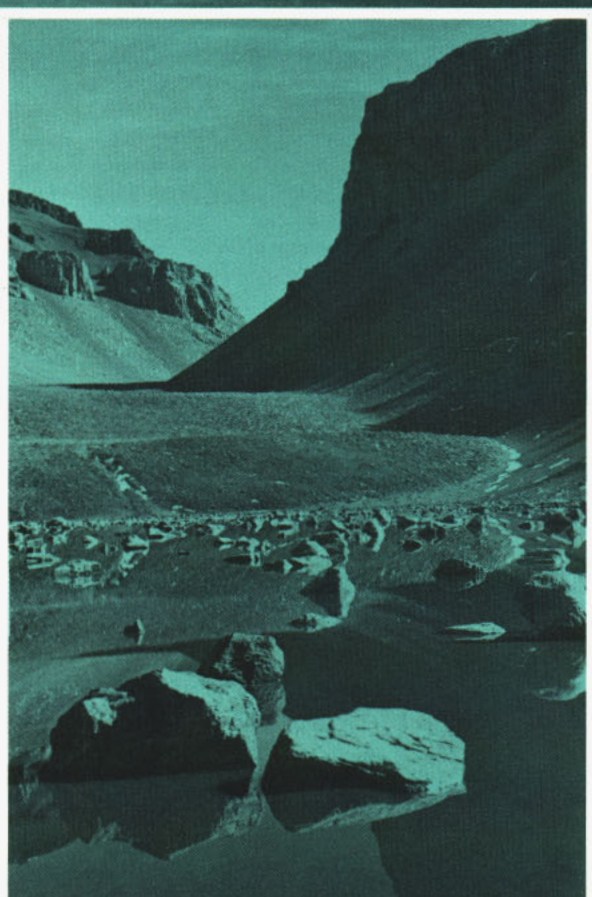


Top: Beardmore Glacier presents a beautiful sight as seen from the flight deck of a Navy LC-130 Hercules aircraft. Above: A caterpillar traxcavator transports a load of cargo at Williams Field, Antarctica. Right: Don Juan Pond in Wright Valley, an inland saltwater pool.

This is the season of the "first" and the season of the "last" on the White Continent — the frozen expanse at the bottom of the world — Antarctica.

The "first" involves Lieutenant Ann Coyer, the Navy woman officer who deployed this summer support season to McMurdo Station on the edge of the Ross Sea Ice Shelf, to spend her time between October and February as administrative officer for the Naval Support Force. She thus becomes the first woman to officially accompany the Navy to the ice.



The total winter population this past year was 200. The current population (it's summer down there) is close to 2000, including Navymen and personnel of the Coast Guard, Air Force, Army and scientists working as part of the Navy-directed Task Force 43.

There have been other women who spent some time in the Antarctic in the past — including, for example, a couple of women scientists who accompanied their husbands as part of the USARP (U. S. Antarctic Research Program) team in recent years. Old Antarctic hands recall the visit of a few stewardesses aboard an airliner which touched down briefly on the White Continent way back in the 1950s during a resupply flight. But LT Coyer is the first Navy woman to see duty in Antarctica.

As Ann Coyer is the first, the Seabees are in the process of chalking up their "last." Members of the Navy's Mobile Construction Battalion 71 will complete the new South Pole Station which was started three years ago. Civilian contractors will do the construction projects in future years.

Since the erection of the famed "Seven Cities of Antarctica" in the mid-1950s, the Seabees have been synonymous with the White Continent. They built McMurdo, Byrd, South Pole, Palmer, and every station and scientific camp used by Americans on the ice, usually in cold so severe that it could shatter the blade of a giant D-8 tractor as though it were glass. Taking nature in her most rugged state, the Seabees of the United States Navy turned the vast, cold emptiness of the continent into a living monument to their arm of the naval service. From the ice tunnels of Byrd, to the atomic power plant of McMurdo, and even to the new, two-story steel dome now at 90 degrees South, the land attests to their presence and their determination.

Yet, there is still another "first" being recorded this year on the land that has been called the World's Icebox. Four women scientists will be conducting research projects there and two of them, from DePaul University in Chicago, will also spend the coming winter season — from March through September — on the continent. Along with LT Ann Coyer, they will help to break down age-old barriers on a continent which has placed almost insurmountable barriers in the path of man since the days of the world's earliest navigators.

Time and man's inroads are but passing things in the land below the 60th Parallel. Since the 18th century, the land has acted as a magnet drawing men to her. She has, as well, acted as a most cruel mistress to man who defied her forbidding greatness, whether he be Ross, Scott, Byrd or Dufek. She yielded her secrets in a miserly fashion and exacted a high price on her white poker table — the trump card, as Scott found out and Byrd nearly learned, was death — a numbing, painless journey for those who dared the ultimate journey in life.

The ponies of Scott and sled-dogs of Amundsen gave way to tractors and other machines of man as the conquest of the unknown took its final shape in the 20th Century. Byrd's "tin goose," its tri-motors howling over the Pole on 29 Nov 1929 gave way to the four-engine *Hercules* transports flown by Antarctic Air Development Squadron Six today. And these transports now share the skies with the C-141 *Starlifter* jets of the U. S. Air Force as modern aviation gets man and his supplies from one point to another on the continent in a matter of hours, over trackless plateaus which — yesterday — took months to cross.

Heating systems, too, have changed vastly, allowing man to spend the entire year on the continent rather than a few weeks or months as in the past. Wood-burning and kerosene stoves gave way to oil-burning ones, and now atomic power — as used at McMurdo Station — points the way to the future. Campsites made up of a few tents gave way to huts and, as the crushing snows built up season after season in the interior, man went underground — first with the wonder arches at Byrd, now to the geodesic dome, connecting tunnel and underground station at South Pole.

There was a time, too, when all oil reached the continent in palletized drums. By ship and by plane the heavy, bulky cargo arrived in small lots, barely keeping up with the demands of those on the ice.

Now the giant tanker, USNS *Maumee* (which began her antarctic runs in 1969, replacing the smaller tankers like USNS *Chattahoochee),* makes on-time deliveries each summer support season, using the new ice pier at McMurdo station. (She will bring in more than six million gallons this year.) Coast Guard icebreakers — *Glacier* and *Staten Island* — cut the channel from the open sea leading to McMurdo, through the Ross Sea Ice shelf, allowing *Maumee* and fellow Military Sealift Command cargo ship USNS *Pvt. John R. Towle,* to offload directly adjacent to the station. In previous seasons, cargo ships got as close as they could to the station, "deadmanned" themselves to the ice, and tractor-drawn sled trains muscled supplies miles inland to the main camp. Long hoses stretched along the ice were used to pump the avgas and oil from visiting tankers, to bladders and tanks, a method which required many a Navyman to "walk the line" for miles in the bitter cold, checking for leaking hoses. "To walk the line" at McMurdo was akin to drawing the midwatch any place else in the Navy, yet it was a vital task to conserve gas and fuel brought to the continent at tremendous cost. Planes have huge appetites, yet a plane on the ice because of a shortage of avgas was about as useful as an expensive racing car without an experienced driver.

USNS *Towle* will bring in 2300 tons of heavy, bulky stuff this year as she has in the past. The rest of the cargo which is brought to the Antarctic, however, will be ferried in by the *Starlifters.* The air cargo — an estimated 500 tons of supplies and about 100 tons of fresh provisions and mail — will be further air-ferried to the inland stations by the *Hercs* of VXE-6. The Air Force plans to make 32 flights to the ice runway at Williams Field, adjacent to McMurdo Station, over a 12,500-mile resupply route stretching from the eastern seaboard of the United States. Navy, U. S. Air Force, and some Royal New Zealand Air Force planes (the New Zealanders operate Scott Base, not far from McMurdo) will make numerous flights during the summer season over the rugged waters south of New Zealand — 2100 miles over water so cold that humans have an estimated life-span of less than five minutes in it. Luckily — to some extent — all planes carry antiexposure suits for all per-

Left: USNS John Towle waiting near the foot of Mt. Erebus before following through the ice-packed channel to McMurdo Station. Below: An exhaust shaft cut into Byrd Tunnel houses power and utility equipment. Right: Laying nylon netting in the process of unloading cargo.

Left: Steelworkers of MCB-71 erect the wonder arch of Siple Station.

sonnel, along with rafts and the usual sea survival equipment. Back-up search airplanes at New Zealand and McMurdo—along with a radar picket ship halfway along the line—provide White Continent travellers with a degree of physical and psychological assurance.

What's the purpose of it all? Well, about 175 U. S. scientists, representing 70 universities all conducting studies funded by the National Science Foundation, carry on with projects year after year at the six permanent U. S. stations there. The scientists do the research and the studying; the Navy gets them from one place to another, feeds and houses them and — in a sense — is charged with the "housekeeping" chores of the overall scientific endeavor. The United States is one of 12 nations which signed the Antarctic Treaty in 1957 to engage in the scientific conquest of the land.

To look for immediate, even annual, results in this field would be foolish. As one scientist put it years ago, "Science is continually building a wall of knowledge. If we can put only one brick in the wall, we will have done our job."

Special emphasis this year at McMurdo Station area centers around the expansion of a diesel power plant while conducting the third season of a scheduled four-year international field exploration and drilling program. This project, which will collect a glacial history of McMurdo Sound and the nearby dry (clear of snow) valleys, will be one of the primary support projects for the U. S. Navy.

Seven new holes will be drilled this summer (October through February) in the area. They will be located at: McMurdo; Lake Vanda; Don Juan Pond; Lake Vida; Lake Bonney; Lake Fyxell, and on a delta near the coastline area of New Harbor.

This international project will have members from Japan, New Zealand and the United States.

Also at McMurdo, several programs will be carried out in search for additional information on the Ross Ice Shelf — a gigantic ice area which has sparked the interest of science since the first explorations. Scientists will study ice thickness, physical properties, water depth, and the characteristics of sub-sea sediments and underlying rocks. They will also undertake measurements of tidal ranges and gravity. All this activity is in preparation for the scheduled Ross Ice Shelf Project during the 1974-75 field season which will see the first drilling through the shelf itself.

The cold weather experts from the Army's Cold Region Research and Engineering Laboratory will also be active in the Antarctic this season with a vital study. A four-man team will evaluate three possible sites in the Pensacola Mountains for suitability as a runway on land for heavy wheeled aircraft (the *Hercs* are ski-equipped while the *Starlifters* are not). The idea is to get information as to the type of terrain modification necessary and exactly what equipment would be necessary to prepare each site. Object of course is to provide a landing site for year-round use — winter landings at McMurdo and the inland stations can be hairy to say the least.

At present, 200 Americans "winter over" on the continent, that is, spend the months from March through September in complete isolation at various stations. The largest group is at McMurdo; one American stays at the Soviet Union's Molodezhnaya Station (one Soviet exchange scientist spends the winter at McMurdo); two Americans are at Australia's Casey Station; larger numbers are at Amundsen-Scott South Pole Station and Palmer Station; and four civilian scientists are at Siple Station. The Siple Station endeavor is unique in that this past winter was the first time that only civilians operated a station in the Antarctic, without the aid of U. S. Navymen.

From Marie Byrd Land, to the Polar Plateau, to King George Island — to name but a few places — Antarctica is a study in white; an endeavor of nations, scientists and U. S. Navymen seeking answers to man's progress and problems on terra firma.

— J. Coleman

Right: A Navy helicopter deposits scientists from the U.S. Geological Service on an Antarctic mountaintop.

HOT FACTS ON

COLD WEATHER

Now is the time for all good Navymen to button up their overcoats. Well, maybe not *all* Navymen but certainly those who are in climes where the north-wind blows cold and the snow flies at least some of the time. It's the time of year when Old Sol goes south and cold Arctic air sweeps in from the polar regions often bringing with it inconvenience, discomfort and sometimes tragedy.

As almost any watcher of the TV weather report knows, trouble starts when cold northern air confronts a mass of moisture-laden warm air. When the two air masses having different temperatures and densities collide, the resulting disturbance becomes an intense low pressure system. Often thousands of square miles are affected as these disturbances sweep in a circular motion over large areas of the globe.

Water has a great effect on weather; storms of winter are no exception. Navymen familiar with weather patterns in the Pacific know that storms form along the eastern Asian coast and move toward Alaska while others, especially those which are born along a mid-ocean Arctic front, move southward, hitting the coast as far as California.

The Rocky Mountains are an effective barrier against most storms moving in from the Pacific but there are weak points in this wall. A few disturbances rise above the peaks to again gather their strength on the eastern side.

Navymen who have lived in the midwestern and southwestern regions of the United States have probably heard of Colorado cyclones. Similar, but perhaps less familiar, are the Alberta cyclones. Both move eastward, frequently converging over the Great Lakes which, like the oceans, manufacture their own storms.

The "nor'easters" or "Cape Hatteras storms" have been well known to sailors since colonial days and before. They occur when polar air meets warmer Gulf air, often off the Virginia or Carolina coasts in the general area east of the southern Appalachians.

Since these disturbances form over water, it is anybody's guess as to the course they will take. A Navyman stationed along the eastern seaboard probably has been tempted to curse the weather forecaster when he awakens to find his car buried under an unpredicted snow. He is almost (but not quite) as annoyed when he heeds snow warnings, makes preparations, then awakens to find the sun shining.

Although the victim of these miscalculations may swear the weatherman is always 100 per cent wrong in his predictions, the forecasting of foul weather (which was reasonably good before) definitely improved in 1969.

During that year, the U.S. Departments of Commerce, Defense and Transportation tightened their defenses against unexpected behavior of winter storms. The methods used included reconnaissance aircraft, ocean buoys and a new weather ship. Predictions were still an hour-to-hour proposition, but forecasting a storm's erratic behavior did improve, making for less disgruntled citizens on both land and sea.

Although some may be irked if they don't receive a predicted winter storm, they shouldn't be. Snow and winter storms in general can be killers and you do not have to be snowbound to be harmed by their ravages.

During the storm seasons between 1936 and 1969, for example, snowstorms were the direct or indirect cause of death for 3000 people. More than a third of these died as the result of accidents — automobile or otherwise. Slightly less than a third were chalked up to overexertion, exhaustion and heart attack. Less than 400 deaths were attributed to exposure and freezing and the rest were the result of miscellaneous causes such as carbon monoxide poisoning, home fires, collapsing buildings and even electrocution (from downed wires). About half of the winter deaths reported between 1936 and 1969 occurred in New England, New York and Pennsylvania.

Those who live and work in these areas — and other places where severe winter storms sometime occur, would be wise to heed these statistics and take precautions against possibly becoming one more statistic.

Be particularly wary when ice forms on overhead electric wires, they could suddenly come crashing to the ground. It almost goes without saying that fallen wires should be reported to the electric company and they shouldn't be touched.

It should also go without saying (but statistics indicate otherwise) that pavement covered with ice is extremely dangerous for pedestrians and drivers alike. Many come to grief when there is enough snow over the ice to provide traction. When the temperature is in the 20s and traffic converts a two-inch snowfall to slush, watch out! The slush will again freeze and quite probably be polished by auto tires to skating rink slickness. If the ice is then covered by a thin layer of snow, both pedestrians and motorists frequently are unaware of the danger to which they may fall prey.

A motorist traveling faster than conditions allow can easily be sent crashing into something solid, to the detriment of himself, his passengers and his car. Pedestrians accustomed to traffic stopping at signal lights may also get into trouble. It is easy to forget that an approaching driver may lack the control over his car to which he is accustomed. Assuming a driver can stop where he is supposed to can lead to tragedy.

Most drivers are aware of the fact that ice forms on bridges before it forms on the road; that, when skidding, the car's wheels should be turned in the direction of the skid; that brakes should be gently pumped when wheels are on ice and never applied strongly or suddenly; that speed is especially dangerous on ice and snow. Even though you think the rules of winter driving are thoroughly familiar, a review never hurt anyone.

If you find yourself stalled or snowbound in a car, it is wise to keep a window cracked on the downwind side to preclude the possibility of asphyxiation from carbon monoxide which may seep undetected into the car. If you need your heater, keep the motor idling at its lowest level and avoid sitting in one position for a long period of time. Vigorously move your arms and legs periodically to maintain circulation.

Navymen, because of their work, can be exposed to various types of cold injuries during the winter months. Cold injuries can extend in severity from a mild case of chilblain to loss of extremities and death by freezing. While the medical department has developed better methods for treating such injuries, the best treatment is prevention. Presently, there are four recognized forms of cold injuries:

Chilblain: This is the mildest of dry cold weather injury. It occurs most often from repeated and chronic exposure of bare skin to temperatures from the low 60s down to 32°F. It is a very common occurrence in populations that do not have central heating. In an acute case of chilblain, the exposure skin is red, slightly swollen, hot, somewhat tender and may itch. In chronic cases, the skin is red, rough and cool to touch. Many cases of "chapping" are, in reality, mild cases of chilblain due to prolonged exposure to cold.

Chilblain itself is not serious and there is never loss of tissue from untreated cases. The best treatment is to dress adequately to prevent continued exposure and the use of bland soothing ointment for the itching and discomfort.

Frostbite: This is superficial freezing of the skin following exposure to extreme cold to temperatures generally at or below 20°F. The ease of contraction depends upon a combination of wind and temperature. The higher the wind and the lower the temperature, the faster exposed skin can become frostbitten. It is common on the face, hands and feet. Its onset is signaled by a sudden blanching of the skin which may be subjectively noted as a momentary tingling sensation.

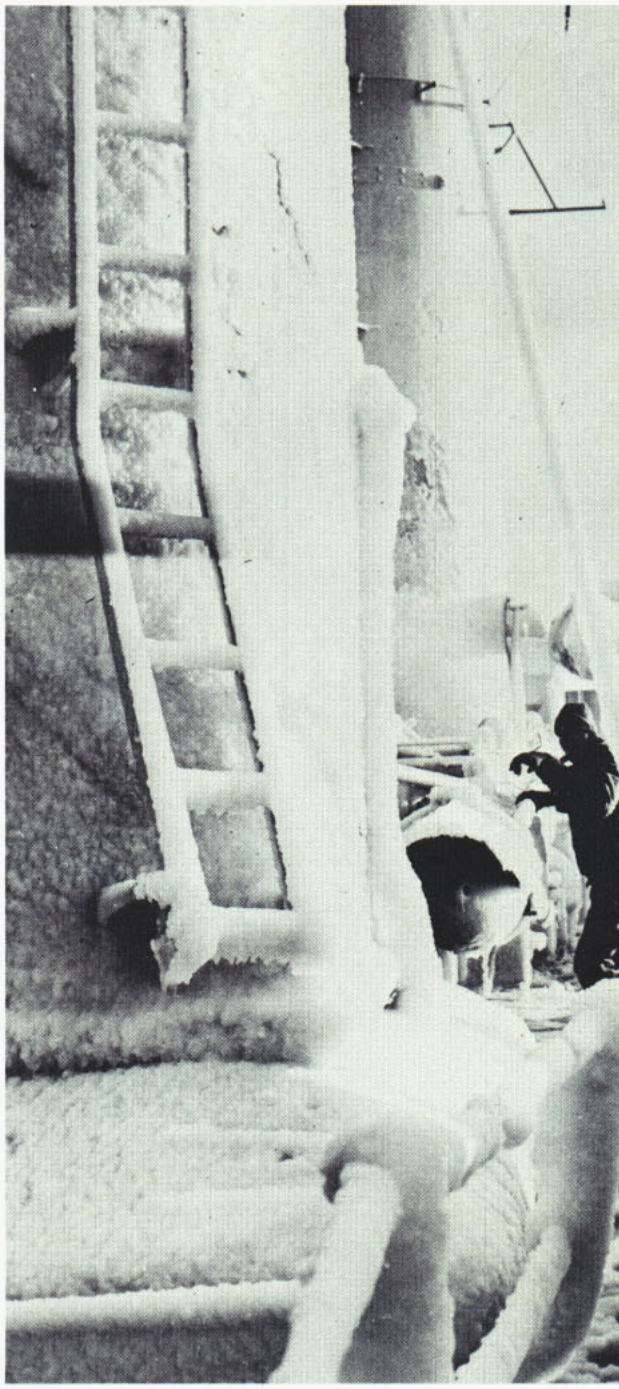
Frostbite can be classified into two degrees of severity.

- First degree is the mildest form and results in a redness of skin with loss of the superficial skin — very similar to mild sunburn.
- Second degree frostbite will have blister formation followed by desquamation (peeling) of the injured tissue, again very much like a second degree burn.

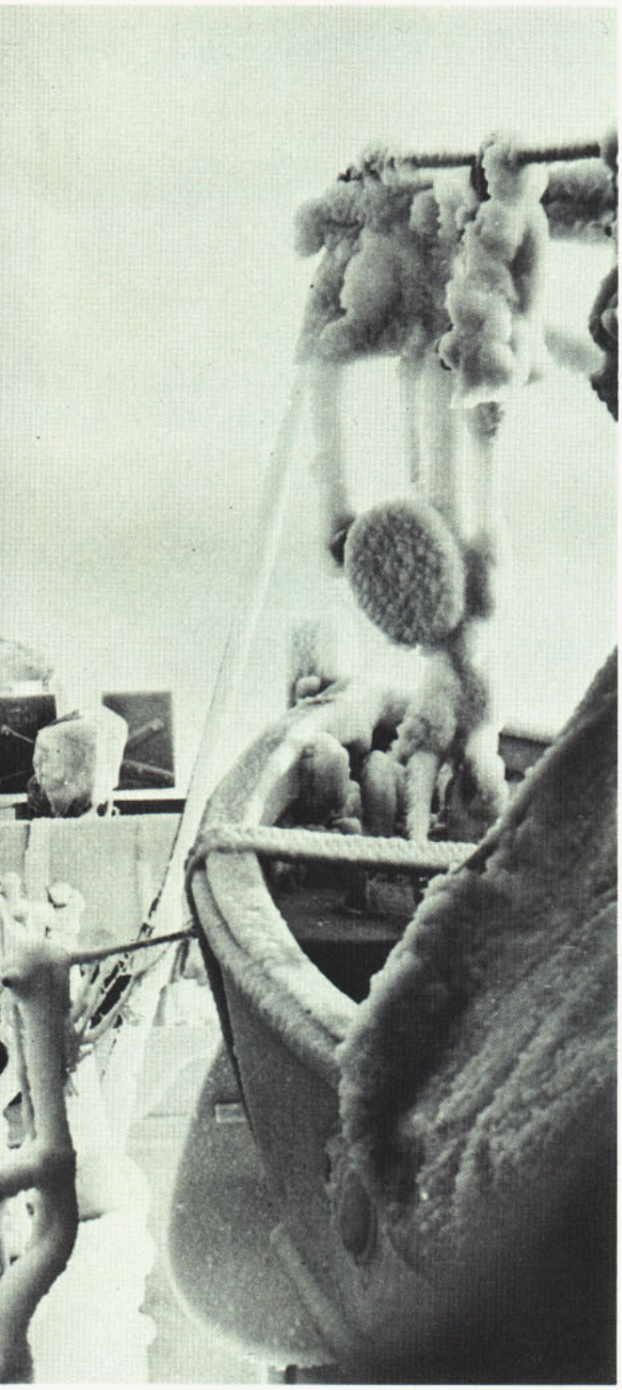
The best treatment is prevention by wearing proper clothing and avoiding continued exposure. When the need exists for prolonged exposure, the "buddy system" of two men watching each other for the telltale, yellow-white spots will minimize tissue damage by early detection. In severe cold, if your face, hands or bare skin stop hurting, investigate. You probably have frostbite. When felt, frostbitten skin may be cold, frosty and stiff.

The best treatment for freezing injuries is quick thawing in a water bath of 104° - 108°F. Superficial frostbite is rarely seen where such treatment is readily available. In the field or aboard ships, it should be immediately treated whenever encountered by placing a warm hand over the spot until it hurts again. Frostbite of the fingers can be treated by placing them inside your clothes and next to the skin. Under the armpits is an excellent place to warm the hands.

First or second degree frostbite, if promptly treated, is not serious and will not result in any permanent damage to the tissue. If, on the other hand, frostbite is not treated and measures are not taken to prevent further prolonged exposure to the cold, the deep tissues can become frozen with the formation of ice crystals in the deep tissues. Unthawed, it is painless and the tissues have a pallid, yellowish color and appear waxy. Skin will not roll over bony prominences. The extremity may become quite solid to the touch. Termination without proper treatment is usually dry gangrene with loss of frozen tissues.



Treatment must be in adequate medical facilities.



Rapid rewarming is the treatment of choice, but must not be undertaken until the person is at a medical facility where proper care can be given. If the frostbitten tissue is thawed and then refrozen, loss of digits and perhaps the hand or foot is the invariable outcome. Rather than thaw in the field, it is preferable to keep an extremity frozen for several hours more to enable rapid rewarming and immediate hospital care.

Hypothermia: When the entire body is exposed to low temperatures, body heat may be lost faster than the body can produce it to maintain a constant core temperature. The normal core temperature is about 98.7°F., when this internal temperature drops below 95°F. the body functions slow down, and uncontrollable shivering takes place. When the core temperature reaches between 75°F. and 80°F., death usually results. General hypothermia (subnormal temperature) can take place very rapidly when immersion in seawater without adequate protection takes place. Treatment should be by medical personnel with rapid rewarming either by placing in a hot bath or wrapping in blankets with heating pads. One of the major hazards to watch for during the rewarming phase is shock. Patients, during this phase, are prone to go into deep shock and adequate medical facilities must be available to treat the patient should shock ensue.

Immersion Foot: The above injuries, except immersion hypothermia, are generally the result of exposure to dry extreme cold, whereas immersion foot, commonly known as trench foot, results from wet cooling for hours or days of an extremity at temperatures above freezing. Dependency and/or immobility of the extremity aggravates and predisposes. Sailors in seawater or Marines with wet feet in foxholes can develop immersion foot. While it was thought that body chilling and cold had to be present, a similar condition has been seen in Vietnam and dubbed "rice paddy foot." The common feature is prolonged exposure of dependent extremities to moist environments with generally restricted movements.

At first, the foot is cool, swollen, waxy and mottled with cyanotic (purplish) to blue splotches. Walking is difficult; the skin is anesthetic and deep muscle sensation is lost. In the second stage, the feet are red, swollen and hot. Blisters often form, with throbbing pain. It is generally severe and, even with the best treatment available, disability may last for months or years. As with the other cold injuries, prevention is the treatment of choice. Keeping the feet dry is of prime importance with frequent exercise or massage of the feet. Dry socks should be put on at least daily and more often, if needed. Should walking become difficult or skin or sensation be lost, immediate medical care should be sought.

Care should be taken in severe cold when thermal boots are worn which prevent the evaporation of perspiration. The foot can be continually bathed in its own perspiration and result in mild to moderate cases of immersion foot.

In addition to these cold injuries, winter weather can create additional health hazards. The need for, and use of, fire to provide warmth not only produces a fire hazard but many products used for fuel can produce carbon monoxide. Carbon monoxide kills

through asphyxia even in the presence of adequate oxygen. As the gas is odorless, colorless and tasteless, it may not give any subjective warning before collapse. In some cases, affected persons may have headaches, dimmed vision, dizziness, nausea and weakness before becoming unconscious.

During winter months, one must ensure that there is adequate ventilation in buildings, vehicles and aircraft when running engines. Unventilated engines or heaters should not be used nor those with defective exhaust systems. Persons suspected of being overcome by carbon monoxide should be moved to fresh air immediately and given 100 per cent oxygen, with artificial respiration, if needed.

One last area of concern in cold weather is overexertion with an increased incidence of heart attack. Navy males, especially those in their 40s and 50s who have jobs where they fail to maintain an adequate exercise program and are physically out of shape, should be especially careful. Come winter and the first heavy snow, out they go to shovel off the walks. On exposure to the cold air, the body tries to conserve heat by constricting the vascular system at the same time the man is overexerting himself. Such conditions produce a prime candidate for a coronary attack.

Again, prevention is the key. Don't overexert. In addition, keeping fit is of prime importance. Eat a well-balanced diet, keep the weight down, maintain a physical fitness program and work at a leisurely pace.

— Robert Neil and
CDR Paul Tyler, MC, USN

WIND and MOBILE HOMES

Navy families who have mobile homes in high windy areas should take elementary precautions for mobile homes are particularly vulnerable. They should be tied down.

Many manufacturers install anchoring straps under the mobile home's skin and these can be used for tiedowns. Otherwise, the owner will have to improvise. If you are lucky, your park will have something (usually trees or shrubs) to break the force of the wind. It may also offer solid concrete foundations and steel anchor locations on your site. If straps and anchors are not already available, galvanized steel strapping or cable and anchoring devices are commercially available. Anchors should be able to withstand at least 4800 pounds. Consult a local expert concerning the type best suited for your circumstances. In addition to straps and anchors, you should also have tensioning devices for drawing the sets tight and, of course use buffers wherever straps rub against your mobile home.

Two sets of tie-downs are considered advisable — one for the frame and one for over the top. To protect yourself in winds to 85 mph, one set of frame tie-downs should be placed every 10 feet along the length of your home. The end tie-downs should not be more than five feet from the end of the home. Over-the-top tie-downs should follow studs and rafters near the ends of the mobile home and be buffered at the top corners to prevent abrasion from cables rubbing against the mobile home's exterior surface.

Most areas of the country offer commercial tie-down facilities which cost between $150 and $250. If you doubt your ability to do a proper job, money spent hiring an expert might pay off in safety.

CHILL FACTOR

When you look at a thermometer, you can tell what the temperature is, but you won't necessarily know how cold it is. The degree of coldness depends upon the combination of temperature and wind velocity.

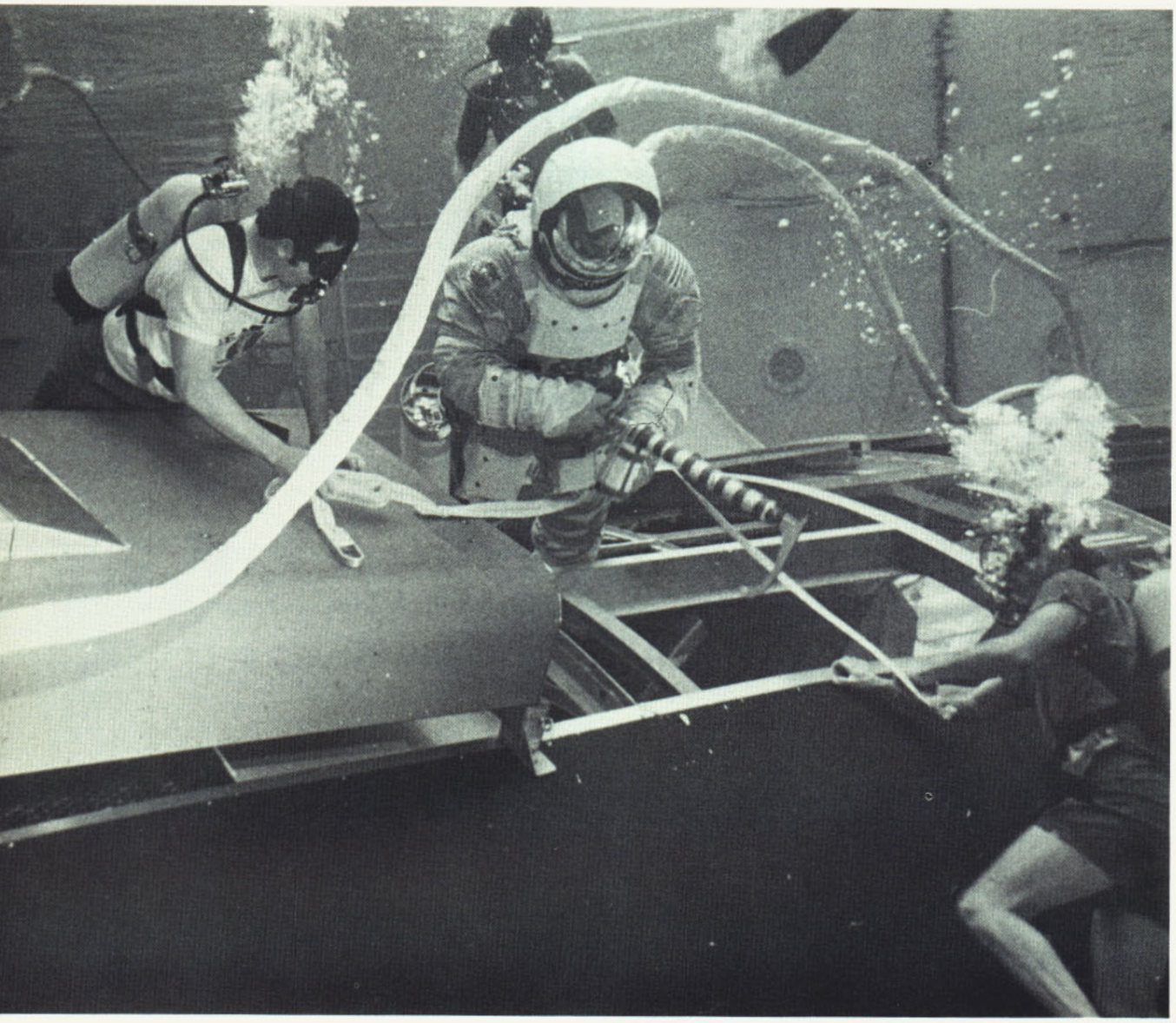
The chill factor of the air should be considered if frostbite and other dangers of winter are to be avoided. By matching the wind velocity and the temperature columns on the chart below, you can learn just how chilly the air really is. The chart considers constant winds, not gusts.

Equivalent Temp. (°F.) / WIND VELOCITY IN KNOTS	AIR TEMPERATURE (°F.)															
	50	45	40	35	30	25	20	15	10	5	0	−5	−10	−15	−20	−25
0	50	45	40	35	30	25	20	15	10	5	0	−5	−10	−15	−20	−25
5	45	38	34	29	24	19	14	9	3	−2	−8	−11	−19	−23	−28	−32
10	38	31	26	20	14	8	3	−2	−10	−18	−25	−30	−37	−43	−48	−53
15	33	27	20	12	5	0	−8	−15	−20	−28	−35	−40	−48	−58		
20	28	22	15	7	2	−7	−15	−21	−27	−35	−40	−47	−58			
25	26	19	12	3	−3	−10	−18	−25	−32	−37	−45					
30	25	17	10	1	−8	−14	−23	−28	−35	−43	−48					
35	20	15	8	−1	−10	−15	−25	−30	−38	−45	−50					
	CHILL CONDITION II					CHILL CONDITION III			CHILL CONDITION IV			CHILL CONDITION V				

LESS THAN −60°F

Navy Divers and Skylab:

Simulating OUTER SPACE



ON EARTH

For the past two years a group of nine Navy divers has been working at the Marshall Space Flight Center near Huntsville, Ala., in a huge zero-gravity simulator used by the National Aeronautics and Space Administration (NASA) to train Skylab astronauts.

The Navy enlisted men are members of the underwater demolition and SEAL teams. They are on loan to NASA by the Department of the Navy to work at the Marshall Center's Neutral Buoyancy Simulator (NBS), a tank 75 feet in diameter and 40 feet deep which holds 1.4 million gallons of water.

The largest such simulator known, NBS has had a prominent role in both the design of the Skylab space station and the training of its crew. Astronaut training is geared to readying Skylab crewmembers for extravehicular activities (EVA), or astronaut activity outside the confines of the spacecraft.

Each three-man Skylab crew has undergone numerous training exercises in NBS and each time they train, the Navy divers are very much involved. The object of the training is to simulate the weightless environment of space. Submerged in the simulator, the astronauts are moved to a platform by the divers where they are "weighted out." This process involves attaching a harness to the astronaut which has pockets containing lead weights at the torso, wrists, thighs and ankles. These weights are carefully added or subtracted until neutral buoyancy is achieved — they neither sink nor rise in the water. This environment is similar to the weightlessness of space.

Once neutrally buoyant, the astronauts are ready to begin training exercises; two safety divers are assigned to each at all times, in case they should need assistance. The Navy divers are generally used in this role.

The Navymen spent most of their time at Marshall as safety divers for the astronauts or in removing and making modifications to the simulated flight hardware used in the tank. Still, their presence became even more valuable when Skylab later developed problems in orbit.

Skylab's problems initially began about one minute after liftoff when the meteoroid shield was torn off as the vehicle passed through its highest aerodynamic pressure point. The loss of the shield also apparently caused one of two solar panels used to generate electricity for Skylab to be torn away and jammed the other in such a way that prevented its full deployment.

The meteoroid shield was designed to protect Skylab from possible impacts of tiny space particles, providing enough resistance to make them splatter and lose energy before striking the inner walls of the workshop. It was also to provide protection from the sun's unobstructed rays. The latter caused the greatest concern to space officials.

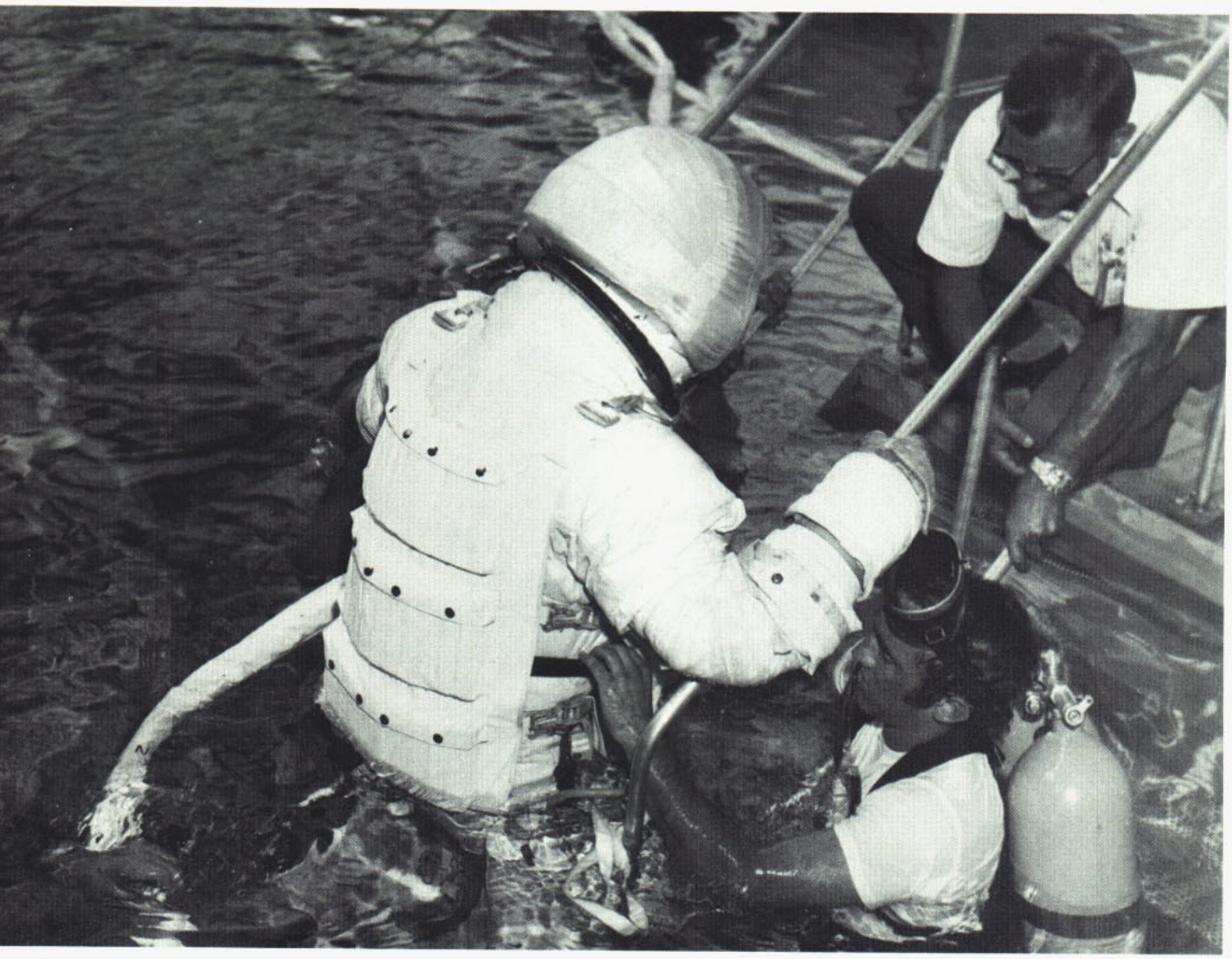
When the shield was lost, the space station was exposed to temperatures on the outside which were about 200 degrees higher than had been expected or for which it had been designed. The workshop internal temperature began to rise rapidly and in almost a straight line slope. Space officials knew corrective measures had to be taken if the station was to be saved.

It was decided by NASA to delay the launch of the first Skylab crew, a launch that was to have taken place about 24 hours following the launch of the unmanned space station. The delay would give the space agency time to, perhaps, develop a means of cooling down the Skylab and devise a way of deploying the jammed solar wing.

The Navy personnel at Marshall suddenly became heavily involved in the problem-solving efforts to save Skylab. Program officials decided that some sort of solar or heat shield would be launched with the crew and deployed over the workshop to reduce the extremely high temperatures. Since the shield concepts had to be tested, the Navymen were called upon to assist in the use of the NBS for the deployment tests. Two of them were experienced in parachute rigging since they were UDT members — the remainder were SEALS — and they were asked to fold the test shields to ensure proper deployment.

When the marshall Center "twin-pole" solar shield was decided upon as one which would be taken up by the Skylab crew, Navy men EM3 Richard A. Pouliot, BM1 Alfred A. Ashton, MM2 Roger A. Gant

In the neutral buoyancy simulator (NBS), Marshall Space Flight Center engineer Charles Cooper (in spacesuit) practices with the "shepherd's hook" to be used on Skylab. He is kept company by Navy divers who stand by in case of any emergency.



Navy diver, HT2 Ken Wilkerson, helps astronaut Gerald Carr, commander of the Skylab 4 mission, into the water-filled simulator for a training session.

and AE1 Charles W. Fellers packed the flight shield for storage in the command module of the spacecraft that would take the astronauts to rendezvous with the crippled space station.

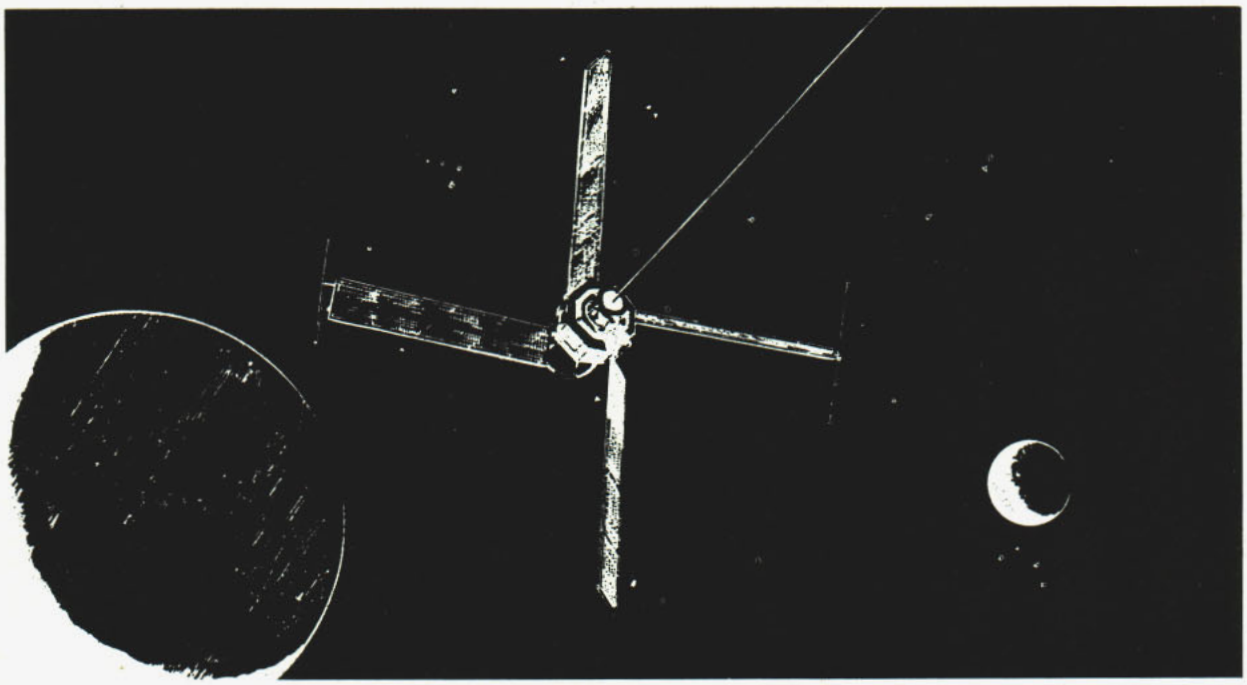
Another Navy man, EM1 Michel P. Bennett, was given the assignment of packing a rope "clothesline" to be used with the Marshall sail. Bennett later traveled to the Kennedy Space Center to pack the flight clothesline.

Navy personnel also played an active role in the development of procedures and tools used to cut a metal strap which was jamming the solar wing of Skylab. When astronauts visited the Marshall Center to test tools, the Navy divers were there to assist them. A set of cable cutters — developed and tested at the Marshall Center — were eventually used by the Skylab 2 crew to cut the strap and free the solar wing.

James Splawn, chief of the NBS, praised the efforts of the Navymen, saying, "Those guys are fantastic. During the two-week problem-solving period here they worked an average of 21 hours a day, some days around the clock, and their attitude never changed. They were determined to get the job done."

The Marshall Center is NASA's largest field center. It was there that the *Saturn* family of heavy space rockets were developed. The *Saturn V* was used to launch men to the moon and the small *Saturn* IB is being used for the manned Skylab launches. Marshall was also charged with developing most of the hardware for the Skylab program, including the workshop, *Apollo* telescope mount, airlock module and multiple-docking adapter.

Besides those already mentioned, the other Navymen who participated in the program were OSC P. T. Gruber, SMC D. L. LePage, EN1 A. B. Ebner, and HT2 R. K. Wilkerson.



Navy Astronautics Group
SATELLITE NAVIGATION

An orbiting Transit *satellite races around Earth at four miles a second. The payload is an octagonal drum, the size of a large hatbox. It is crammed full of electronics circuitry, memory banks, oscillators, storage batteries, radio receivers and transmitters. A 100-foot-long tubular boom extends upward to keep the transmitting antenna on its base pointing toward Earth, 600 miles below. Through the modern miracle of microminiaturization, the Navy navigation satellite, containing more than 34,000 components, weighs less than 120 pounds.*

For every pound of satellite in orbit, there are tons of supporting equipment on earth — receiving, computing, timing, telemetry and transmitting gear — operated by men of the Navy Astronautics Group. These men manage the constellation of *Transit* satellites and keep each of them supplied with navigation information for broadcast to the Fleet.

Twice a day, the Navy Astronautics Group resupplies the memory of each orbiting *Transit* satellite with navigation information — enough to last for another 16 hours of consecutive, two-minute broadcasts. The orbiting satellite is programmed to transmit excerpts from its memory content progressively at two-minute intervals throughout its useful lifetime.

At sea, a shipboard navigation set receives the broadcasts from a passing *Transit* satellite. At the same time that it recovers information locating the satellite in space, it measures an apparent frequency change that takes place while receiving *Transit* satellite signals — the so-called *doppler shift*. Doppler shift measurements act as a beacon to locate the position of the ship at sea in relation to that of the *Transit* satellite in space. In a matter of moments, the navigation set applies these known factors to the navigation equation to solve for the ship's true position —

latitude, longitude and satellite time.

It's as quick and easy as that, without constraints imposed upon conventional navigation by visibility, weather conditions or time of day. No optical sighting is necessary, no attitude stabilization. No angles such as are used by a sextant need be measured. All that is required is a navigation set to receive and process continuous wave, phase-modulated signals from a passing *Transit* satellite to compute a precise fix.

So far as the user is concerned, the system is passive, requiring no radio transmissions on his part.

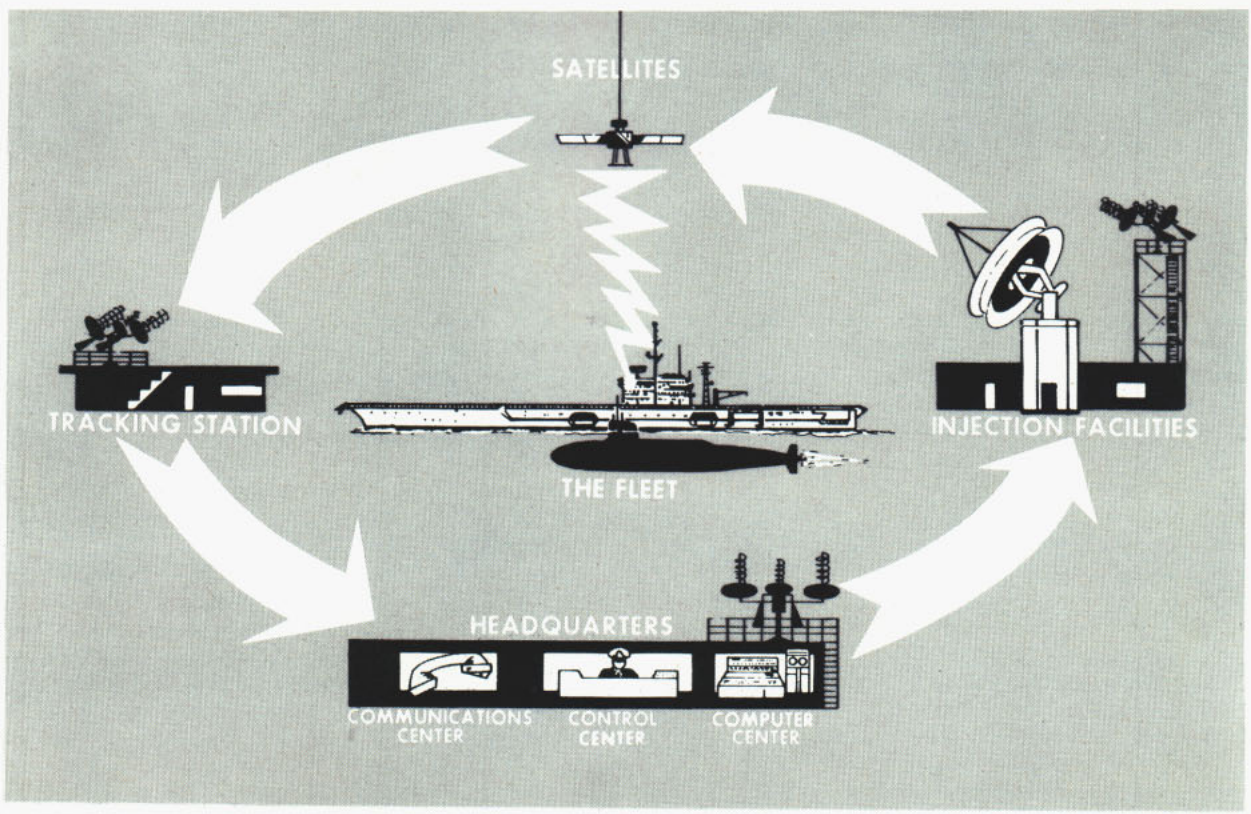
The Navy Astronautics Group was established at Point Mugu 10 Apr 1962 to operate the service's space and satellite systems. Since then, they have operated the Navy Navigation Satellite System (NNSS) to provide naval operating forces around the world with navigation references broadcast by orbiting *Transit* satellites in space, by which navigators fix their precise positions at sea.

Below: Chart of the cycle of events of the Navy Navigation Satellite System. Facing page: Satellite injection supervisor, ETC A. W. Warburton, locks onto satellite broadcast using an AN/BRN-3 receiver.

lites in orbit, it is the oldest Navy space program to do so. Without interruption, the Navy Astronautics Group has supplied worldwide, all-weather, position fix services to the Fleet since 1964. On 11 Oct 1968, the NNSS was declared operational to the Fleet by the Chief of Naval Operations. As of 1 August this year, Astronautics Group had performed 16,238 successful satellite injections, with 99.969 per cent reliability.

In 1967, as chairman of the National Council for Marine Resources and Engineering Development, Vice President H.H. Humphrey authorized manufacture and sale of nonmilitary versions of navigation sets for public use, in line with transfer of Navy-developed technology whenever civil applications are feasible (OpNavInst 5700.13). With the NNSS, it is possible to return unerringly to a fixed location at any future time. This precise navigation aid is widely used by other government agencies, the Merchant Marine and industrial and institutional research organizations in such diverse fields as commercial shipping. offshore oil and mineral exploration, oceanography, coastal charting and trans-oceanic cable laying operations.

The five *Transit* satellites making up the present-day constellation are in near-polar orbits, at nominal altitudes of 600 nautical miles. They cross over the poles, but are separated at the Equator to provide widest coverage. Waiting time between fixes is long-

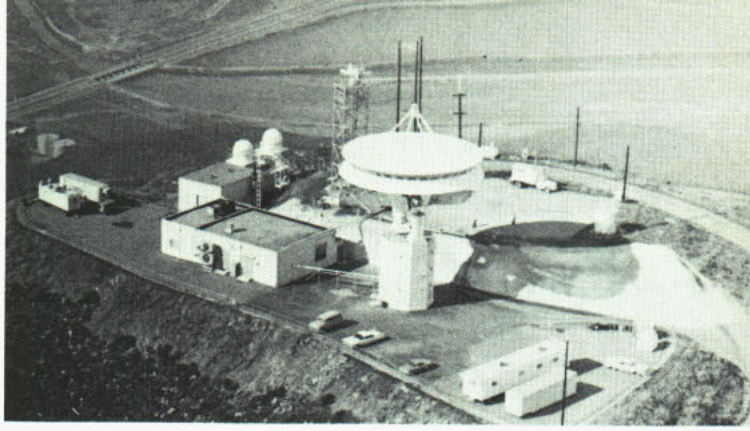


est at the equator; the higher the latitude, the more frequently *Transit* satellites come within range. On an average, *Transit* satellites are available about once every one-hour-and-45-minute period.

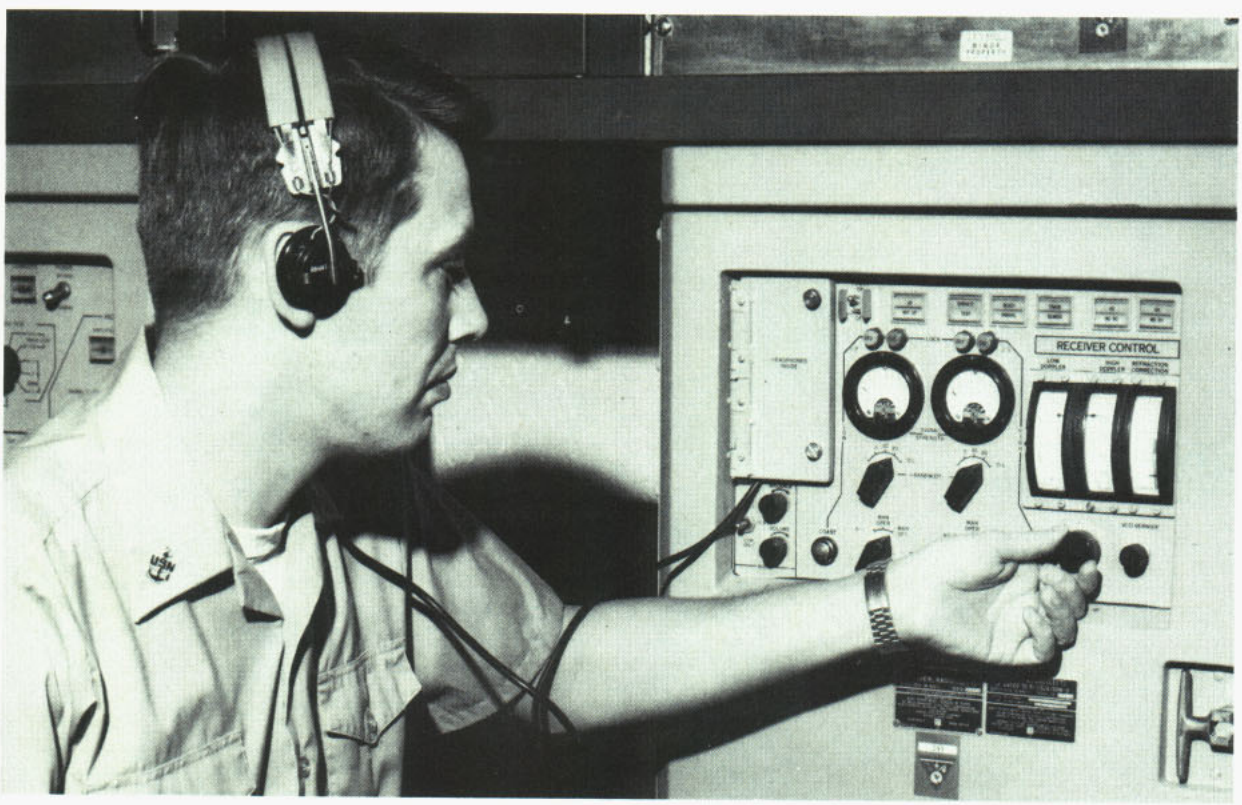
Headquarters of the Navy Astronautics Group at Point Mugu houses the Satellite Monitoring and Control Center, the NNSS command post. There, too, are the communications center and central computer complex. A network of satellite tracking-and-injection stations extends across the continental U. S., in Maine, Minnesota and California. A satellite tracking station is maintained in Hawaii.

All stations track each passing *Transit* satellite and report latest orbital observations to headquarters. In effect, yesterday's and today's tracking reports are used to compute tomorrow's orbits. Orbital predictions are built into satellite injections messages, transmitted to update each satellite memory twice a day. These predictions are timed to come true when they are broadcast, the instant they are received on earth. Thus, each *Transit* satellite continuously describes its whereabouts in space as it orbits the earth.

The Navy Astronautics Group at Point Mugu operates this utilitarian constellation of *Transit* satellites and keeps each of them supplied with material for broadcast to the Fleet on a 'round-the-clock basis. The Navy Navigation Satellite System works day and night. It is the most accurate, dependable method of global navigation in use today.



Facing page: Artist's conception of a Navy navigation satellite in orbit. Above: Laguna Peak Tracking and Injection Facility at Point Mugu, Calif. Below: LT R. N. Hansen and Mel Webb man the Navy Navigation Satellite Systems Control Center at the Navy Astronautics Group Headquarters.



ASHORE AND AFLOAT

NAVY SPORTS

Once in America the year was divided into three parts. That season from mid-September to the first of January was known as Football. In high school, college, and professional stadiums around the nation, people would brave the cool breezes, huddle together with a common blanket, and hope their team crossed the 40-yard line.

Beginning in January and lasting through mid-March, the season was called Basketball. (In some isolated spots there was a weird variation of this called Ice Hockey.) Strictly an indoor sport because of the freezing weather outside, Basketball would call its followers into the arenas — or at least to the transistor radios — and teams of lightly clad men would work up sweats impossible in even the most violent heat of the next season.

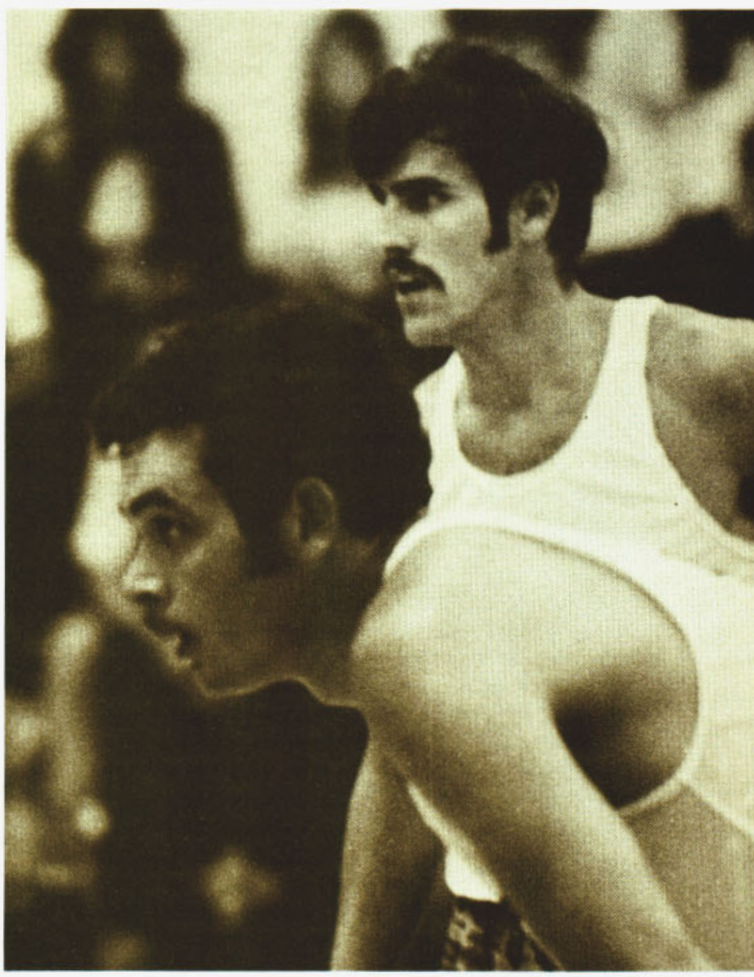
The next season, of course, was Baseball—the national pastime. From mid-March to mid-September — and then for a glorious week in October known as World Series — Americans would enthrall themselves in all phases of the sport. Little Leaguers, in between innings, would discuss Willie Mays' average or the possibility that this year might be the year for 60 homers for The Mick as 1973 could be Hank Aaron's record year. People of all ages would spend the twilight hours spellbound by the golden throat of the local announcer calling the plays of the home team, whether it was the Louisville Colonels or the Brooklyn Dodgers.

Americans adhered very strictly to these seasons. The only overlaps tolerated were specifically designated by time, place and importance. Baseball was clearly dominant, and those who didn't recognize its dominance weren't listened to. The seasons of tennis, boxing, sailing, track and field, and golf, had small, unobtrusive followings. If you functioned in one of these seasons, you just weren't in the mainstream.

All of that is no longer true, however. At some point Americans discovered that football could be played in the spring and even summer. The nation didn't need baseball in order to survive the dog days of August. Golf could be exciting. Tennis was fun and most people with any coordination at all could play it. Boxing had a lot of colorful characters, and a track meet could be beautiful.

Things started to happen. Baseball teams moved west where once they only trained in the spring. Foot-

Left to right: Pool competition called for strong concentration in Destroyer Flotilla Five's first annual Olympiad. (2) Lifeboat racing. (3) Long jump. (4) All-Navy volleyball competition.



SPORTS

ball teams went south, and playing field temperatures rose to the mid-90s. People started playing basketball in the summer (some had been doing it all along and just hadn't been noticed). Suddenly, no longer could people tell when one season ended and the next began — and not as many people cared.

There was still a key to the mystery, however. In most parts of the inhabited world, there is a definite difference between winter and summer weather. Summer — that time when baseball once was — is still the time to play, and that feeling holds true with Navy people as well as any other. And in the summer of 1973, that's just what Navy people did — they played. They swam, they ran, they volleyed, they stole home, they hoisted sail — and they had a fantastic time at it.

The summer was kicked off at Pearl Harbor in May when amateur athletes from all over the Navy gathered there to compete in Destroyer Flotilla Five's first annual "Olympiad", a three-day affair which involved people from 14 ships. As PH1 William B. Fair, who supplied ALL HANDS with photos and information about the event, wrote, "These men were not highly trained athletes (as one might assume), but men assigned to the various ships homeported throughout the Pearl Harbor area. With the ambition to win and the courage to try, these sailors entered a series of competitive sporting events with their sights set on attaining the Olympiad's highest award, the Commodore's Trophy."

Taking home the top honors was the team from USS *Bryce Canyon* (AD 36) with 699 points. CDF-5 Staff ran second with 550 points. The decathalon winner was Lieutenant Lawrence F. Warnken of CDF-5, who barely edged out GMG2 Dennis Hicks of USS *Bryce Canyon*, 657-621.

In another series of competitions, USS *Fanning* (DE 1076) was named the 1972 winner of the Commander's Cup, sponsored by Cruiser-Destroyer Force, U. S. Pacific Fleet. That cup designates *Fanning* as having the best overall participation and achievement in a sports program. The second award — the Commander's Team Trophy — went to USS *Ramsey* (DEG 2) for her softball competition, and the Commander's Individual Trophy was taken by YN3 James Soule of USS *Gurke* (DD 783).

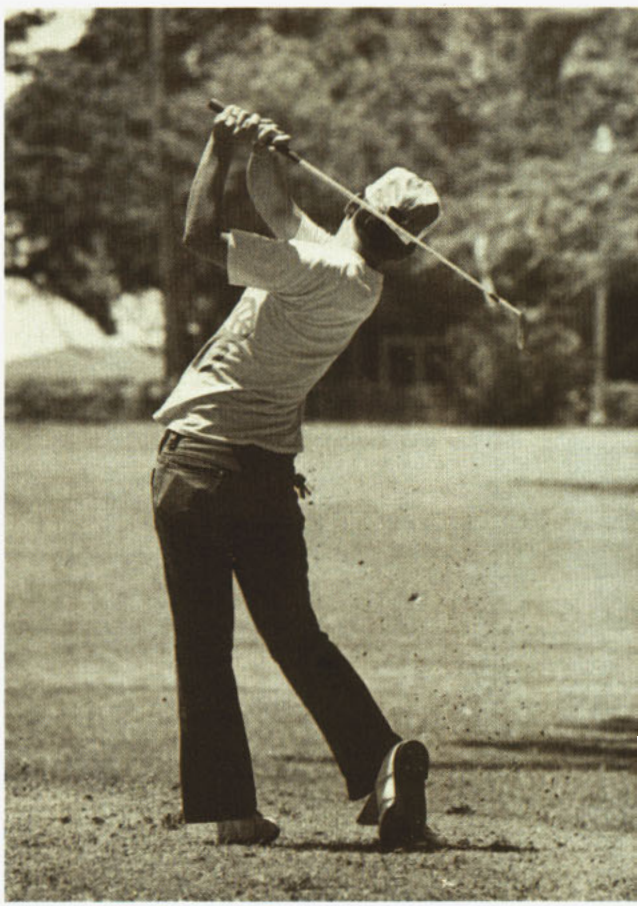
The victories are the results of many highly competitive sports programs in the Cruiser-Destroyer Force beginning on individual ships where divisions and departments are in competition and then advancing to ship-to-ship matches and finally inter-unit competition. The sporting events included in this competition cover a wide range — basketball, bowling, weightlifting, jogging, golf, slow-pitch softball, and intra-ship volleyball.

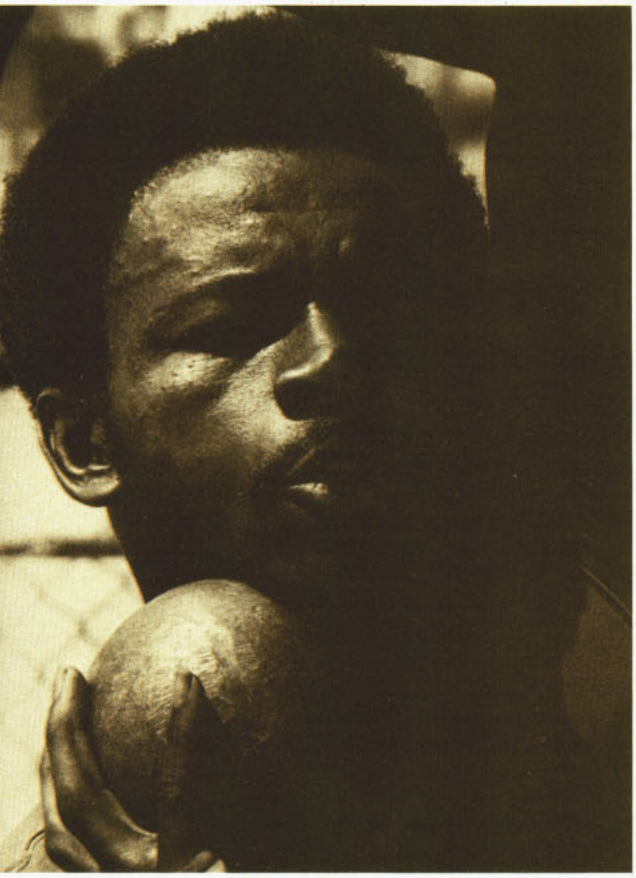
The team from *Ramsey*, for instance, set an impressive record in softball by taking 73 wins and only five losses. The team also won DesRon 35's softball tournament, the Long Beach Naval Station major league championship, was runner-up in the 11th Northern Area Tourney competition and placed fourth in the combined 11th/All-Navy tourney. YN3 Soule competed in basketball, bowling, softball, and football teams throughout the year in order to have his name engraved on the Commander's individual trophy.

Even if Bobby Riggs and Billie Jean King had never picked up a racquet, tennis would still be one of the fastest-growing sports in America. It's one of those rare sports that demands a lot physically from the individual but also is one that a person can play even through his senior years. And no more is it the sport of the rich and elite.

To keep up with some of the demand for more courts, an old drill hall at the Naval Training Center at Great Lakes, Ill., has been converted into two indoor courts and named for two Navy captains — Captain E. A. "Ham" Hamblen and Captain J. P. "Pat" Quinn — both of whom are tennis champs. They made up the Ninth Naval District senior doubles championship team in 1971, and CAPT Hamblen went on to be part of the All-Navy senior doubles championship team later that year.

So far we've been talking about men's events and men's competition. But girls everywhere got their share of sun, bruises and expanding lungs this year.





Left: Golf competition during the Pearl Harbor Olympiad. Above: Putting the shot in Navy track and field competition. Right: The seventh annual Nautical Mile Run.

Take the Ponytail All-Stars sponsored by Great Lakes. They placed seventh in the Junior Women's National Softball Tournament in Satellite Beach, Fla., this year.

The team was made up of stars from the Great Lakes Pigtail League, ranging in age from 13 to 15. They were pitted against 14 other teams from all over the U. S. in the double-elimination tournament at Satellite Beach — the kind of tournament where you have to lose twice to be knocked out of the competition. The team first faced the Orlando (Fla.) Metro champs, but strong batting enabled them to overcome, 8-5.

The next games, however, proved to be too much for Great Lakes. A team from Jacksonville and a team from Louisiana handed them 15-1 and 12-9 losses, thus eliminating them from the tournament. Team coaches were CS1 Don Boston, of the Recruit Training Center, ETC Don Howell, of the Drug Care Center of NTC, Great Lakes, and ETCM Frank Kovach, an instructor at the Electronic Technician School.

We mentioned before that track and field could be beautiful. It can also be a lot of hard work, as a couple of officers on the staff of Commander in Chief, Atlantic, proved when they participated in the 77th Annual Marathon in Boston, Mass. The two were Army Captain Dennis Manske and Marine Corps Lieutenant Colonel Dave Seiler, and they finished the 26-mile course in 2 hrs. and 42 mins. and just under three hours, respectively. CAPT Manske placed 73 in the field of 1398 runners.

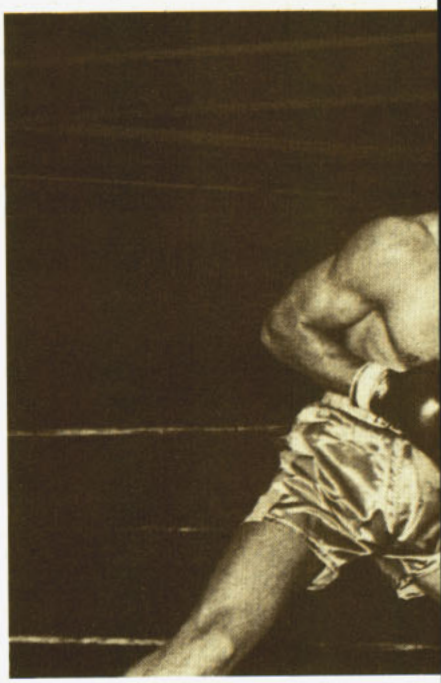
Sailors have been trouncing Marines — and vice versa — for a long time, but this time it was at the Memphis Naval Air Technical Training Center's 19th semiannual track and field meet. Taking the lead from the beginning, the Navy men and women never let go and finished with an 80-49 lead.

James E. Touchston began the action for Navy in the cross-country covering the seven-and-one-half-mile distance in 44.15:5. Touchston was over the meet record but nothing short of fantastic when he gave his final kick down the homestretch and outdistanced his nearest rival, Marine Paul V. Fernandez, by a full four minutes.

One of the most impressive new records set during the meet was in the women's softball toss. Marine hurler Karen C. Haddaway won the event by throwing a regulation softball 185 feet, seven inches, beating the old record by almost 20 feet. The navy's Winnie Krogman was second with a toss that also broke the record; hers went 178 feet, eight inches. Call it women's lib or what you will, the gals are certainly tossing the ball farther this year.

At the seventh annual Nautical Mile Run, sponsored by Naval Reserve Submarine Support Division

SPORTS



II-Z (Repair) at Encino, Calif., some 60 Reservists were brought together from miles around for a day of sweating, huffing and puffing, and a lot of fun. The Nautical Mile, for which the event is named, is also an actual event in the meet and it produced three winners: SK3 Mike Wagenbach, Encino, in the under-29 category; LT Jim Ebster, Los Angeles, in the 30-39 category; and SN Ron Devo, Encino, the 40-and-over winner. (A nautical mile is about 800 feet longer than a mile.)

The 100-yard dash also had three winners: LCDR Douglas Bailey, Pt. Mugu, LCDR Tom Alexander, Pt. Mugu, and LCOL Hugh Stewart, Encino. The shot put, an open event, was won by LCDR Bud Hilton, San Diego, who threw the 16-lb. ball 38 feet, nine inches, the four-man mile relay was taken by the team from VA 305, and the Encino Team NRSD 11-32 placed second.

The basketball team from USS *Yellowstone* (AD 27) edged out USS *William R. Rush* (DD 714) 44-41 to end an undefeated season and take the 1973 Atlantic Fleet Forces Afloat Basketball Championships. This was the second year in a row that *Rush's* team had to settle for a second place.

Don Wilcox lead all scorers in the final game with 18 points for the *Yellowstone* team. The tournament was hosted by the Norfolk Naval Station, and *Yellowstone* represented the Charleston area, while *Rush* came from Newport. Other teams participating were Supply Battalion, 2nd Force Service Regiment, FMF, Camp LeJeune, N. C., representing FMFLANT; Attack Squadron 87, Jacksonville; USS *John F. Kennedy* (CVA 67), Norfolk, USS *Yosemite* (AD 19), Mayport; and Commander Destroyer Squadron 18, Key West.

Not many destroyers can boast of having their own basketball court on board but Philadelphia-based USS *Lowry* (DD 770) is one of them. *Lowry* recently sponsored interdivisional basketball competition, playing the games during lunch hour on the *Dash* flight deck, which has been outfitted with a regulation-size backboard and net. *Lowry's* special service fund financed the venture and her "R" Division personnel supplied the know-how in fabricating the hoop.

The tourney rules were simple double elimination, but the competition was tough. Through a number of rugged games First Division and "B" Division emerged as the finalists, and First Division came out on top. The final game was covered not only by a local Philadelphia television station but also by Chuck Daly, University of Pennsylvania basketball coach. After the game, Coach Daly discussed with the crew the opportunities that collegiate sports could afford the scholar and the athlete.

When Eve Debevec isn't bowling, she spends most of her time at her job. She bowls so well that she's won three All-Navy tournaments and this year was the top woman in the Navy's South Atlantic Regional Bowling Tournament in Norfolk. Otherwise, she was busy as a master chief yeoman attached to the staff of the Supreme Allied Commander Atlantic. During the tournament she averaged 186 through her 24 games, holding the other competitors at bay.

Another pretty fair country bowler is PH1 Albert D. Montgomery, a film editor with the Navy's Combat Camera Group, Norfolk. Monty was doing his usual thing one night, bowling in league competition with the Atlantic Group Combat Camera Team. His previous scores would indicate that you might expect 170, or maybe even 200, points from him, so when he rolled his fifth and sixth straight strikes, a few people began to take notice. By his ninth strike, people were beginning to realize that this might be the perfect game every bowler dreams of.

"My 11th strike was a heart stopper," he said. "The ball hooked slowly, and instead of a solid pocket hit knocking the pins down in a single swipe, the Number 7 and 10 pins wavered. And then they toppled forward." That topple is one Monty Montgomery won't forget.

The Navy has a lot of dedicated sailors, but it's not often that you will find any of them willing to knock themselves out — literally — for anything. Sailors and Marines in Hawaii are willing, but the cause has to be something good, like the Navy Relief Fund. This year's boxing smoker for the fund was held at the Bloch Arena in Pearl Harbor and 3500 people saw Jerry Myers of CincPacFlt score a unanimous decision over J. Lewis, representative of USS *Bryce Canyon*, in the main event.

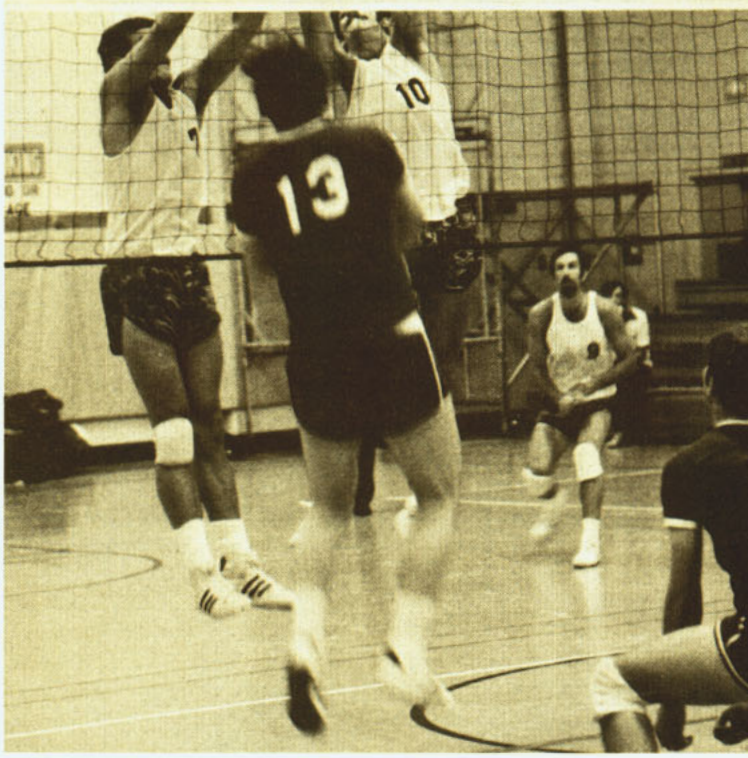
Another highlight on the card was the appearance of professional heavyweight Ken Norton who presented trophies to Chip Chapin from USS *Goldsborough* and Gary Lee, USS *Guardfish*, for the most outstanding bout of the night. Chapin won the fight by a technical knockout after 59 seconds of the second round.

The most important facet of the night, however, was that the event raised $3765 for Navy Relief. For the losers and winners, that made it worthwhile.

As far as interservice competition goes, the Navy did its best in a sport you normally wouldn't think about — volleyball. In case you hadn't been keeping up with this sport of kings, the Air Force has been the traditional powerhouse in the military volleyball world. They had won the last four interservice tourneys and were the odds-on favorite to take the one this year.

The Navy team, representing the Pacific Fleet Amphibious Force, rang up a perfect 6-0 performance in the round robin tournament held at the Marine Corp Recruit Depot, Parris Island, S. C. Closest behind was the Air Force with a 3-3 record. Members of the team included LT Bill Johnson and OS3 Gene Riordan, the power spikers, and SMC Richard Ray, CDR Jim Guzik, LT Gregg Cramm, FTM2 Ken Hancuff.

That's just a sampling of what Navy men and women did in sports this year. It does prove that they no longer recognize the traditional seasons — that they play what they want, when they want to. It proves, too they have a lot of fun. **—JO2 Jim Stovall**



Left: USS Lowry's basketball competition. Above: CINCPACFLT's Navy Relief Fund Boxing Smoker. Right: All-Navy volleyball championships.

What it takes - Competing

There's more to becoming a member of the All-Navy High Power Rifle Team than an ability to be a supersharp sharpshooter. You need a hearty appetite for a challenge. You must set your goals high and be willing to sacrifice time and energy as perhaps never before.

Just as important, you must have support—support from your commanding officer, your fellow workers, and your team instructor. You need full support from your family and, indeed, from almost everyone you encounter in your effort to attain such a goal.

It was largely under these conditions that I had the good fortune to be selected as a member of this year's Navy Rifle Team. To cast some light on what it's like to compete alongside the Navy's best, I'd like to share my experiences.

Before, I do, however, let me introduce you to OpNavInst 3591.1. This instruction, from CNO, encourages anyone interested in marksmanship training and competition to compete in elimination matches at type command and naval district levels. Competitors who qualify at these matches proceed to either the PacFleet or LantFleet Championships. Finally, those finishing in the top 15 per cent (this figure can vary) of the All-Navy matches are considered for the Navy Team, the group representing Navy in the Interservice and National Rifle Championships.

Back in 1971, at the 17th Naval District elimination matches, I was lucky enough to become high new shooter using the M-1 service rifle and finished third in the championship. This earned me a trip as far as the Pacific Fleet matches in sunny San Diego, Calif., along with nine teammates.

My hopes for shooting in the 1972 big bore season were dashed with the announcement that the Navy was closing its Kodiak facility where I was stationed. While others aspired to All-Navy fame, I was operating one of our northernmost AFRTV stations and later supervised its dismantling before setting out for duty in Washington, D. C.

At my new duty station I joined a .22 rifle team at nearby Fort Belvoir, Va., just to keep in shape, but with the approach of spring this year came the itch to get back into competition with an M-1 once again. The closest support, I learned, was at the Naval Air Station, Patuxent River, Md., 93 miles away. The distance had to be considered, but it did not outweigh the itch. Pax River's SAMI, then Aviation Ordnanceman 1st Class Rufus Moore, was a big help, and his CO arranged for a written authorization allowing me to draw equipment for use in training. Within a week, I was snapping in and, scarcely three weeks later firing in local district matches.

If you contemplate trying to land an All-Navy slot,

the greatest problem you may encounter is the prospect that if you qualify for competition beyond the district level, you'll be absent from your command an additional week to 10 days while participating in the fleet matches. Then, if you are successful, you stand to be away from your command another two weeks while you take part in the All-Navy. Should you go further and make the Navy Rifle Team, chances are your total absence from your command will be more than two months.

You and your CO should understand this before your initial basic TAD orders are written up. It's important that your orders contain an authorizing clause stating: "If selected, you are authorized to proceed to higher levels of competition and to such places as may be necessary to facilitate rifle (and pistol — in cases of those individuals shooting both) training and competition. You are authorized to transport weapons and ammunition in accordance with the Gun Control Act of 1968, Title 18, Chapter 44, Section 925."

What I said about needing support, means *total* support. This applies not only to your command but to the wives of competitors as well (and, indeed, husbands, since women are every bit as eligible to compete in the district, fleet and All-Navy matches). If I had not had my wife's total support during this past season, I would probably have spent a good part of the summer cutting the grass.

Chief Aviation Fire Control Technician Jack S. Wharton from NAS Miramar, Calif., won the 1973 All-Navy Championship. While I hadn't expected to progress to the All-Navy level, I finished 16th in a highly competitive field of nearly 90 shooters. On the surface, my standing didn't appear quite high enough — but I just barely squeezed past the final cutoff and made the team! My boss back at the Bureau wished me luck.

Let me introduce some of the friends and teammates with whom I worked for the next several weeks.

Traditionally, the top scoring officer in the All-Navy

with the Navy's Best

Championship is selected as team captain. This year the distinction went to LCDR Bruce Fleming, a helo pilot assigned to the Flight Test Center at NAS Patuxent River. Principal coach for the '73 squad was veteran Chief Gunner's Mate Billie Baker from the Small Arms Marksmanship Training Unit at San Diego. Baker was assisted by AOC Charles Bover from Light Photographic Squadron 63 at NAS Miramar, Calif. Both are old-timers with lots of shooting experience.

Team adjutant was Personnelman 1st Class Don R. Jernigan of Patrol Squadron 65, NAS Point Mugu, Calif. He managed such things as orders, pay records and travel itineraries throughout the season and, as an additional job, drove the teams van. Jernigan was also a participant and an assistant coach.

Two civilian gunsmiths kept the M-1 rifles in proper shooting shape — from the Naval Academy, Herbert A. (Jim) Buskirk operated the armorer's van along with Raymond Kerbs from San Diego. Remaining members of the 1973 Navy Rifle Team were: FTMC Donald J. Collins, USS *Robison* (DDG 12); ET1 William H. Diehl, Radio Transmitter Facility, Annapolis; ET2 Michael W. Gorchinski, NAS Miramar; AT1 Terry P. Hartley, NAS Oceana; TD1 Ralph J. Legler, NAS North Island; GMT1 Julien E. Lindstrom, Jr., NSC Oakland; GMGC Michael J. McFarland, USS *Saratoga;* AO1 Rufus A. Moore, NAS Patuxent River; GMGC James E. Taylor, USS *Buchanan;* AM2 Carl Vance, Fighter Squadron 101, NAS Oceana; and AOC Jack S. Wharton, NAS Miramar.

Two other Navy shooters not included who fired with the team whenever they could be available were ADJ1 Thomas N. Treinen of Patrol Squadron 65, NAS Moffett Field, and LCDR Webster M. Wright, Jr., from the Naval Academy.

All these men had one thing in common. They had accepted a challenge and were prepared to work their hardest to prove themselves as the Navy's finest in their field.

What was life like with the Navy Team? Well, for one thing, the barracks routine was less than homey. There wasn't the usual smiling face each morning greeting me with a cup of coffee. Instead, a brassy travel alarm clock clattered away long before the sun had even arrived. I didn't have to ponder over a wardrobe. It was always the same — green utilities with name patch and team emblem; black boots and black nylon-net baseball cap with team insignia. For more dressy occasions we wore jungle-green bush jackets with appropriate insignia and emblems.

The Patuxent dining hall opened at 0530; to avoid any line the team arrived early. By 0730 Coach Baker held muster each day outside the range office where he passed the word on practice, schedules, and any problems requiring team discussion or decision. Then we'd gather our gear and draw equipment.

And that equipment consists of a lot more than a rifle and a handful of brass. Just lugging it all around is a chore in itself.

The average shooter, for example, carries to the firing line: an M-1 rifle, spotting scope with extension rods and stand, shooting mate, shooting stool and a steel box containing ammunition. He can also carry: shooting glasses, earplugs or "Mickey Mouse" ear covers, smoke lamp and carbide for blackening gunsights against sun reflection, cleaning patches, bore and chamber brushes, spray lubricant or oil, rosin (or gripping wax), dust brush and cleaning cloth, plotting (dope) book, pencils, rain suit or poncho, clips, sweatbands, salt tablets and screwdriver.

There is also a potpourri of other tools and parts, all needed to help him hit the bull's-eye. On top of all this are one or two sweatshirts worn beneath the heavy quilted, leather shooting jacket, and a thick leather glove to cover the rifle-support hand. Compare that to the equipment of a tennis player and it makes you wonder why we even bother.

What else is involved?

One must learn the mechanics of rifle sights, and become familiar enough to change them as if it were second nature. Changes have to be made in seconds during a rapid-fire stage of competition.

Further, to be successful you must learn the effects of light and mirage on target, and effects of temperature and wind on a bullet.

You must learn to "read" wind from the angle of a flag flying from a pole midway down range or from a dancing clump of grass in front of the target. Swaying tree branches tell a tale, too. Calibration of these effects in terms of "minutes" of measurement and relating them to rifle sights and width and height of the target as it stands, all have to be done before you even put your first round in the rifle's chamber.

Another factor is endurance — not brawn, endurance. It doesn't require a great effort to lug around equipment on a cool morning when the temperature is 75°. But, as the summer sun breaks through those mornings, temperatures climb, often hitting 112° or more — such as they did on Virginia and Tennessee ranges this past year. Imagine the effect on men wrapped in thick, leather jackets and sweatshirts in direct sunlight — for up to 10 hours in a 1000-point match. Those who are ill prepared may fall victim to heat prostration and literally pass out. To guard against such effects, shooters must exercise proper diet and increase their fluid intakes.

Practice on the range usually involved six hours each day (weekends included, unless a match was scheduled) working on positions and timing. Standing at 200 yards is the position requiring the most energy.

For instance, you would have 10 minutes to squeeze off 10 rounds for a possible score of 100 points. Also at 200 yards, you would fire the rapid sitting stage, 10 rounds in 50 seconds, starting from a standing position. Then you'd move back to the 300-yard line and within 60 seconds shoot another 10 rounds rapid fire in the prone position. Finally, at the 600-yard line, you'd fire 20 rounds for record in 20 minutes to complete the "national match course" of fire.

Less than a week after the All-Navy Championships were completed, the newly formed Navy Rifle Team traveled to the Marine Corps Base at Quantico, Va., pitting itself against both military and civilian competition in the Virginia State Rifle Championships on 30 June and 1 July.

Matches such as this are sanctioned by the National Rifle Association and offer competition at four class levels: master, expert, sharpshooter and marksman.

This year's Navy squad consisted of six masters, eight experts and two sharpshooters. I shared the sharpshooter class with Mike Gorchinski until about mid-season when Ski received an "expert card" from the NRA.

After the Virginia State Championships (in which our Expert Team took first place in that category), we competed in two NRA matches. Later, we traveled to Oak Ridge, Tenn., to compete in the Tennessee State Championships where the Expert Team repeated its prowess. Then, we entered the Mid-Atlantic Regional Championships back at Quantico on 27-28-29 July. Once again, the experts cleaned the slate, taking all individual and team competition. (Incidentally, as the Navy's sharpshooters we also walked away with all sharpshooter category aggregate matches during the summer.)

From 5-10 August, the team met the Army, Marine Corps, National Guard and various military station and command teams in the 12th Annual Interservice Championships. There, Legler placed fifth in the standing match while Baker placed 10th in the 1000-yard match. This match was won by Ray Kerbs who fired a perfect 100 with 20 center shots.

Although many individual members of the team were successful in the season's individual events, the main objective throughout the summer was to develop and train a six-man team which would try for the big one — the National Trophy Team Match at Camp Perry, Ohio. We wanted the championship, but so did the Army and Marine Corps and the numerous national civilian teams. And all these teams trained hard.

Between-match workouts were held at PaxRiver; however, since the range there is only 300 yards, arrangements were made to work out once a week at Quantico on its 1000-yard range. The only 600-yard practice received by the Navy team was actually during matches. While we could learn a lot about sight alignment and trigger control, we lacked experience in the effects of mirage and wind that can only be gained by shooting on a 600-yard range.

There was another area of training in which the team members gained additional experience — loading ammunition. Usually after a day's session, we would gather in the indoor rifle range loading room and spend the evening making up long-range loads.

Training took up at least 80 per cent of the shooting season. But the name of the game was competition, and that's why we were there, to compete against the best in the nation, regardless of the odds.

We did pretty well. At the interservice matches, in a field of more than 40 teams, our Navy team placed third. At the Nationals, firing against the more than 20 best teams in the country, including the civilians, our six-man team placed fifth. The "best" of the service teams we faced had emerged from rosters numbering more than 50 to 70 shooters. Compare that to the "best" of the Navy's 12 firing members and it is easily understood why, indeed we had to set our goals high. It was this kind of competitiveness we challenged throughout the season, right up to the last shot fired in Ohio. —**JOC Marc Whetstone, USN**

(ED Note: And how did Chief Whetstone do? He finished the season as National Champion in the Sharpshooter category – which immediately qualified him for his Master card.)

RIFLE COMPETITION RESULTS

Two Navymen whose names have become linked to the history of marksmanship placed among the leaders in this year's National Championships.

Lieutenant Commander Webster M. Wright, Jr., from the Naval Academy, Annapolis, Md., finished the championship as the High Regular Navy shooter from among a field of some 700 shooters.

Aviation Machinist's Mate 1st Class Thomas N. Treinen from Patrol Squadron 9, NAS Moffett Field, Calif., finished among the top eight in the grand aggregate among the Master service shooters, and went on to win the 1973 National Trophy Individual Rifle Championship title and the coveted Daniel Boone Trophy, with a score of 489-9X out of possible 500 points, topping 491 competitors.

The Citizen Soldier Trophy Plaque, awarded to the High Reservist, went to Lieutenant Norman R. Harris.

High Naval Reservist in the championship aggregate was retired Chief Aviation Metalsmith Raymond H. Kerbs from San Diego, Calif.

The High Service Expert Championship honors were won by Navy team member Personnelman 1st Class Don R. Jernigan of VP-65, NAS Point Mugu, Calif., who tallied a score of 1514-34X.

All-Navy Sailors

Plus Paddle Kings and Boat Bouts

One might assume, by the very nature of their work, that Navymen would be outstanding in recreational sailing and water sports. One, of course, would be entirely correct — and just a brief look at the 1973 record would prove it. For instance:

The Law Center Sailing Team at Newport, R. I., representing the First Naval District, emerged victorious in the 1973 All-Navy Sailing Championships held

The 1973 All-Navy Sailing Championships, a three-day event, hosted by the Naval Postgraduate School, Monterey, Calif., was won by the First Naval District.

SAILING

this year in Monterey Bay, Calif. The Law Center crew won the championship in grand style, winning five out of six races against the Navy's finest canvas sailors. JAG Corps Lieutenants Bruce Wright and Roger Laverty, members of the Law Center, teamed with Petty Officer 2nd Class Jerry Moore to take first place against five other crews from the East and West Coasts.

The East Coast sailors took the three top positions to outclass their West Coast rivals. A Charleston-based team took second place, with the Inspection and Survey Team from Naval District, Washington, D. C., coming in third. West Coast teams took the three bottom spots with the First Marine Division, Camp Pendleton, Calif.; Fourteenth Naval District, Pearl Harbor, Hawaii, and the Eleventh Naval District's representative, USS *Downes*, finishing in that order.

The races were sailed on a marked windward-leeward course ranging from four to eight miles. Identical 30-foot racing sloops were used with each team having the opportunity to sail every boat during the six-race series.

The winning crew from Newport combined excellent teamwork and sailing experience to take home the championship trophy. Skipper Bruce Wright has sailed most in Star Class boats since childhood in the San Diego area. He won the North Americans, English-Speaking Union, Dragon Gold Cup in Holland, and placed second in the Olympic trials. A Stanford graduate, he does legal assistance and defense work at Newport.

Rocky Laverty, another crewmember, has sailed Snipes, Thistles and Coronado 15s competitively. He also attended law school at Stanford and is assigned to the legal assistance and prosecution section at the Law Center. The third crewmember, Jerry Moore, has three years of sailing experience in various class boats. He attended the University of Minnesota and is assigned to the Center for War Gaming at the Naval War College.

St. John's Regatta

On the upper side of the continent, a crew from the U. S. Naval Facility, Newfoundland, has won the oldest annual sports event in North America. Competing in the St. John's Regatta, one of Canada's most prestigious events for the six-man shell with coxswain, the NavFac crew outraced its nearest rival by more than 20 seconds over the mile-and-three-fifths course.

Although hampered by inexperience and a short, choppy stroke resulting from prior training in small shells, the team parlayed topnotch conditioning and determination into an impressive nine-minute, 51-second victory in the championship race. With the exception of veteran Newfoundland coxswain Tom Traverse and stroke OT1 Gary Miller, this year's team hit the regatta circuit with a boatful of rowing rookies who made up in hard work and determination what they lacked in rowing savvy.

Under the experienced leadership of Traverse and Miller, the newcomers — OT2 Dan Martin, CE2 George Freer, EO3 Dave Therrien, OT3 Dick Drake and OTSA Bill Carey — started a vigorous training program early in the spring. Prohibited by regatta

rules from practicing in a shell before 1 June, the team concentrated on building stamina that was ultimately the key to victory.

En route to the championship and the Lieutenant Governor's Cup, symbolizing rowing supremacy in Newfoundland, the NavFac sailors competed in seven separate races without a defeat and generated considerable public interest.

Aegean Sailing Rally

Nine Navymen from various units of the Sixth Fleet proved themselves able seamen this year in the Hellenic Offshore Racing Club's Tenth International Aegean Sailing Rally. The Navy crew, captained by Lieutenant Commander Dean A. Ablowich of USS *Harlan County* (LST 1196), was divided among three of the participating boats in the three-legged race from Vouliagmeni to Patmos, Patmos to Paros, and Paros to Vouliagmeni.

The men met for the first time on their respective boats only the day before the race, but when the starting gun fired, they looked as if they had been practicing together for years. Hampered by strange equipment, unfamiliar boathandling characteristics and a sudden stiff summer wind, the men managed to sail their boats to the finish line in less than 100 hours for a 2nd place cup and 3rd place cup in their respective classes.

Canoe Race

The 13th annual running of the Mid-Atlantic Canoe Race — held on a 22-mile stretch of the Fox River between Elgin and Aurora, Ill. — also attracted Navy competitors. Lieutenant Otto Honigschmidt and Hospital Corpsman 2nd Class Chris Bixby, both assigned to the Navy Recruiting District, Chicago, participated in the men's class of the cruising hull division.

The men had to fight off inexperience, wind changes and extreme turbulence to finish a full hour behind the record-breaking trophy winners. Living up to the consistent love of Navymen for competition, they both vowed they would be out there again—paddling—next year.

—JO2 Jim Stovall

Above: Rowing in St. John's Regatta. Below: Navymen join in the 13th Annual Mid-American Canoe Race.

How to take it off and keep it off!

Weight Control

A Navywide program aimed at weight control has been inaugurated by the Chief of Naval Personnel. The program employs a threefold approach: Navy men and women who are overweight are first urged to slim down voluntarily. Those who can't lose weight through their own efforts are urged to obtain help from the local Medical Department. Individuals who refuse to reduce face the possibility of administrative action.

The Weight Control Program has the backing of the Navy's Surgeon General and will be reinforced by medical observations during sick call and periodic physical examinations.

That, in a nutshell, is what the new program is about.

Twentieth century Americans are faced with a problem which few of their ancestors confronted. Machines transport us from one point to another and machines often do work which once required muscles. The accumulation of excess calories thus can become a way of life with this result: unwanted poundage.

Few individuals need to be told when they are grossly overweight. In their hearts they know that this is the case, but they may not be quite so aware of the fact that the heart is overtaxed when it is forced to pump blood through an excess of flesh. An unwarranted burden is placed upon the cardiovascular system, which becomes increasingly intolerable as the years pass. The sad results can be often seen in the obituaries of relatively youthful people who died, suddenly, of heart attacks.

This, of course, is not a pleasant prospect — but many don't even know they're letting themselves in for future trouble. Their waistlines expand so gradually, they scarcely notice. Nor do they notice their declining sense of well-being. Those who are aware often ignore the problem, hoping it will go away. But it won't go away unless something makes it.

It is highly improbable, of course, that a 40-year-old will approximate the weight he carried at age 19. Some additional pounds can be expected as the years go by. See table accompanying this article.

There are, of course, differences in musculature and general build. Nevertheless, those whose weight is grossly out of line with that shown on the table for their ages and heights should take stock of themselves. If there is doubt, they should consult their doctor.

Anyone who finds himself overweight and wants to do something about it probably will conclude that

he should eat less and exercise more. This is true but with qualifications. The secret of success for most people who try to lose weight is to eat the right things in sensible quantities and to exercise wisely.

Newspapers and magazines are full of crash dietary programs designed to take off a fantastic number of pounds in an amazingly short time. Such fads may or may not do what is claimed for them but weight shouldn't be drastically lost overnight. Such losses frequently are regained quickly and the effects of a crash diet are often detrimental in the long run.

About 40 per cent of the average American's diet is composed of fat. One method of cutting down weight, of course, is to restrict the intake of fatty foods. The word to note is "restrict" not "eliminate" for some fat is necessary to the proper functioning of the body. In restricting fat in the diet, protein content should be increased. Many food groups contain protein — even butter, margarine and other fats. Protein is highest, however, in meat, poultry, eggs, fish, dark green or deep yellow vegetables, enriched bread and cereal.

Fatty foods, of course, are not the only producers of unwanted pounds. Any food having a high caloric content will make a man put on weight unless he exercises sufficiently to burn up his excessive caloric intake. Most find that it is easier to accumulate calories than it is to exercise and lose them.

For example, it takes a 160-pound man an hour of walking between three and four miles per hour to burn up 350 calories. He expends 300 calories per hour while playing golf, and 500 calories per hour while playing tennis. Although exercise is necessary to the smooth functioning of the body, it helps when losing weight to think in terms of preference. Would

The men above will need to exercise much harder and much longer to maintain their correct weight than those who eat a balanced meal of the right proportions.

you prefer to cut a mere 500 calories out of the daily diet or to hike several miles to lose a single pound of fat? It is well to note here that a single fountain-sized malted milkshake contains about 500 calories as does a two-inch slice of frosted layer cake. Those who choose the layer cake, should walk five and a half miles to nullify its effect.

Probably half of the battle in losing weight after attaining a desire to slim down, is simply being aware of which foods add pounds. A lot of people can lose weight by eliminating between-meal snacks. It is so easy to watch the football game and, almost without realizing it, consume quantities of beer and snack foods. By using nonfat dairy products, using sugar substitutes in your coffee, cutting out desserts and between-meal snacks, the average dieter would be surprised to find how the first 10 pounds melt away. After the first 10 are off, the rate of loss can be expected to slow down.

As mentioned earlier, exercise complements dieting as a means of losing weight. Anyone planning a regimen of exercise should consider his age and physical condition before getting carried away with the idea. A 40-year-old overweight man who undertakes a daily exercise routine designed for a 20-year-old is liable to find himself in trouble. Overweight Navymen in their middle years might do well to ask a doctor just how much exercise their cardiovascular and pulmonary systems can safely take.

Those who undertake an exercise regimen should realize that exercise must be taken regularly. They should also realize that some forms of exercise, such as endurance sports, burn up more calories than those which are of short duration (see the October 1973 issue of ALL HANDS Magazine for an article on Aerobics). Endurance sports include any movement over long distances — swimming, rowing, skating and the like. Sports which are of short duration or played at a slower pace, of course, expend less energy. In case you had weightlifting in mind as a method of slimming down, it is classed as a short duration pastime which builds strength but not a corresponding amount of endurance. It also burns fewer calories.

If, after making up your mind you want to lose weight and take measures to do so but find nothing happens, you should see a doctor. In rare cases, there may be a physical reason for being unable to lose weight. More often than not, however, it is because the dieter is doing something wrong or kidding himself about how well he is keeping up his diet.

The doctor will be able to give advice concerning how much weight should be lost. The medics may also be able to point out what was wrong with the diet and exercise regimen which was ineffective.

Regardless of whether the diet is prescribed by the medical department or whether it is undertaken under the Navyman's own initiative, goals should be realistic. If weight is lost gradually and sensibly, the human machine won't be harmed. If a spectacular number of pounds are melted away in a relatively short period, the dieter may be placing himself in a dangerous position.

It is rather surprising that a sizable percentage of our population can be so lax about controlling their weight. A slim person not only looks better but also usually feels better. It is a scientific fact that slim persons are less prone to serious illness than are fat people. Adequate weight control for men over 34, for example, is helpful in the prevention of diabetes. Excess fat can also have detrimental effects on the cardiovascular, respiratory, digestive and locomotor systems.

Even with such incentives to slim down, many are reluctant to make the small sacrifice and initial effort required to lose pounds — or keep from regaining them after they are lost. Recently, however, the Navy added another incentive which may be effective where others were not.

This incentive is the Weight Control Program announced earlier this year by the Chief of Naval Personnel. Last September, the Navy's Surgeon General followed it with a letter to all medical centers

and regional and nonregional naval hospitals to implement BuMed's support of a Navy composed of trim and fit men and women. He also assured the Chief of Naval Personnel of the medical department's cooperation in supporting command weight control programs.

The Chief of Naval Personnel has called upon commanding officers to stress at the local level the need for a strong weight reduction and control program. The program is to emphasize the effects of being overweight and the effect excess poundage can have on the future promotion and retention of officers and enlisted men and women alike.

Bupers Manual has been revised to require all commands to screen enlisted members within 60 days of their birthdays to determine that they meet prescribed weight standards. Medical officers are also instructed to observe the appearance and condition of all Navymen during sick call and during physical examinations. Adverse findings are to be noted.

It may appear surprising to some that a Weight Control Program should be necessary. Any naval officer or enlisted man or woman should be sufficiently motivated by looking in the mirror — if he fits the description of "fat." Another telltale sign is when clothes begin to get tight at the seams.

Whatever the reason for overweight, there's a good reason for doing something about it. The watchword throughout the Navy now is "KNOCK IT OFF, " pounds, that is.

Average Weight by Height and Age

MEN

Height	20-24	25-29	30-39	40-49	50-59
60"	122	128	131	134	136
61"	125	131	134	137	139
62"	128	134	137	140	142
63"	132	138	141	144	145
64"	136	141	145	148	149
65"	139	144	149	152	153
66"	142	148	153	156	157
67"	145	151	157	161	162
68"	149	155	161	165	166
69"	153	159	165	169	170
70"	157	163	170	174	175
71"	161	167	174	178	180
72"	166	172	179	183	185
73"	170	177	183	187	189
74"	174	182	188	192	194
75"	178	186	193	197	199
76"	181	190	199	203	205

WOMEN

Height	20-24	25-29	30-39	40-49	50-59
58"	102	107	115	122	125
59"	105	110	117	124	127
60"	108	113	120	127	130
61"	112	116	123	130	133
62"	115	119	126	133	136
63"	118	122	129	136	140
64"	121	125	132	140	141
65"	125	129	135	143	148
66"	129	133	139	147	152
67"	132	136	142	151	156
68"	136	140	146	155	160
69"	140	144	150	159	164
70"	144	148	154	164	169
71"	149	153	159	169	174
72"	154	158	164	174	180

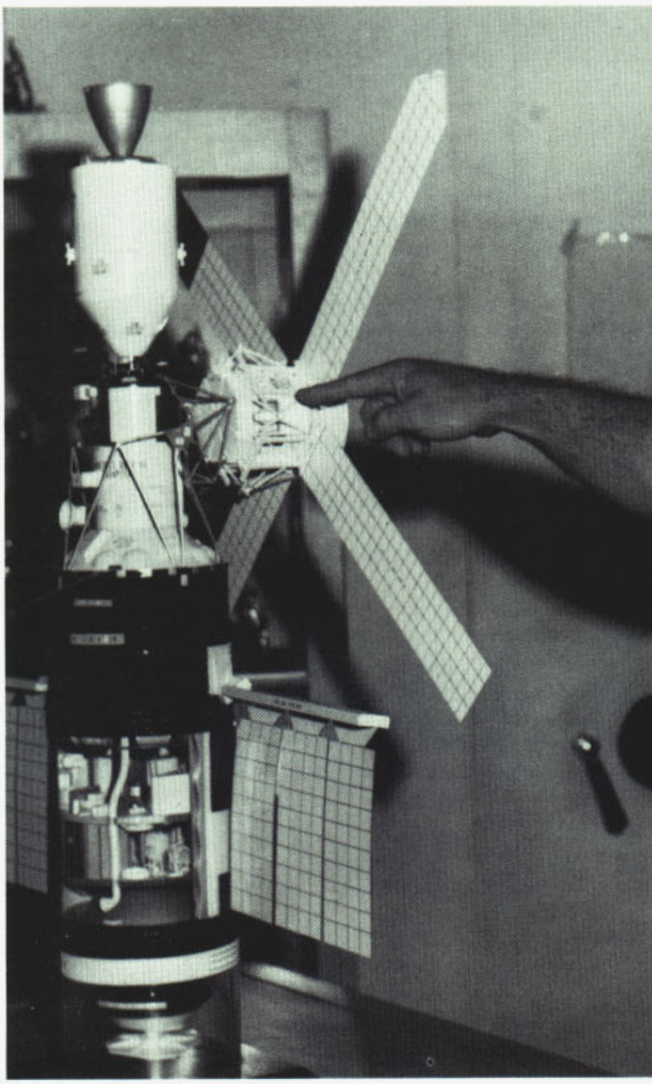
ON THE SCIENTIFIC FRONT

NRL Camera Package Calibrates Telescope During Skylab Mission

A camera package assembled by the Naval Research Laboratory soared aloft from White Sands, N. M., last August with the final "Black Brant" sounding rocket launch. The purpose: to calibrate the *Apollo* Telescope Mount (ATM) during the Skylab mission then in progress.

The rocket carried its payload about 150 miles above the earth where the cameras were operated for 60 seconds to photograph the same regions of the sun as the telescope. Data taken from the payload cameras was matched with that received from the *Apollo* telescope mount employed during the Skylab mission. The comparison was used to calibrate the ATM.

During their stay in Skylab, the second team of astronauts conducted a number of solar experiments, many of which centered on the *Apollo* Telescope Mount system.



NRL to Convert Minuteman I Missiles to Space-Sounding Rockets

The Naval Research Laboratory is expected to enhance the nation's space science program in a money-saving program by converting phased-out *Minuteman I* missiles into space-sounding rockets. Under the program, a number of *Minuteman I* second

stages are being converted into large payload capacity, high-performance sounding rockets for X-ray astronomy research. The surplus second stage motors are being adapted with specially designed nose cones and scientific payloads for the forthcoming experiments.

Instruments aboard the new sounding rockets, dubbed the *Aries*, will be used by NRL scientists to determine the ultraviolet background levels of the stars from above the earth's atmosphere.

Such high-level observation is necessary because the atmosphere's ozone layer which surrounds the earth at about 10,000 feet absorbs the ultraviolet rays emitted by the stars so that studies of this nature can't be conducted from the earth's surface. The feasibility of the system will be determined in an experimental flight of the *Aries* carrying a dummy payload. Future scientific payloads will weigh about 1800 pounds and will consist of ultraviolet measuring devices, telemetering instruments and a guidance system.

They will be hurled into a ballistic trajectory to a height of some 300 miles by the *Minuteman I* second stage to give experimenters the advantage of about eight to 12 minutes outside the earth's blanket of atmosphere. A drogue chute will be employed to bring the scientific payload safely back to earth.

A test flight of *Aries* was scheduled for San Nicolas Island, Point Mugu, Calif. If the first probe is successful in checking out the aerodynamic configuration, structural and control system, the Naval Research Laboratory expects to fire future scientific payloads from White Sands, N.M.

Left: LT Charlie M. Guthrie, a range officer at the Naval Ordnance Missile Test Facility, points to a scale model of Skylab's Apollo telescope mount (ATM), positioned aft of the solar panels.

Joint Endeavor Helps to Develop Useful, Multipurpose Flashlight

An ultraviolet flashlight has been jointly developed by the Naval Research Laboratory and the Naval Oceanographic Office. It uses a battery with electronically controlled power to operate a mercury vapor lamp. Possible applications for the device include use by both the Navy and the Federal Aviation Administration for reading charts in ships and planes. Maritime and commercial firms have shown a similar interest. The Army is evaluating the fiashlight for use in choppers as a night vision tool when following the contours of the earth during low-level flying. The Justice Department inquired as to its usage in detecting possible false immigrant identification cards.

The application of ultraviolet light has already been used under combat conditions, but the system leaked light and was considered to be short-lived and fragile. The new ultraviolet system, also combat-tested, proved that the user maintained his personal safety in a hostile environment and also preserved his night vision.

Prolonged Exposure to Sun's Rays Can Be Too Much of a Good Thing

Most of the sun worshipers in the United States have packed their beach gear and reconciled themselves to fall and winter weather. Navy men and women, however, won't necessarily have a respite from the sun's rays and many of those who spent the summer in northern latitudes may find themselves during the winter in sunny climes.

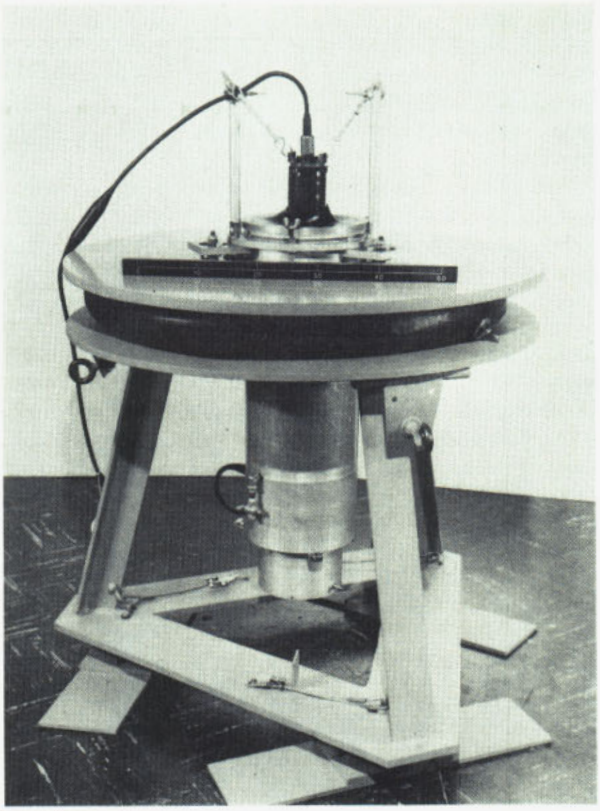
The American Cancer Society reminds everyone that sunshine can be too much of a good thing and

that prolonged exposure to the sun's rays will be the probable cause of skin cancer for 120,000 Americans this year.

When your skin burns, it's telling you something important; a beautiful tan may be all right but the process can't be rushed. When your skin is exposed to the sun, its rays activate dark-pigment-producing cells. This causes the pigment to rise to the surface, thickening it to protect the lower layers of skin. How many dark-pigment-producing cells you have determines how much sun you can take before burning and how quickly you tan. If you have fair skin, look out!

Of course, you can avoid overexposure to the sun simply by wearing protective clothing. If you want to get a tan, lotions can help, but read the ingredients listed on the label before you buy.

Lotions containing paraminobenzoic acid, salicylates or bezophenone compounds will provide a screen which permits tanning, yet provides some protection. Zinc oxide and similar compounds will give maximum protection by providing a physical barrier. *Artificial tanners and moisturizing lotions offer no protection.* Quick tanning preparations, baby oils and cold cream also fall into the latter category.



Hydrophone Calibrator

The NRL's Underwater Sound Reference Division developed an instrument that can calibrate hydrophones as large as 12 inches in diamenter. The device employs the comparison method in the frequency range which makes it possible to calibrate a hydrophone immediately before deployment and after recovery.

Compact, Electrochemical Cell Battery Lasts Longer Than Conventional Types

A compact high-powered electrochemical cell battery has been developed, lasting much longer than conventional dry cell batteries. It is the direct outgrowth of an office of Naval Research contract "to study the electroluminescence properties of inorganic liquids."

Researchers discovered that certain inorganic liquids could be used both as solvents and oxidizers for the energy source in alkali battery systems. This permits dense energy storage.

Using this knowledge, experimental cells were fabricated which could produce eight times the energy per pound of the conventional dry cell. The new cell doesn't leak current nor is its life degraded by non-use. A flashlight with this new type battery, could be operated after several years of inactivity with no deterioration in its performance.

The new cell has other advantages. It is effective in a wide temperature range and its voltage remains stable. A flashlight using the cell would continue to generate the same amount of light. A battery-operated radio would retain a uniform tone quality throughout the life of the cell.

Naval uses for the cell could include applications in communications, submarines, mines and missile operations. Civilian applications could include use in wristwatches and various versions of batteries used with cameras, hearing aids and portable radios and televisions.

New Synthetic Skin Promises a Departure From Conventional Burn Treatment Method

A synthetic skin that can be used in place of human tissue to treat severe burn wounds has been developed by the Navy. The new material, a thin cellophane-like polyester film, is inexpensive and can be readily produced in large quantities.

Conventional treatment of serious burn wounds includes covering them with human skin from donors

and specially prepared pigskin. This prevents infection, scar formation and excessive evaporation of body fluids through the open wound.

Such "dressings" however, are difficult to obtain and can be expensive. Dressings must also be changed every few days to prevent immune rejection response from the patient. Consequently, use of such tissues entails enormous problems of supply, handling and storage; stocks would be quickly depleted in any large-scale disaster.

The new material, obtained from easily available lactic and glycolic acids from sour milk and fruits, has produced films as thin as one-thousandth of an inch. Since both acids occur naturally in the human body, a burn covering made of these compounds can be absorbed. And it can be metabolized without the patient's developing symptoms of tissue rejection.

The films have shown promising results in their ability to control body fluid loss. Work continues to develop uniform thickness along with desired flexibility and elasticity. Control of bacterial infection and scar formation is also being studied.

New Communications System Operates without Electromagnetic Interference

A communications system which can provide good speech intelligibility in the presence of intense acoustic noise has been developed by the Naval Electronics Laboratory at San Diego. The system is crypto-secure, multichannel and wire free. It is intended for use between ships as well as short range ship/boat/shore application.

Called "Man-on-the-move communications system" (MOMCOMS), engineering tests were recently conducted aboard USS *Ranger* (CVA 61). The tests showed the system could be operated throughout the required deck areas without electromagnetic interference.

The system consists simply of a protective communications helmet. This, however, incorporates noise-canceling transducers and transceiver modules. It also contains, among other things, an integral antenna and rechargeable batteries.

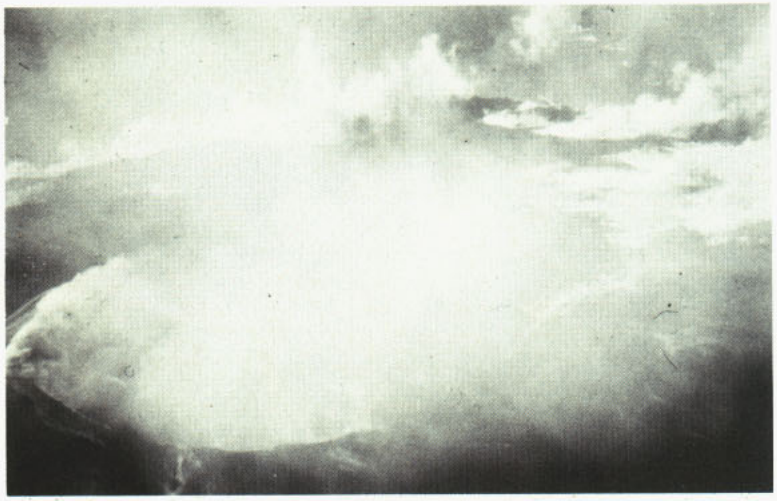
MOMCOMS is expected to replace existing flight deck communications systems and the myriad commercial handi-talkies and citizens band transceivers with a militarized logistically supported, secure capability.

Density of Oil Slicks Can be Measured With Multi-Frequency Microwave Radiometry

The density of ocean oil slicks can now be more accurately measured using a new method devised by the Naval Research Laboratory. Employing multi-frequency microwave radiometry in eight successful experiments, NRL researchers learned that over 90 per cent of an oil spill generally is confined to a compact region comprising less than 10 per cent of the entire slick's size.

An oil slick's area has always been relatively easy to assess but, heretofore, its thickness has not. The NRL measuring method of determining a spill's thickness can now be employed to determine its volume. This information can be used to assess impact of an oil spill on marine life as well as for settling litigation and damage claims from major oil spills. When it is known where the oil is most heavily concentrated, cleanup measures can be more effective.

Measurements in the experiments were made from aircraft. The experiments were conducted under the rules of the Environmental Protection Agency and the control of the Virginia Institute of Marine Science and NASA's Wallops Island Station to assure no damage to local ecology.



Toxic Mercury Found Over Icelandic Volcano

An NRL research aircraft made passes over the disruptive Helgajfell volcano in Iceland this last summer. Scientists discovered that toxic mercury was in the atmosphere over the crater. Future studies in this area can help gather additional data concerning volcanoes and the weather fronts around them during eruptions.

• ENLISTED MEN, OTHERS ELIGIBLE FOR APPOINTMENTS TO ACADEMY

Navy enlisted men between the ages of 17 and 22 who are interested in attending the United States Naval Academy should check with their career counselors for information on application procedures. Those applying should be unmarried U. S. citizens with a GCT/ARI of 120 or higher and should also have acceptable college board tests and a good scholastic record. Each year the Secretary of the Navy may appoint 85 such men from the enlisted ranks for the four-year course of study at the academy.

The President is also empowered to appoint 100 sons of career service personnel to the Naval Academy. These appointments are limited by law to sons of those who have served at least eight years or who have retired. In addition, there are 65 appointments available for sons of those who were killed or have 100 per cent service-connected disabilities as a result of their service in the armed forces or who are POWs or MIAs.

• PILOT PROGRAM TESTS CONSOLIDATION OF UNIFORM STORES WITH NAVY EXCHANGES

The Navy Resale System Office is conducting a pilot project aimed at determining the effect of consolidating Navy uniform sales outlets into a single source for uniforms and accessories. Two Navy Exchange sites--one on each coast--have been selected to conduct the program. The Navy Exchanges at Naval Air Station, Alameda, Calif., and Naval Station, Charleston, S. C., have now become the sole sources for uniforms for those areas.

NRSO reports that surveys have shown many Retail Clothing Stores are inconveniently located or have considerably shorter hours of operation than Navy Exchanges. Consequently, consolidation with Navy Exchanges, if it is found to be feasible, will increase the convenience for Navy men and women to buy their uniforms and accessories. The test period is expected to last about a year.

• SOME TENDER DUTY NOW COUNTING AS NEUTRAL TIME

Enlisted personnel assigned to 12 specific Navy tenders or repair ships are now having their time onboard counted as "neutral" instead of "sea" duty for purposes of sea/shore rotation consideration. The Bureau of Naval Personnel has announced that duty onboard the 12 ships--which do not deploy regularly for long periods of time--has been redesignated from Type 2 sea duty to Type 5 neutral duty.

The ships involved are the ADs Sierra, Yosemite, Yellowstone, Bryce Canyon and Puget Sound, the ARs Vulcan and Grand Canyon, and the ASs Fulton, Sperry, Orion, L. Y. Spear and Dixon. This change has been made to help the sea/shore rotation opportunities for those whose units do regularly deploy for long periods.

• TIME-IN-GRADE WAIVER POLICY FOR RETIREMENT TO CONTINUE

The policy of granting a waiver for the requirement that officers in pay grades W-3, W-4, O-5 and O-6 complete two years of service in grade, and that certain captains complete four years in grade to be favorably considered for retirement, will be continued through fiscal year 1974.

The waiver does not apply to officers having a 14XX or 25XX designator.

The time-in-grade waiver has been set up to help the Navy decrease its strength in these pay grades. A minimum of six months of service will be sufficient for retirement requests from these pay grades to be approved by the Secretary of the Navy. Those requesting retirement under this provision must submit their request before 1 Jun 1974. Any officer whose retirement has been previously deferred in order to complete the time-in-grade requirement and who desires reconsideration should submit a request to that effect.

• SELECTION BOARD TO SCREEN RETIREMENT-ELIGIBLE TEMPORARY OFFICERS

In order to effect equitable across-the-board reductions in the size of the active duty officer corps, the Secretary of the Navy has authorized selection boards to screen retirement-eligible temporary officers for selective continuation on active duty. The board will consider temporary officers in the following categories: limited duty officers with more than 20 years' active service and at least 10 years' active commissioned service; chief warrant officers with more than 20 years' total active service; and other line/staff temporary officers meeting the same criteria.

It is anticipated that about 80 per cent of the officers reviewed will be recommended for continuation; those not recommended for continuation will be notified by letter NLT 15 Jan 1974. Retirement as an officer, reversion and transfer to the Fleet Reserve or reversion and continuance on active duty will be required not later than 1 May 1974.

• LANGUAGE AID KITS FOR FILIPINOS NOW AVAILABLE

The Navy has developed a special self-help language training program for Filipino enlisted Navy people who have difficulties with English as a second language. The program, known as The English Language Sound and Intonation Practice Kit Series, includes cassette tape recorders and prerecorded program tapes for loan to Navy commands, upon request to the Navy education and training support centers in San Diego and Brooklyn. Complete details of the kit are contained in OpNav Notice 1500 of 15 Oct 73.

• IOWA RESIDENT SERVICEMEN ELIGIBLE FOR VIETNAM BONUS

Navy members who served in Vietnam any time between 1 Jul 1958 and 30 Jun 1973 may be eligible for a compensation based on the months of service in Vietnam and the months of service elsewhere now being given by the state of Iowa. The compensation, granted to the residents of Iowa only, provides an upper limit of $500 compensation for those who earned either a Vietnam service medal or an armed forces expeditionary medal-Vietnam and an upper limit of $300 for those who served in the Republic of Vietnam but did not earn either medal.

The compens ation is computed on the number of months a person spent in the Republic of Vietnam and the number he may have served elsewhere. Iowa residents who think they are eligible for this compen-

sation should write to the Vietnam Service Compensation Board, c/o State Capitol, Des Moines, Iowa 50319.

• SITREP #8 EXAMINES THE CHALLENGE OF NAVY LIFE

CNO SitRep Number 8, a film entitled "The Solution Is ..." is now being distributed to major fleet and shore commands. The film, which discusses the personal side of Navy life, presents frank discussions about the problems, challenges, and solutions to problems of a Navy career. Designed to stimulate such discussions on a local level, the film should be presented on a schedule that will allow follow-up discussions among those who have seen it.

Commands have also been asked to feed back reaction to the film by using the audience reaction cards which accompany the film prints. Those commands having difficulty in obtaining prints of the film should contact their district or fleet public affairs officer.

• CNP URGES COMMANDS TO UPGRADE REENLISTMENT CEREMONIES

The Chief of Naval Personnel has urged all commanding officers to "upgrade their reenlistment procedures by providing suitable ceremonies with families, special guests, and shipmates in attendance." CNP's memo says that efforts pointed toward reenlistment ceremonies tailored to the desires of the individual concerned are appropriate if done tastefully. "Ceremonies performed in interesting, out-of-the-way places while performing service-related tasks can do a great deal to increase morale and foster esprit de corps."

He warns, however, against turning reenlistment ceremonies into a "carnival," thus detracting from their real meaning and diminishing the sense of pride and dignity which has traditionally marked this significant event in the life of a career Navyman.

• COMMISSARY SALES TOP $400 MILLION IN FY 1973

Total sales for Navy Commissary Stores during fiscal year 1973 were $409,115,859, an increase of about 9.4 per cent from FY 72. Sales for CONUS stores, including Alaska and Hawaii, were $360,989,800, while overseas sales amounted to $48,126,059. Commissaries are nonprofit activities. Their surcharges (that is, monies accrued from operations) are used for cost of operations, reimbursement of the Navy Stock Fund, and for a reserve for equipment and renovations. For more on commissaries, see the article scheduled for publication in a forthcoming issue of ALL HANDS.

• ASHORE FOOD MANAGEMENT COURSE SET FOR FEBRUARY

Commands wishing to obtain classroom space for representatives to attend the Navy Food Management Ashore Orientation Course should act now in requesting quotas. The course will be conducted at the Navy Food Service Systems Office, Washington, D. C., from 25 Feb to 1 Mar 1974.

The course is recommended for all ashore food service officers

and provides comprehensive instruction in such areas as contract messmen, general mess funding and reporting, food service facilities and equipment, and menu planning and procurement. Quotas may be requested by writing directly to the Commanding Officer, Navy Food Service Systems Office, Washington Navy Yard, Washington, D. C. 20374.

• RESERVE REORGANIZATION BEGINS

With the commissioning of the first three Naval Reserve Readiness Commands--at Houston, Tex., San Francisco, Calif., and Baltimore, Md.--the Navy has officially begun a sweeping, five-year reorganization of the Naval Reserve. Present plans call for a nationwide Readiness Command system to be made up of 22 regional networks of Reserve activities. Planned according to geography and Reserve population statistics, the commands are designed to concentrate modern training equipment and facilities where they can be best utilized.

In another step toward reorganization, manning documents are being issued for a gradual restructuring of the Selected Reserve into programs and units which match the programs and units of the active-duty Navy. This phase of the reorganization will make the Reserve a more effective and responsive part of the Total Force Navy by placing Regular and Reserve resources and capabilities together under the same management in 11 programs. These will include the Submarine Forces, Mine Forces, Service Forces, Surface Combatant Forces, Air Forces, Cargo-Handling Forces, Construction Forces, Amphibious Forces, Marine Corps Forces, Naval Inshore Warfare Forces and Special and General Support Programs.

• PHYSICIAN'S ASSISTANT APPLICATIONS DUE AFTER 1 JAN 74

Hospital Corpsmen wishing to apply for the Physician's Assistant Warrant Officer Program should submit their applications to the Chief, Bureau of Medicine and Surgery (Code 34) between 1 January and 1 March 74. The training program is conducted in two phases--a 12-month didactic training and a 12-month clinical apprenticeship at a naval hospital. Candidates must meet a number of eligibility requirements, including willingness to obligate for 54 months' service at the beginning of their training. Check BuPersNote 1120 of 10 Sep 73 for detailed requirements and application procedures.

• NAVY LAUNCHES USS SPRUANCE, FIRST GAS TURBINE DESTROYER

The Navy's first gas turbine-powered destroyer, USS Spruance (DD 963), has been launched at Pascagoula, Miss. The ship is the first of a new class, six more of which are now under construction. Officials at the Naval Ship Systems Command say the high degree of automation of the shipboard power plant is a significant reason for the low number (250) of crewmembers which will be assigned to the ship. Spruance is 563 feet long and displaces 7600 tons.

from the desk of the Master Chief Petty Officer of the Navy

'Energy and You'

MCPON JOHN D. WHITTET

For centuries, man has regarded the earth as an inexhaustible source of energy — a myth that until just recently, few of us have ever really questioned.

Last summer's gasoline shortage and the limited supply of heating oil anticipated this winter have fathered some pretty sober thoughts and perhaps we are beginning to understand the necessity of using our energy resources wisely rather than wastefully.

The Navy has taken steps to conserve energy such as reducing the steaming speed of ships when returning to port, cutting back lighting, heating, air-conditioning, etc. However, I want to talk to you about what you and I can do, as consumers — at home, at work or in our cars — to help conserve energy. As American Navymen and Navywomen we can be proud of our standard of living and the vital role we play in defending our living standard. But in our pride, we should not be wasteful. Conservation is a defense against needless expense, inconvenience and even hardship and we should all join in to do our part as consumers to help conserve our precious energy.

Rear Admiral A. R. Marschall, CEC, USN, Commander, Naval Facilities Engineering Command, who is responsible for the management of utilities, has said, "For some time I have been concerned with the Navy's increasing cost for utilities, which comes when we are increasingly short of funds; every dollar for utilities is money we do not have for other vital needs.

"Dwindling energy resources not only focus national concern on this subject, but also further increase the Navy's problem. We must all be aware of the need for more intelligent and efficient use of our utilities and the energy dollars they represent."

Each of us must come to understand the relationship between our own individual consumption patterns and the big picture that comes from adding it all up. For instance, it might not seem too significant if, as individuals, we fail to keep our automobile tires properly inflated, but add up all the millions of cars and trucks across the nation that are running with improperly inflated tires and the amount of wasted gasoline is very significant.

Moreover, there is, or at least there should be, a real element of self-interest in conservation. Too often, we hear people complain about the high cost of air-conditioning their houses or apartments when the simple and inexpensive act of cleaning or replacing the filter elements in their air-conditioners would substantially reduce their operating cost.

Few realize that frost-free refrigerators use as much as 60 per cent more electricity than conventional "reefers" or that an oil-fired furnace can cost nearly twice as much to operate when it's dirty.

If you purchase a room air-conditioner next summer, find out what its energy efficiency ratio is. If the information is not published, you can figure it yourself by dividing the unit's cooling capacity, or BTU per hour rating, which will be stamped on the unit by its power consumption (watts). Once you have decided how much cooling capacity you will need, you can then purchase the unit with the highest energy efficiency rating for that capacity. The purchase price will be higher, but the unit itself will use less electricity and in many cases, the higher initial cost will be more than paid back through lower electric bills over the years.

These are just a few examples of money-saving conservation tips. I have asked my staff to collect a list of other energy-saving proposals and I present them to you as follows:

At Home

- Check to see that you have a good weather strip-

ping on all doors and windows.

• If you have a chimney, keep the damper closed when the fireplace is not in use.

• Close all doors and registers in rooms seldom used.

• Have your heating and air-conditioning systems serviced annually. Keep all filters clean.

• Don't let drapes or furniture block your radiators, supply registers or cold air return. Keep your radiators free from dust.

• Find a comfortable setting on your thermostat and leave it there. A change of five degrees in your thermostat setting can significantly alter operating costs (up to 15 per cent). A setting of 76 degrees in summer and 72 degrees in winter is both comfortable and relatively economical. If, however, you are leaving your house or apartment for several days turn the air-conditioner off or, in the winter, turn your heating system down to about 55 degrees.

• Turn off all lights and appliances that are not in use . . . including the TV set!

• Consolidate the use of major appliances. (Bake several items at once, use the dishwasher once a day, take everything you need from the refrigerator at one time, etc.)

• Fix that dripping faucet!

• Draw blinds and draperies to help shield your home when it's hot and sunny outside and insulate it when it's cold out. Open them whenever you can use the light and heat or cool air (through the windows) from outside.

• Defrost your refrigerator regularly (when the ice on the freezer walls is thicker than one-fourth of an inch).

• Lower the temperature of your hot water heater (120-130 degrees is sufficient for laundry and dishes).

• In general, think about the way you use energy around the house. Most of us waste a significant amount of energy quite needlessly.

During Working Hours

• Report steam leaks, hot water leaks, drafts, etc., to your conservation officer; he needs all the help he can get.

• Observe posted regulations governing the use of water and equipment.

• Don't be afraid to inquire about energy utilization practices aboard your ship or station. Many energy-saving, money-saving suggestions are yet to be made.

• Turn off the lights when a space is not in use; make sure all appliances, typewriters, coffeepots, duplicating machines, etc., are on only while being used. Note, however, that fluorescent lights should not be turned on and off repeatedly. The life of a fluorescent tube is cut by about two hours each time it is turned off and on.

• Once again, don't heat or cool unused spaces. If you can't shut the register off, report it to your conservation officer or building maintenance office.

• Keep doors and windows closed when air-conditioners and heating systems are on.

• Accept some responsibility for what is happening around you. If you can see that energy is being wasted, correct the situation by initiating the proper action. Don't, however, tamper with equipment or instruments with which you are not thoroughly familiar.

In Your Car

• Keep your tires properly inflated.

• Generally speaking, avoid high speeds wherever traffic patterns permit. If everyone else around you is doing 65, it is dangerous to drive at 50 mph, but if you're all by yourself, in most cars, you can slow down and save! Optimum engine efficiency does vary, depending on engine size, tires, gear ratios, etc. Experiment and determine which speed range is the most economical for your vehicle.

• Maintain a steady speed as much as possible.

• Don't idle your engine needlessly. If you are waiting for somebody, turn off your motor.

• Avoid jack rabbit starts. Accelerate smoothly.

• Avoid hard stops. Decelerate smoothly.

• Keep your engine tuned and have it periodically checked; clean and, if necessary, replace filters and pollution control devices, PCV valves, etc.

• Use your air-conditioner sparingly.

• Consolidate your trips to various places and stops into one trip. Short hops for one or two items are expensive.

• Walk or ride a bicycle on short trips.

• Economical driving can be an interesting challenge. It takes skill and concentration. Even big cars, when driven carefully, can achieve surprising economy.

That's it! These suggestions, when followed, can make a significant difference in the amount of energy you use and the money you spend to purchase that energy. My staff and I hope that you will take them seriously and profit by them.

INTERCULTURAL RELATIONS

Navymen and members of their families traveling overseas will be hearing more and more about "intercultural relations," a newly popular term on a subject that has been important to the Navy for a long time. But more people are becoming actively involved in this formalized program.

One of the latest is a Hawaii-born Filipina-American at the Subic Bay Naval Base.

Ensign Prima Amelia Quintos Escalona, who received her commission earlier this year, reported aboard recently to become the intercultural relations specialist at the ConNavBase Human Resources Center.

For the petite young ensign the assignment was a pleasurable surprise and a real challenge. "I didn't expect it, but when the orders did come it was great . . . especially in the Philippines."

The young ensign attended high school in Honolulu. From there she went on to study at the University of Hawaii, where she received her bachelor's degree in psychology in May last year.

For a time she worked with the East-West Center Research Populations Institute in Honolulu. Then, convinced that the Navy offered more challenge, she joined the service.

The woman officer comes from a closely knit family that retained its interest in the traditions and folkways of the Philippines. They handed down to their children a special interest and respect for ideals and traditions of the home country.

Miss Escalona, herself, is not a stranger to the Republic of the Philippines. In 1962, her family came to visit the country. Again, she was here in July last year. "It was quite an experience." she recalls. "I was here during the great flood in Central Luzon. I got stuck in Tarlac where I was visiting some relatives."

Prima says she can talk in both Tagalog and Ilocano, her parents' dialect, but not the way native speakers do. "I don't have the proper accent and I cannot keep up with the pace of the spoken language. I still have to accustom myself to its sounds and nuances."

Asked what effect the blending of two entirely different cultures has on her, she says it has definitely made her life richer and her outlook much broader than it would be otherwise. It has helped her in asserting her identity in today's world.

To be sure, it will also help her in her new job as intercultural relations expert, her greatest challenge for the moment.

DEEP FREEZE VOLUNTEERS

When BuPers asks for volunteers for Operation Deep Freeze and specifically for the Wintering-Over Party — detailers cross their fingers in hopes that enough ship's servicemen and utilitiesmen also will apply. These two ratings, among a list of 40 required on the ice, consistently come up short when time comes to make selections for Deep Freeze duty.

Traditionally, Deep Freeze participation is voluntary. But, when there's an insufficient number of volunteers, Bureau-directed orders are cut for non-volunteers.

This season's manning needs are "running smoothly," say the detailers. Volunteer requests have arrived at BuPers almost daily since BuPers Notice 1300 of 16 Aug 1973 was issued recruiting men for Deep Freeze 75. The notice states that the deadline for submitting volunteer requests was 1 December; however, your particular specialty may yet be in demand, especially if it's in the field of ship's service or utilities.

What can you hope to gain from a wintering-over tour on the ice? Here are some benefits offered:

• If eligible for sea duty after your winter tour (March-September), you will be guaranteed the coast of your choice; if eligible for shore duty, you may select one of two naval districts. Further, you will be given priority treatment for an overseas assignment, if eligible.

• If your reassignment is to sea duty, you will not be assigned to a unit deployed or scheduled for other than local operations within three months of the date you report on board, unless you ask to be assigned earlier. Of course, there are circumstances which may preclude any modification of orders, such as a change in operational schedules or a specific need for your talent. But, for the most part, the three-month rule stands firm.

• You receive double sea-duty credit.

• A seven-day R&R vacation following the wintering-over tour, usually at Christchurch, N. Z.

• Whenever possible, your dependents will be allowed to remain in public quarters during your Deep Freeze assignment, or you may relocate them as guided by Joint Travel Regs.

• While wintering over at McMurdo Sound, for example, you will be eligible to enroll in the Program for Afloat College Education with the prospect of earning undergraduate credits through six college-level courses.

• Upon reassignment after your wintering-over

tour, you will be authorized 60 days' delay in reporting to your next duty station; such a delay will count as leave.

• By wintering-over, you become eligible to chalk up sizable dividends in the Savings Deposit Program, taking advantage of the annual accrued interest rate of 10 per cent, compounded quarterly.

• You will receive — as will summer support personnel — the Antarctica Service Medal identifying you as among those rugged individuals having Antarctic experience. Wintering-over personnel add a star to the medal's ribbon.

Chosen from among those applicants considered best qualified, you will receive orders accordingly:

Officers report to either the Naval Support Force Antarctica headquarters in Davisville, R. I., or to the Naval Station, San Francisco, for temporary additional duty while undergoing a final screening.

Enlisted men receive PCS orders to Antarctic duty, reporting to either Davisville or San Francisco for screening. Those not selected are made available to BuPers for further assignment while those selected report to Davisville for approximately three to six months' temporary duty in special training. Individuals in the air controlman and aerographer ratings are sent to Mayport, Fla., and Norfolk, Va., respectively, for special training before reporting to Davisville.

Should you apply, but are not selected, you are encouraged to reapply the following year, if still eligible. At any rate, you should not give up hope, there's always the chance you may have orders cut to fill a vacancy if a previous selectee becomes disqualified any time between April and September.

WAVES REUNION

Above: The former waves who participated in the 30-year reunion are (l. to r.): Isabella Sposeto Johnson, Y1C, and Joan Szelicki Wisniewski, CYO (seated), Geraldine Killion Nelson, Y1C, Grace Augsburger Marker, Y1C, Ruth Culbert Deany, Y2C, Ann Johnson Johnson, Y1C, Pearl Adkins Priser, Y2C, and Mazine Plietz Schroeder, Y2C. Right: Wave recruits on parade during World War II.

Thirty years ago, 10 Navy Waves, all yeomen, were stationed at the United States Naval Training Center, Great Lakes, Ill. They were housed in a small section of Mainside Barracks "B", allocated tier bunks and a single locker apiece. Although their personalities and ways differed, a common bond quickly developed and grew into lasting friendship.

When World War II ended and they left the Navy to go their separate ways, each discovered a gap in her life that was difficult to fill. So a "round robin" letter packet was started to "keep in touch." For nearly three decades the letter packet has traveled from one former Wave to another, unfolding new events in the lives of each family. Each correspondent reads the news of her nine friends, removes her own last letter and encloses a new one with her latest account.

Last summer, seven "round robin" Waves, and another ex-Wave who has kept in touch, reunited in Waukegan, Ill. Now 30 years older (although not all wanted to admit it) and mostly all grandmothers, old friends were not so easily recognized. After the first few double-takes, the old rapport was regained and the gals picked up where they had left off back at Great Lakes during "the war." The years had mellowed personalities and characters and, although walks of life were different, a bond still existed. It was a delightful reunion.

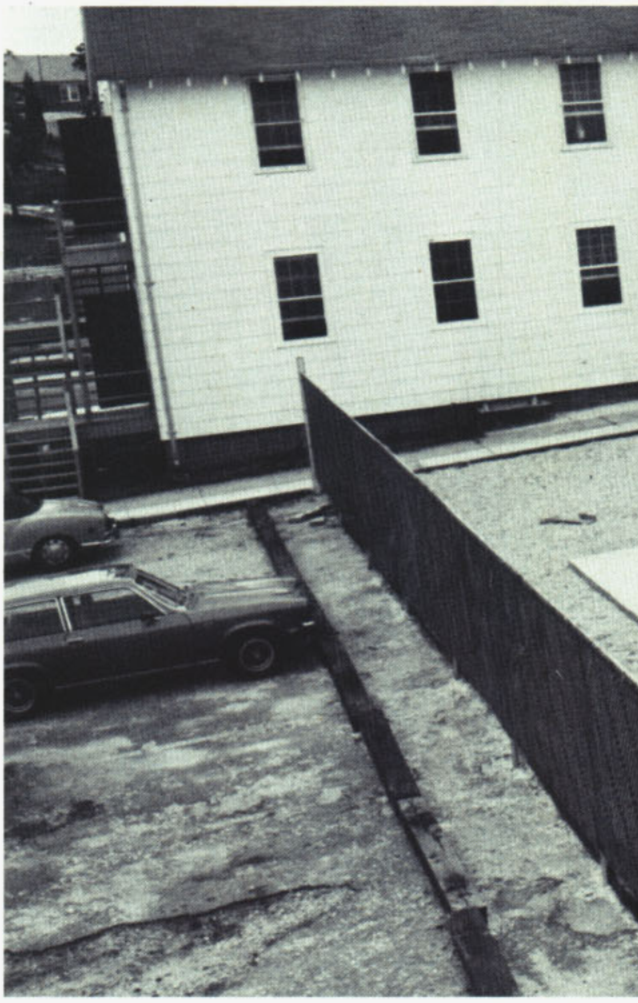
Those who attended came from Arizona, Missouri, Wisconsin and Illinois. Five husbands also came along to meet their wives' former comrades.

A tour of the center at Great Lakes was an interesting highlight which inspired reminiscence and changes to observe. Happy hours were held at the motel where they stayed. The reunion was so enjoyable and successful that another is planned for 1976 to be held in Colorado.

—Isabella Johnson

SELF-HELP AT NATTC LAKEHURST

Remodeling the 'Old Barracks'



With the inception of CNO's Self-Help rehabilitation program, improvement of facilities has become a Navy pastime. The Naval Air Technical Training Center, Lakehurst, N. J., recently got in on the fun with a massive barracks renovation.

Four BEQs were built at Lakehurst during World War II to billet the training staff and students. Nearly 30 years later these "temporary" barracks are still in constant use, housing some 300 persons annually. The buildings needed help.

Help came when Captain Ed R. Day, commanding officer of NATTC, Lakehurst, assigned a construction staff headed by Lieutenant B. J. Anzini. Grants totaling $259,000 were obtained for purchasing material and contracting jobs beyond the Self-Helpers' capabilities. Two staff managers were assigned to each building to supervise workers and enthusiastic volunteers poured in from throughout the command. Members of the Mobile Construction Force provided technical guidance and training.

The dedicated staff managers were: ABMC J. D. Cripe, ABEC D. D. Smith, PRC J. R. Kelly, PRC J. A. Wright, AGC R. A. Clegg, Marine Corps MSGT W. R. Piggott, GYSGT C. F. Bradley Jr., and SSGT G. A Desruisseaux.

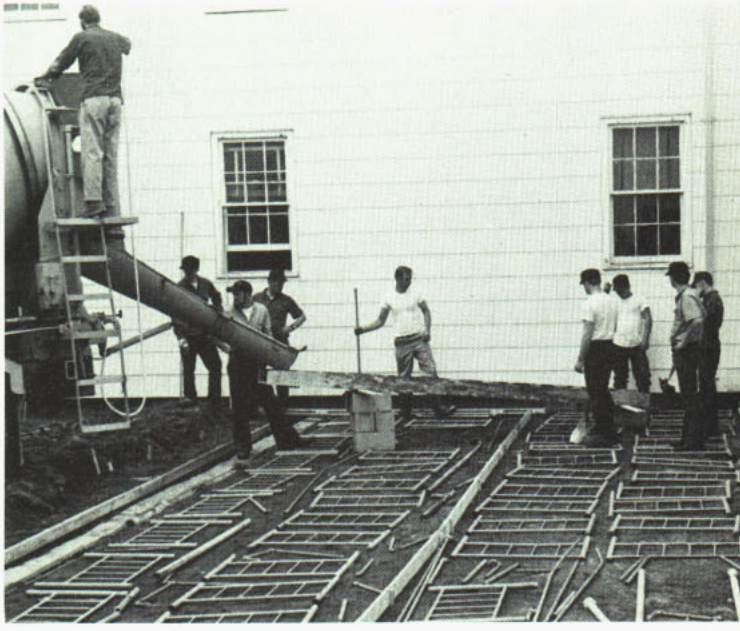
With supervisors, workers and money ready, the project began.

Eleven months later, well ahead of schedule, total renovation was completed on all four buildings. The old barracks now have new plumbing, heating and electrical equipment. Interiors are covered with wood paneling. Open bays have become individual rooms; lounges and snack bars are installed. A fresh coat of paint completed the job.

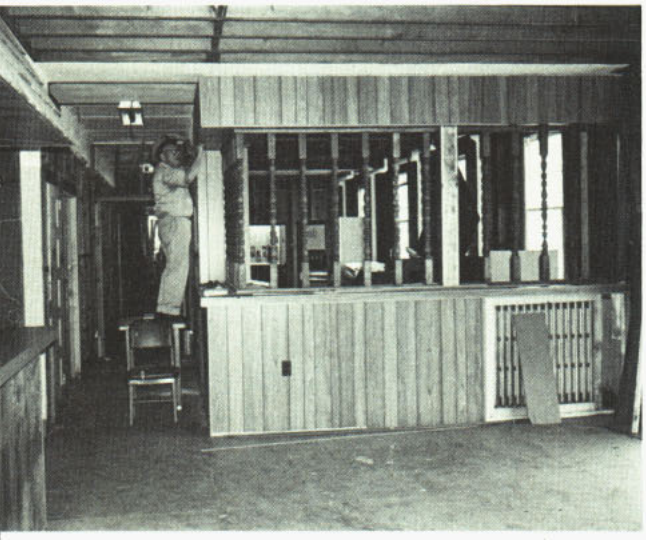
In addition to improvements, safety features were added to the buildings, for example: extra fire doors and exits were added and fire retardant materials were used.

Renovation was not limited to just the buildings themselves. Each BEQ now has a private, screened patio. Money saved through judicious management paid for recreation areas for each building. Lawns are revitalized and carefully manicured.

But the Self-Help project at Lakehurst doesn't end here. A preventive maintenance plan for the BEQs has already been approved. Detailed procedures have been started to ensure these "new" living quarters remain new for future staff and students at NATTC.



Above: A new recreation area is transformed from a dirt parking lot to enhance the remodeled BEQ. Top right: Workers pour concrete for the new patio. Right: Wood-paneled passageways now replace the old open bay areas. Below: A barracks lounge and snack bar nears completion. Below right: LT Bert J. Anzini cuts the ribbon to open the upgraded BEQ.



Exploring With

After some 13,000 miles and six port calls USS *La Salle* (AGF 3) has returned from a two-month goodwill tour in the Indian Ocean. Once a year the Middle East Force flagship — formerly LPD 3 — makes a goodwill "Southern Cruise" in the Indian Ocean area, visiting ports in the Gulf and Indian Ocean.

During this past cruise *La Salle* went to Singapore to check out shipyard facilities there for future refittings and overhaul. The eight-week Southern Cruise was topped off by shopping sprees, safari tours, receptions and a busy athletic schedule for the crew.

After a four-day call in Ceylon, *La Salle* headed east to Singapore across the Bay of Bengal and through the Straits of Malacca. She stayed five days in the ANZUK (Australia-New Zealand-United Kingdom) Naval Basin in Singapore looking at that shipyard's facilities, personnel and prices and, in the meantime, getting a little minor repair work done. Also in the Basin at the same time were four other warships from England and Australia and an exchange visiting program was set up with these ships for interested crew members.

En route to Port Louis, Mauritius, *La Salle* sailors paused briefly at the Equator to pay their respects

Left, above: Entrance to Singapore's oldest Hindu shrine. Left: Statue in Singapore's Tiger Balm Gardens. Above: Narrow street in Mombasa's old city. Right, above: Replica of the extinct dodo, symbol of Mauritius. Right: USS La Salle. Facing page, center: Climbing palm trees on Mauritius beaches. Far right: USS LaSalle moored off Mauritius.

to Neptunus Rex and anchored for several days off the island of Diego Garcia, site of the Navy's new Indian Ocean communications station. The hundreds of Seabees and communications personnel on this deserted island found the strange white-painted ship a welcome sight. More than 500 of them came out to the ship to eat in the crew's mess, shop in the ship's store, tour the ship or just swap uniform items with *La Salle's* crew. In the evenings an active sports program was arranged in which *La Salle* yielded the Indian Ocean Championship to the hard-charging Seabees.

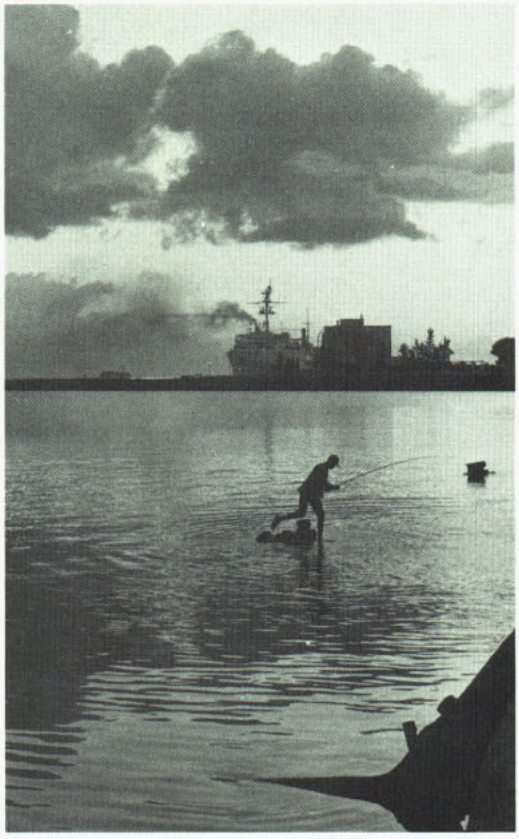
The ship finally arrived at Port Louis and embarked on a busy week of social and sports events. There were two buffet luncheons under the ship's ceremonial awning—one for local dignitaries and businessmen, and the other an open cookout for the entire ship's company and their guests to celebrate the Fourth of July.

The Royal Navy personnel at HMS Mauritius acted as semiofficial hosts for the flagship and helped organize sports events, dances and beach parties for *La Salle's* crew. The ship's rock band put on five public performances during the visit and numerous divisional parties were held all over the lush tropical island paradise, one of the gems of the Indian Ocean.

Mombasa, Kenya, was the next stop on the cruise, giving *La Salle* crewmembers an opportunity to go on safari, cameras in hand, in search of Kenya's famed wildlife. While 75 of the crew were off on overnight trips, however, the rest were finding plenty to do in Mombasa itself. Wood carvings and brightly colored cloth prints were popular buys. An exchange program with the Kenyan Navy brought some 50 enlisted men and officers onto *La Salle* for lunch and tours of the ship. Other visit highlights were provided by an active sports program with the Kenyan Navy and a children's party for some 45 school-age children from the countryside.

After a short resting period in her home port of Bahrain, *La Salle* headed back to Singapore. She was then scheduled to head the U. S. Navy units at the annual CENTO exercise held in the Gulf, and after Christmas to represent the U. S. in the Imperial Ethiopian Navy Days.

—Story by ENS H. C. Zeigler
—Photos by SM2 Leighton Clark



It's getting to be that time again

COMMAND

What is past is prologue, and for this reason the Navy takes the writing of its history most seriously. Commanding officers of ships, aircraft squadrons and shore activities are required to submit an annual command history of the past calendar year to the Chief of Naval Operations by 1 March. Such histories provide continuing narratives on the lives of those units.

But how does all this affect you?

For one thing, your ship is actually an instrument of national policy which plays an inevitable role in shaping our country's destiny. Her very existence is a historic event in itself. Another thing is that even a routine mission may have an important impact on history. The experience of USS *Liberty* (AGTR 5) in 1967 as she operated in international waters in the eastern Mediterranean is one unusual example, but the accumulated experience of every Navy ship, squadron and unit are vital in keeping the Navy's history both up to date and complete.

As a part of a unit and what happens to it, you also are a part of its history. Your eyewitness accounts can be priceless! Even ordinary daily duties could take on historic significance to naval historians in the future.

Does anyone read these command histories?

Navy history files are not sealed in deep, dark cellars or caves; they are readily available to anyone who wants to examine them. Within the limit of security, writers, historians, engineers, economists, military strategists and many others consistently use them as reference and research tools. They supply important background information on such things as weapons systems evaluations, base facilities and command planning. They also provide insights into the art of writing Navy history for inclusion in speeches or official accounts marking a particular event.

Until histories become a permanent part of naval archives and often serve as the only truly reliable source of information for inquirees. They also serve to develop morale and pride within the Navy, and play an important role in enhancing the Navy's public image by presenting factual information to answer press queries about the Navy.

Your CO has probably appointed an officer to write your command's history, but this should be an all hands evolution. Throughout the year that lone officer is busy collecting information and keeping a chronology of the unit. No one person can possibly know all that goes on in a command, so your historian

HISTORY

will consult others (maybe you) about major events — details of your ship's part in a certain exercise, perhaps. Find out who your command historian is and, if you have something that might interest him, tell him about it. Don't hold back if you think your information is of small account; it might be important, especially when it's fitted into the overall picture.

If working on your command's history is your task, here are some pointers passed on by the Director of Naval History:

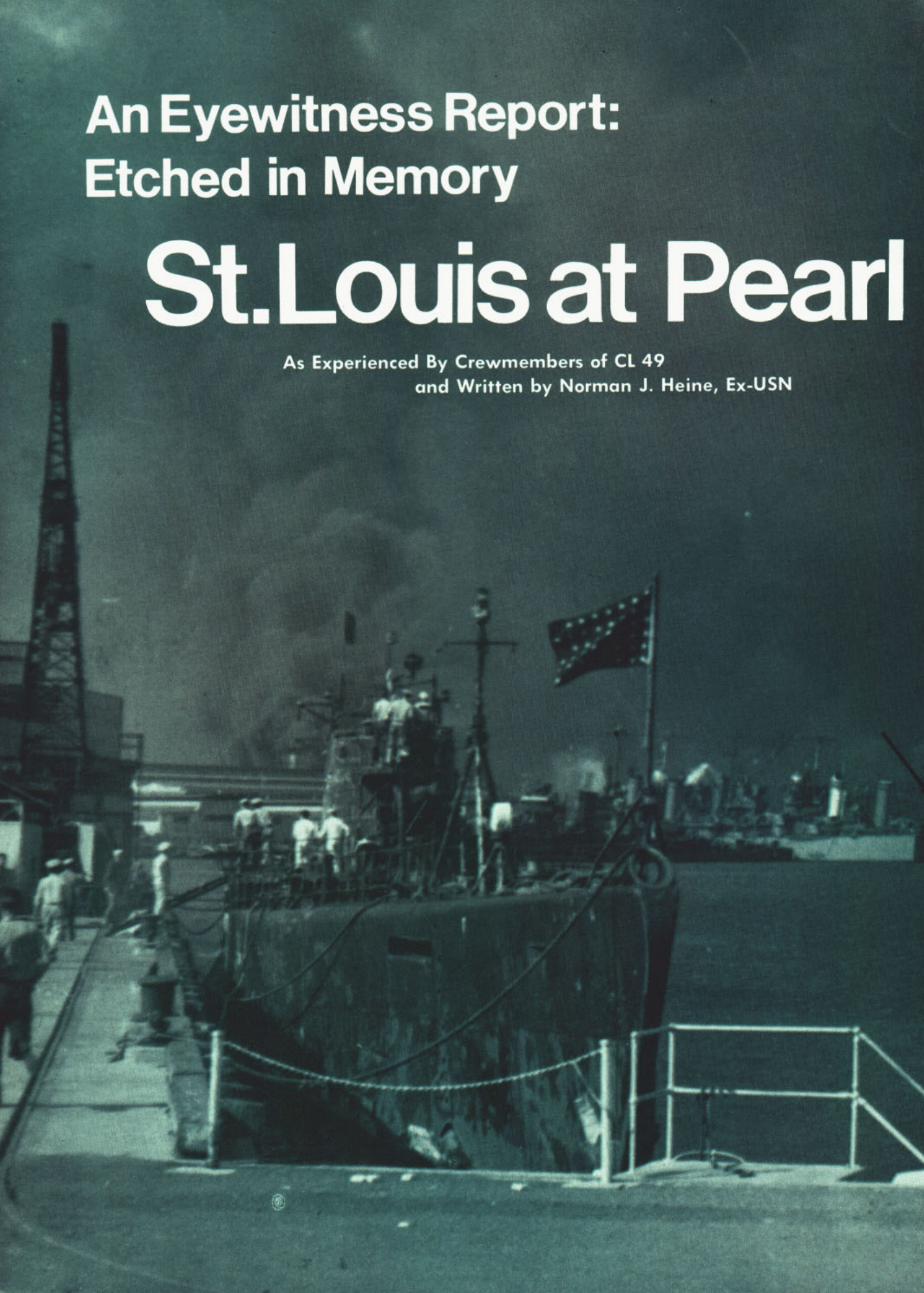
- Primary considerations should be completeness and accuracy.
- One person should be appointed well in advance of the due date to write the command's history; it's not feasible to make it a rush job.
- Make it a continuous project. This will help to insure completeness. Documents can be gathered and rough chronological drafts written throughout the year.
- Organize the history along broad subject lines, as — brief overall chronology; command organization-relations; operations and activities; special topics; and documentary annexes.
- Follow standard principles of answering the questions who, what, when, where, why and, especially, how.
- Document the history with appropriate reports, charts, tables, graphs, messages, correspondence, photos, etc. Be sure to identify and date them.
- Report exact full names, dates, locations, times, etc.
- Use classified material if necessary. Normally, material not higher than Secret is used, but Top Secret supplements may be submitted as required.
- To help with completeness, circulate or chop a draft of the history to as many knowledgeable people as possible before writing final copy.
- Make it a unit-wide project by asking all hands to provide input.
- Literary masterpieces are not expected but clarity is essential. Write in simple, logical, concise narrative form; avoid "bureaucratese."
- The manuscript should be typed double-spaced on one side of standard letter-sized paper.
- Give your work the historical depth it deserves.
- For added help and guidance, details on preparing and submitting a command history are given in OpNavInst 5750.12 series.

—JO1 T. Jansing

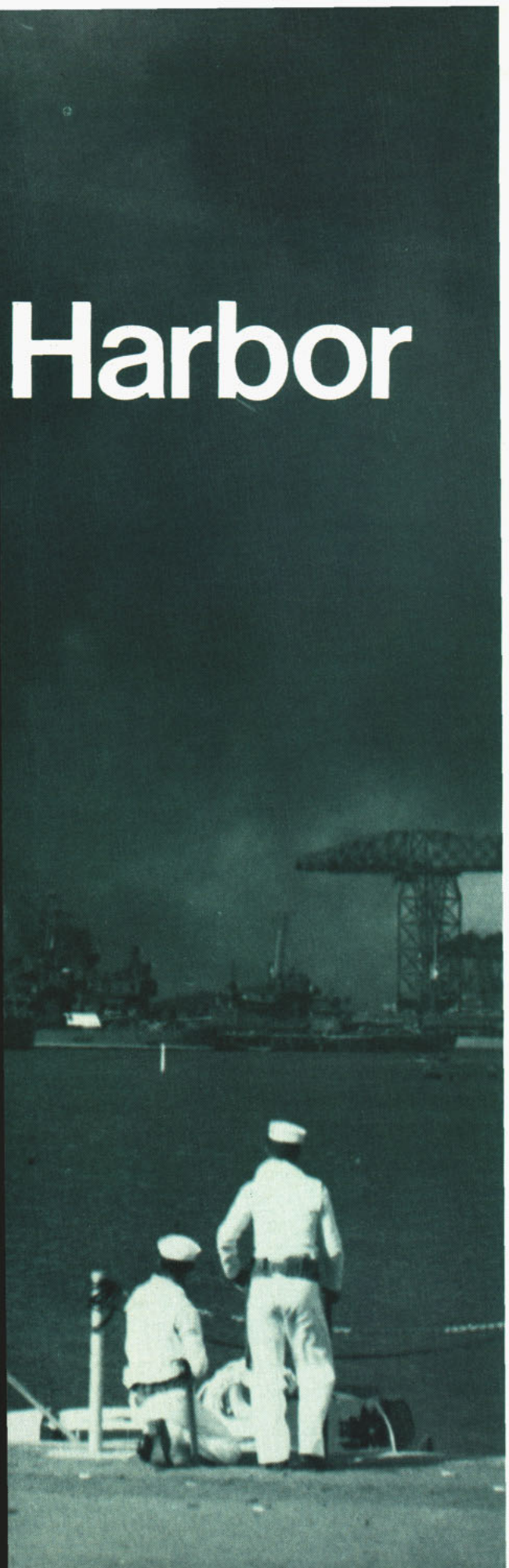
An Eyewitness Report: Etched in Memory

St. Louis at Pearl

As Experienced By Crewmembers of CL 49
and Written by Norman J. Heine, Ex-USN



Harbor



December 7, 1941, started as any other Sunday morning on board USS *St. Louis*. Bud and I were waiting for the motor launch that would take us to morning services. We were "plank owners" along with many of the crew, having been aboard the light cruiser since she was commissioned in 1939.

Though our home port was San Pedro, we had operated out of Pearl Harbor since 1940. Weekends in port usually meant a wingding of a Saturday night followed by a quiet day recuperating at the beach on Sunday.

Bud stuck two extra packs of cigarettes in his sock, planning on a full day off the ship. There was no way we could foresee that a sniping invader would foul up our plans for a relaxed liberty.

A steady humming sound exploded into a roar. On the horizon we spotted planes thundering toward the island.

"Why the hell is the Army flying on Sunday?" Bud blurted out. He leaned against the rail, curious but not too concerned about the approaching planes.

Suddenly an oblong object plunged from the bottom of each of the planes, and streaked down toward Battleship Row. As the lead plane banked for a turn, the wing bared the stark outline of the Rising Sun.

"My God! Those are Japanese planes!" someone screamed out the startling news.

Just then the motor launch pulled up alongside the ship to pick up the last stragglers for church, namely Bud, myself, and about 10 others.

"Get the hell outa' here!" we yelled a warning to the boatswain. For a minute he peered up at us, unable to believe what he heard. Then with a quick twist of the tiller, he swung the launch back toward land.

Out of nowhere, the enemy appeared, aiming straight for the defenseless boat. Machine gun bullets peppered the small launch. Desperately the boatswain tried to escape the onslaught. It was our initiation to the brutalities of war. The boatswain's motionless figure draped over the tiller, the jumper of his whites almost completely stained red, his blood spilling from his wounds.

"Madre de Dios!" I heard Manuel, one of the gunners, mutter the prayer as he blessed himself several times. The tone of his voice sure sounded different. He usually turned to his native tongue only when he was angry.

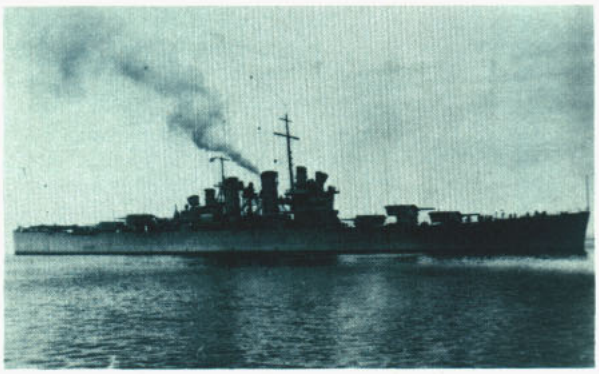
The General Quarters warning blared out, jerking us to action.

"Man your battle stations! Man your battle stations! This is not a drill!"

What had been a routine call on maneuvers took on a desperate urgency. We all scrambled to our stations, disbelief on every face as the "bong, bong!" repeated the warning over the loudspeaker.

With the engine rooms not ready for steaming, some of us machinists were rushed to quarters to clip 50-caliber ammunition into belts for the machine guns.

Left: Two sailors stare in amazement and unbelief at the start of the first wave of the Japanese attack on Pearl Harbor.



Above: USS St. Louis. Right: USS Arizona hit by torpedoes and bombs.

At first, only tracer ammunition was available. This particular shell leaves a white stream as it is fired and lets the gunner know how accurate his aim is. It explodes immediately on contact.

"Get the key from the chief in charge of the small arms locker. We need the armor-piercing shells!" But before the young officer's order could be carried out, a 1st class grabbed a pair of bolt cutters and snapped the lock off the door.

"No time to wait for any key, sir!" The 1st class was not disrespectful, just practical. There *was* no time to waste. Without another word, the lieutenant joined the non (jg) com in handing out the more powerful ammunition. Rank was forgotten.

As the name indicates, the armor-piercing shells make contact, penetrating through the metal of a plane before exploding. Some of the men working on the machine gun belts, including Bud and myself, were green. But within a few minutes we were keeping up with the best of them.

Meanwhile, topside, the men moved fast as orders were shouted.

"Anchor those 50-calibers in place!" The 10 machine guns, five on the port side and five on the starboard side, the one-point-one on the upper deck and the 5-inch antiaircraft guns were already lashing out at the enemy. These guns alone were credited with three "probable" downings of Japanese planes. With the circuit breakers ashore for repair, the gunners operated the batteries manually.

There were five 6-inch turrets with three guns in each turret manned and standing by. These particular guns were not designed for antiaircraft action. We were not sure they would be used, but they were ready.

Men on the 5-inchers had a wraparound steel protection. The gunners on the 50-caliber machine guns had only helmets of World War I vintage to protect them from the machine gun fire the enemy planes were spitting out.

From the beginning of the year through July we had been on maneuvers, so after the first shock wore off, routine took over.

When we first pulled into the harbor on Friday, the 5th of December, we were ordered to the Navy Yard for an overhaul. USS *Helena* took over our berth in the harbor and we tied alongside *Honolulu*. We grumbled plenty when we were told to keep one boiler hot to furnish our own auxiliary power for the various electrical equipment aboard. *Honolulu*, being the flagship of Cruiser Combat 9, would receive her power from the dock.

It was late Friday when we finally tied up. We were all glad to hear the order to wait until Monday to remove the ammunition from the ship. So it happened that on this fateful Sunday, we were armed to the teeth with one boiler already hot.

This day *St. Louis* would really earn the "E" we were rated during spring gunnery exercises. Our targets were shooting back at us and they were hell-bent on blasting everything in sight.

Ships in the harbor with their ammunition removed had nothing with which to fight. Helpless to defend themselves, they were like sitting ducks. Wave after wave of attacking planes dropped their deadly loads.

Several men on one of the unarmed ships desperately threw potatoes at the low-flying planes. What a pitiful effort! Witnessing scenes like that caused the change from a happy-go-lucky peacetime gob to a cold, hard, combat sailor.

Men were running in all directions, each with a

job to do. One machinist of slight stature who was working with us grabbed a completed belt and, swinging the heavy belt over his shoulder, ran up the ladder — a feat that he was unable to duplicate later under normal conditions. As he reached the top of the ladder, he stepped right into the path of the captain, knocking the officer to the deck.

"Embarrassed as hell," the machinist told us later, "I helped the skipper to his feet and proceeded to brush off his uniform."

"Where were you heading with that belt, sailor?" The captain asked.

"To the nearest gun that needs it, sir."

"Well, get going. You should have knocked me out for getting in your way."

Many years later, he and the captain had a hearty laugh over the incident, but at the time, they saw no humor in it.

Suddenly one of the 50-caliber guns broke loose from the deck, knocked the sailor who was operating it completely out and started hopping down the deck. The trigger froze and the gun was shooting in all directions.

"Grab it!" one sailor shouted.

"Not me! You grab it, if you're crazy enough!" a second sailor yelled back. They chased the runaway gun down the deck and it finally stopped firing, landing on the hangar deck. Quickly they carried it back to position and anchored it firmly in place. Minutes later, the gun was back on duty with an operator aiming it the right way.

Each time I came up on deck with a completed belt, I could hardly believe the destruction going on. Large billows of smoke poured into the sky from Hickam Field to the left of *St. Louis*, blackening the same sky that had been clear and cloudless a short time before.

"All machinists report to the engine room on the double!" It's about time, I thought! I found out later that though it seemed longer, acutally only 20 minutes had passed since the first bomb exploded.

As we rushed to our more familiar station, a tremendous explosion shook *St. Louis* from stem to stern.

"Damage control party, check aft!" a command blared out. Just as we reached the engine room we heard the report: "No damage aft, sir!"

Once down the ladder, we learned that a 500-pound bomb had hit the dock, knocking *Honolulu* and *St. Louis* together, smashing and sinking two motor launches that were tied up between the ships. Thank God no men were in the small boats. They wouldn't have had a chance.

"We've got a head start with one boiler hot," the chief machinist's mate reminded us. "Let's move!"

The crew in the boiler operating space took auxiliary steam, bled it into the other seven boilers and within an hour all boilers were up to a full working capacity.

It was almost 0930 when the chief notified the skipper we had a full head of steam. At 0931, the captain snapped out the order: "Full speed astern!"

The deck force grabbed the nearest fire ax and chopped us loose from the dock. We cleared the harbor with all antiaircraft guns blazing. Eye witnesses later commented that it was an impressive and never-to-be-forgotten sight to see *St. Louis* head for sea with all her guns spitting fire. We left the dock in such a hurry that we hit bottom with one of our screws. It was so badly bent that it had to be quickly secured and we went full speed ahead on three screws.

Back in the engine room the firemen worked feverishly. Suddenly an excited deckhand burst in with an alarming report.

"Black smoke! Black smoke pouring out of Number Two stack!" he yelled to the chief. But before anything could be checked, a young officer came in.

"Keep up the black smoke! I don't know what the hell caused it, but it's a perfect smoke screen for *Phoenix!*" The cruiser *Phoenix* had none of her guns in commission at the time.

But this smoke screen had not been planned. What had caused it?

When changing speeds from time to time, the firemen in the boiler operating space put larger sprayer

Below: Steaming out to sea at 25 knots, USS St. Louis passes the burning USS Arizona and USS West Virginia.

Above: The smoke screen thrown by St. Louis pours across the bow of the defenseless USS Phoenix, protecting her as she steamed out of the harbor close behind St. Louis.

tips on the plates that inject the fuel oil into the burners. This keeps up a full head of steam. A chart posted in the master engine room has all information as to what tip goes in, depending on speed and steam pressure. Someone in the operating space put a sprayer plate in the boiler without a tip. Instead of a thin spray into the burner, it was a solid stream of oil causing Number Two stack to pour the heavy black smoke.

Some observers thought that this was done intentionally, but no orders had been given to that effect. Some thought *St. Louis* was on fire, but we were not damaged. Had this occurred during peacetime, the guilty party would have been severely reprimanded. All I could think was, "What a lucky break for USS *Phoenix!*"

As we swung around Ford Island, which was strictly Navy air, we sighted the hangars belching fire and black smoke. How badly had our planes been damaged? Were there any left in condition to fight off another attack? We couldn't tell the extent of the destruction.

St. Louis steamed along at 25 knots, maneuvering around the wounded USS *Nevada* which had run aground to keep from capsizing. What a beating they had taken!

A sudden frantic shout from one of the deckhands struck terror in the hearts of all of us who heard him.

"Torpedo! Torpedo!" He pointed out over the starboard bow. Those on deck could see the wake of the dreaded enemy fish. I had just come topside for some needed equipment and took a quick look at the enemy missile speeding toward *St. Louis*.

It didn't take much thought to figure out their object in launching the torpedo at that spot. To sink us in the channel would block the passage completely. Their first attempt with *Nevada* had failed. Now the midget sub aimed for the cruiser.

We were unable to change course. We had no alternative but to keep heading out. Orders were shouted through the address system. The light cruiser zigzagged like a "drunken sailor" in a desperate effort to escape. But the path of the torpedo was straight and true.

Suddenly a muffled impact exploded into a mountain of water as a hidden coral reef lent itself to our defense. Quick action by the radioman located the sniper sub. Now it was our turn.

A determined gunner took careful aim with one of the 5-inch guns, lowering it to water level. One burst of fire. Then a shout as the smoke cleared and the damaged conning tower of the two-man sub bobbed to the surface. No longer able to operate, the sub was eventually captured.

It was natural to believe that the attacking planes were being sent out from a Japanese aircraft carrier. Our captain requested permission to go after the carrier but we were ordered to circle the island and protect it.

We welcomed Sunday dinner as a break from the tension. Since most of the mess crew including some of the cooks were on gun crews, the chief yeoman was in charge of the cooking.

"Hey, Chief, these beans are only half-cooked!" Griping was a sure sign that the crew was back in form.

"Holy Samoleons! This is fightin' food?" Now that could only be Bud. We had lost track of each other during the heavy action but I knew he'd never pass up chow, no matter who cooked it.

After griping together for a few minutes, we left the mess and joined a special detail. According to Navy Regulations, during wartime in a combat zone no naval vessel is allowed to have inflammable supplies aboard. "Strip the ship for action" it's called. It was a lighthearted task as the crew tossed all the cases of paint and metal polish over the side. We jokingly guessed the hours of hard labor we were eliminating as the sweat rolled off our bodies.

While patrolling late that afternoon, we spotted more planes approaching. Again the dreaded cry.

"Man your battle stations!"

The gunners took aim and waited for the planes to get in range.

"Hold your fire! These are our planes" Naked relief replaced concern on the men's faces now that our planes were in the air.

For three days we cruised the area, always on the alert for the enemy. *St. Louis* was equipped with sonar, sounding gear to detect enemy submarines. New radar equipment that would reveal any enemy surface craft was still in the process of being installed. Any and all sounds that we picked up brought the crew to battle stations on the double. For the three

days we had little sleep though we met no enemy.

Finally, we received orders to return to the inside of the harbor. Seeing the destruction close up actually made us sick to the stomach. We found that USS *Helena* had the hell shot out of the forward engine room while tied up in our berth.

Chipped paint on our 6-inch turrets from machine gun bullets fired by the enemy planes were mute evidence of how close they had come. We were damn lucky to have no casualties or no serious injuries in spite of all the action in which we took part.

For their valiant contribution at Pearl Harbor, the crew of USS *St. Louis* were awarded the first of 11 battle stars on the Asiatic-Pacific Area Service Medal. It was over 30 years ago that about 900 sailors, both noncoms and officers, shared this hellish experience on the light cruiser. Parts of the day's activities are vague but the events described above are as vivid as if they happened yesterday.

Retired Rear Admiral George Arthur Rood was the captain of the "Lucky Lou" as the ship was affectionately known. The admiral kept in touch with many of us crewmembers through the Pearl Harbor Survivors' Association of which he was a member. On 30 Mar 1971, at the age of 82, the skipper died.

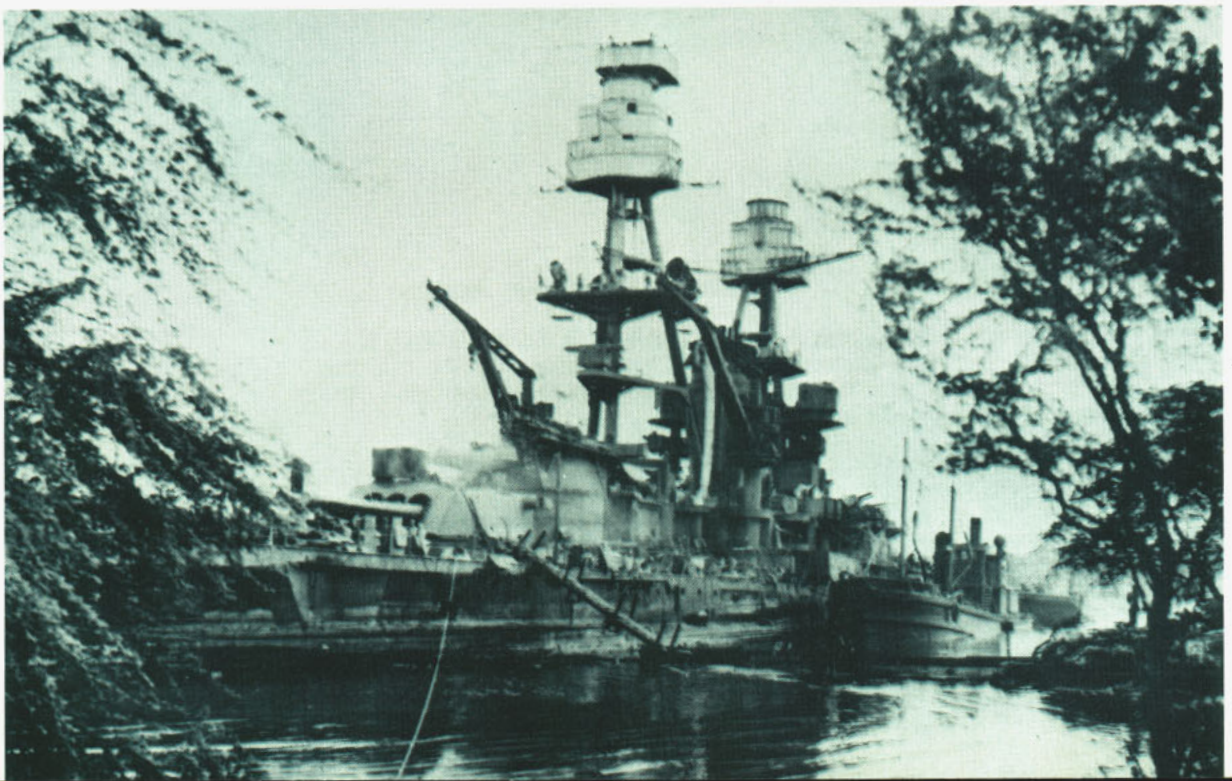
"He was a grand 'Old Man' and his passing will leave a gaping hole in the hearts of those who had the privilege of serving under him," commented Bill Misner, past president of San Gabriel PHSA and also a former *St. Louis* crewmember. "I know I will never think of Pearl Harbor without thinking of him and being grateful to him for just being there to guide us."

The words of one of the officers still ring out loud and clear:

"They'll remember *St. Louis*, men! They tasted our fire!"

—Norman J. Heine, ex-USN

Above: Part of the appalling destruction caused during the infamous attack. Below: USS Nevada, run aground opposite Hospital Point to avoid being sunk in the channel by a two-man submarine. The midget sub was later damaged by USS St. Louis.



1973 All-Navy Cartoon Contest Winners

HM1 George P. Barnes — First Place

"I know you fell over, but I still want the name of the man who threw you my rubber ducky."

Here are the winners of the 18th annual All-Navy Cartoon Contest — topped by HM1 George P. Barnes from NAS Moffett Field, Calif. His "rubber ducky" entry was among 352 judged this year, an increase of over 100 from 1972. Shown here are the top five winners. Other examples of Navy humor will be featured in future issues of ALL HANDS.

For his witty effort, Barnes receives one of three of ex-Navyman Hank Ketcham's original "Half Hitch" cartoon strips donated by the cartoonist to the Navy as contest awards.

Second place honors — and a "Half-Hitch" strip — go to YNC Gerald M. Avera, serving with a joint U.S. military mission in Turkey.

Three more award-winning cartoons emerged from the 107 active duty contest entrants. Their creators are:

- Third place — EM1 Jose B. Olaguera, NAS North Island, San Diego, Calif.
- Fourth place — BUCA Terry K. Boles, MCB-10, FPO New York, N.Y.
- Fifth place — LCDR Melville C. Murray, Navy Astronautics Group, Point Mugu, Calif.

In addition, there were five cartoonists in the honorable mention category, two of whom were also among the top five. LCDR Murray, for example, had two honorable mentions, while Chief Yoeman Avera had an honorable mention as well as second place honors. The other two honorable mentions went to: PM1 William E. Turner, Naval Development and Training Center, San Diego, Calif., and DM3 Anthony M. Ramirez, USS *Dixon* (AB 37), FPO San Diego, Calif.

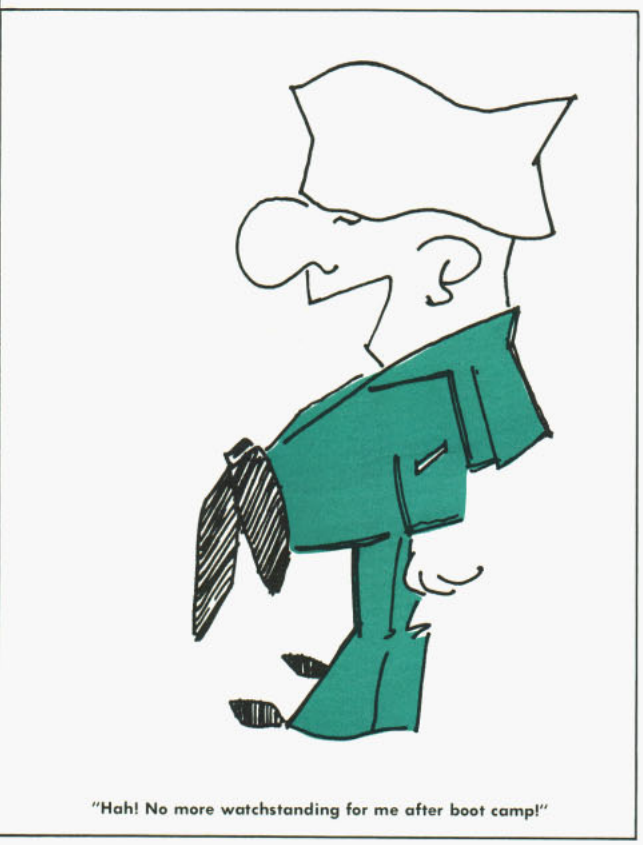
YNC Gerald M. Avera — Second Place

"Mom . . . I had to put Dad on report today."

Two members of the same family were tops in the dependents' category. They are Phillippe Sebrechts, winner of the third "Half Hitch" strip, followed by Claire Sebrechts, dependents of Captain Paul H. Sebrechts, MC, USN, stationed at U.S. Naval Hospital, San Diego, Calif.

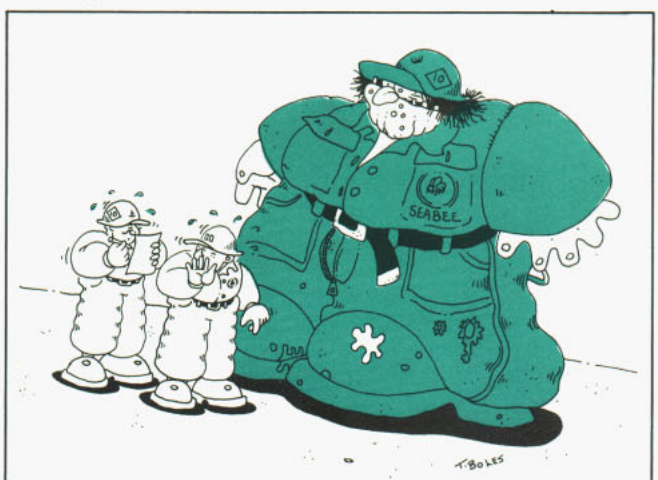
LCDR Melville C. Murray — Fifth Place

EM1 Jose B. Olaguera — Third Place



"Hah! No more watchstanding for me after boot camp!"

BUCA Terry K. Boles — Fourth Place

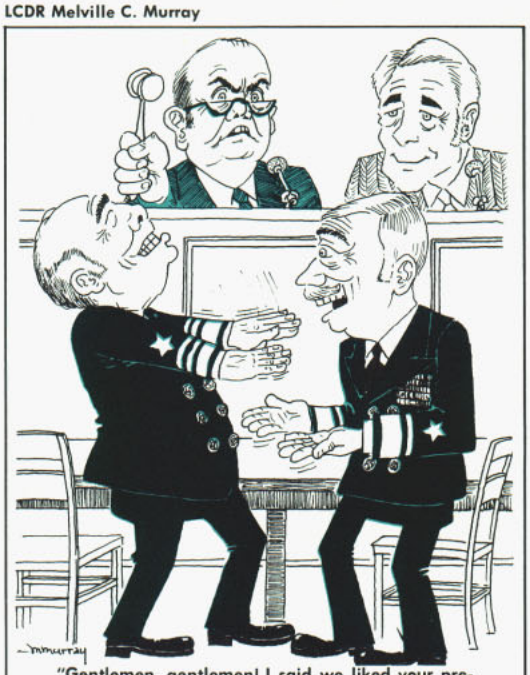


"I don't care what he looks like! For gosh sakes, let's not write him up!"

YNC Gerald M. Avera

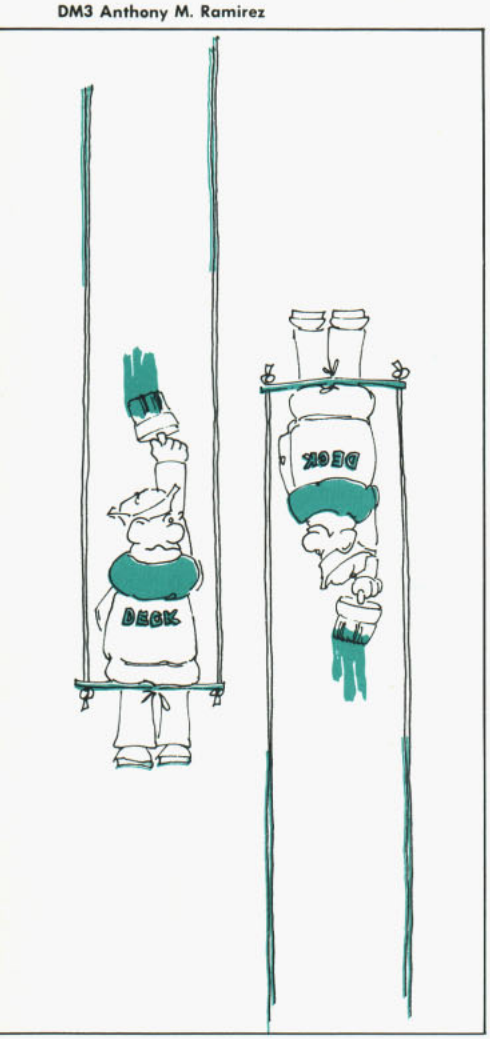
"You mean you want to 'ship over' in there?"

LCDR Melville C. Murray



"Gentlemen, gentlemen! I said we liked your presentation. That doesn't mean we'll pass on the appropriation."

DM3 Anthony M. Ramirez



Honorable Mentions

PM1 William E. Turner

"Someone should explain to 'Boats' what Admiral Zumwalt meant by 'rap sessions'!"

LCDR Melville C. Murray

letters

'Call of the North'

SIR: "Answering, the Call of the North" (ALL HANDS, May '73) brought back some feelings of nostalgia since I had just spent two of the most enjoyable years of my career at COMFAIR Alaska, Kodiak, before its decommissioning.

The information submitted by MSGT McDonnough is correct but don't all of you pack your bags and head for the clean air and water of the great north. I checked into the "open-to-entry" program when I was in Alaska. The one big catch is the requirement to mark off personally according to set rules. One aspect of these set rules is a certified survey. If there is no benchmark, and the chances are if there is a benchmark the land is not open to entry, the land must be surveyed. The cost incurred for surveying in the Alaskan wilds is astronomical. Preliminary computations indicated that my five acres, once it belonged to me, would have resulted in out-of-pocket costs of around $2000 per acre. This survey is not required if the individual does not want to own but just to lease from the state.

May be it is a good deal and maybe not; as I said, don't everyone run at once.—CDR A. G. Alexander, USN.

• *Thank you for taking the time and trouble to pass along the additional information on the "open-to-entry" program. A certified survey might deter many Navymen from a move to the Alaskan wilds.*–ED.

Bell Ceremony

SIR: If a lieutenant commander is the commanding officer of a ship, how many bells does he rate when he is bonged aboard?—SM2 R. S.

• *Article 901 of DNC 27 states that the number of bongs an officer receives when arriving or departing should correspond to the number of sideboys he is entitled to. Therefore, the correct number of bongs a lieutenant commander would receive is two.* –ED.

All Hands PHOTO CONTEST

As first announced in our August 1973 issue, ALL HANDS Magazine offers all Navy men and women — those on active duty or retired — and their dependents, a chance to cash in on their photographic expertise. The awards for the three top winners: First prize will receive a three-year subscription to ALL HANDS; Second Prize will receive a two-year subscription; and Third Prize will receive a one-year subscription.

Three categories have been set up, although the top three prizes will cover any or all categories:

- A Navy theme: Navy men and women on the job, Navy scenes, or ships and units in action.
- Navy life: recreation — liberty — travel.
- The Navy family.

Entries can either be a single photo or slide, a series, or they can take the form of a pictorial story. All entries must be current work — that is, photos which have been executed during the 1973 calendar year.

Each contestant may submit as many entries as desired.

Submitted photo work can be either black and white photo prints, color slides or transparencies, or Type C color prints. Black and white photos should be at least 8" x 10" in size, and printed on glossy paper.

All entries must be accompanied by an identifying sheet (attached to the edge of each photo or slide by tape) listing the contestant's name, rank/rate, Social Security number, present duty station and complete mailing address — plus an identifying caption of the photo or picture story. In cases of dependent children submitting work for consideration, their name, age, and name and location of the school attended should also be listed.

All photographs should be mailed flat and protected by heavy cardboard or other stiffener; the same applies to slides and transparencies. Do not write on the backs of photographs — put all pertinent information, along with any titles, on the attached identification sheet.

Winners will be announced as soon as practicable after the contest closes, and winning photographs will appear in ALL HANDS. Other photos — though they may not win a prize — will receive honorable mention and also will appear in ALL HANDS from time to time.

All entries become the property of ALL HANDS and will not be returned to the contestants. Send your entries to:

ALL HANDS Photo Contest
ALL HANDS Magazine
Bureau of Naval
Personnel (Pers-164)
Navy Department
Washington, D. C. 20370

Deadline: Entries must be mailed prior to 31 Dec 1973.

TAFFRAIL TALK

Every Christmas, Bob Neil, one of the staff writers at ALL HANDS Magazine exchanges greetings with a schoolteacher on Tenerife, an island in Spain's Canary Archipelago off the west coast of Africa. Although the writer has never met the schoolteacher, you might say their friendship was sparked over a bottle. They first began corresponding after a story appeared in Taffrail Talk about a Navyman who dropped a bottle overboard as his ship steamed off the coast of North Carolina.

The bottle, containing the Navyman's name and address, was picked up months later by the Canary Islander who got in touch. When the incident was reported in Taffrail Talk, it so intrigued our staff writer that he, too, began corresponding with the teacher.

By now, the correspondence has dwindled to an exchange of Christmas greetings in which each expresses the hope that they will someday meet after having learned of each other's existence through a bottled message and a magazine article.

And that meeting may well come about since staff writer Neil has a hankering for travel in unusual places. On another Christmas, for example, when he was living in Quito, Ecuador, he decided to drive some holiday visitors to the Equator Monument located some kilometers from town.

After bouncing over cobbled roads and dodging llamas, his somewhat dilapidated jeep felt disinclined to make the return trip to Quito. When the starter button was pushed, nothing happened.

With one guest behind the wheel, our man in the tropics pushed the reluctant jeep until the motor finally turned over. In doing so, the jeep passed over the equator from the southern to the northern hemisphere. So far as we know, he is the only man alive who has pushed a jeep from one half of the world to the other.

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Xvxn though our typxwritxr is an old modxl it works quitx wxll xxcxpt for onx of thx kxys. It is trux that thxrx arx forty kxys that function wxll xnough, but just onx kxy not working makxs all thx diffxrxncx.

In a txam xvxry man, likx xach kxy on a typxwritxr, is xssxntial for a quality product. You may say to yoursxlf, "Wxll, I am only onx pxrson, I won't makx or brxak it," but it doxs makx a diffxrxncx bexcausx a txam rxquirxs thx participation of xvxry pxrson to bx xffxctivx.

So, thx nxxt timx you think you arx only onx pxrson and that your xfforts arx not nxxdxd, rxmxmbxr our typxwritxr.—adaptxd from RAAF Flight Safxty Rxvixw (Xd.).

-xnd-

The All Hands Staff

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AT RIGHT: NAVY RECRUITS of the Jewish faith attend services in the Jewish Chapel at NTC, Orlando, Florida.

Happy Holidays