

## For the Unconscious or Choking Person

The National Naval Medical Center in Bethesda (MD) offers some advice on emergency first aid—breathing and choking.

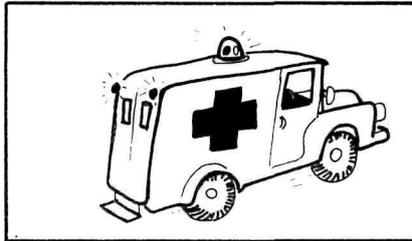
### Unconscious Person

Be careful approaching an unconscious person. He or she may be in contact with a live electrical current. If that is the case, turn off the electricity before you touch the victim.

There are hundreds of other possible causes of unconsciousness, but the first thing you must check is whether or not the person is breathing.

The following steps may save someone's life:

1. Try to awaken the person. The victim may be just temporarily dazed.
2. If there is no response, check for signs of breathing.
  - A. Be sure the victim is lying flat on back. If you have to roll the victim over, move entire body at one time.
  - B. Loosen tight clothing around the neck and chest.
3. Open the airway:
  - A. Lift up the neck gently with one hand.
  - B. Push down and back on the forehead with the other hand.
  - C. Place your ear close to the victim's mouth. Listen for breath sounds, and watch chest and stomach for movement.
  - D. If there is any question in your mind, or if breathing is so faint that you are unsure—assume the worst!
  - E. Give rescue breathing immediately. Have some-



- one else summon professional help.
4. Give mouth-to-mouth rescue breathing.
    - A. Put your hand on the victim's forehead, pinching the nose shut with your fingers, while holding the forehead back.
    - B. Your other hand should be placed under the victim's neck, supporting and lifting up slightly in order to maintain an open airway.
    - C. Take a deep breath. Open your mouth wide. Place it over the victim's mouth. Blow air into the victim until you see his chest rise.
    - D. Remove your mouth from the victim's. Turn your head to the side and watch the chest for a falling movement while you listen for air escaping from the victim's mouth as he exhales.
    - E. If you hear air escaping and see the chest fall, you know that rescue breathing is working. Continue until help arrives.
    - F. Repeat the cycle every five seconds. Twelve breaths per minute.
  5. Mouth-to-mouth rescue for small children or infants:
    - A. Be careful tilting a small child's head back to clear the airway. It cannot tilt as far back as that of an adult.

- B. Cover the child's mouth and nose with your mouth.
- C. Blow air in with *less* pressure than for an adult. Give small puffs. A child needs less air.
- D. Feel the chest inflate as you blow in air.
- E. Listen for exhales.
- F. Repeat once every three seconds. Twenty breaths per minute.

It may take several hours to revive someone. Keep up rescue breathing until help arrives to relieve you. Remember you are doing the breathing for the victim. If you stop—so does the victim. In about five minutes he or she could be dead. Why not hold a practice session at home, so everyone in your family will become familiar with rescue breathing? A small doll can be utilized to practice proper breathing techniques for infants.

### Choking

Anything stuck in the throat blocking the air passage can stop breathing and cause unconsciousness and death within minutes.

1. Do not interfere with a choking victim who can speak, cough or breathe.
2. But, if a conscious person cannot speak, cough or breathe:
  - A. Stand just behind and to the side of the victim. Support the victim with one hand on the chest. The victim's head should be lowered. Give four sharp blows between the shoulder blades. If unsuccessful—
  - B. Stand behind the victim, wrap your arms around his middle just above the

(Continued on p.2)

# Safety

## Grist

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The Park Practice Program includes: *Trends*, a quarterly publication on topics of general interest in park and recreation management and programming; *Grist*, a bimonthly publication on practical solutions to everyday problems in park and recreation operations including energy conservation, cost reduction, safety, maintenance; and designs for small structures; *Design*, a quarterly compendium of plans for park and recreation structures which demonstrate quality design and intelligent use of materials.

Membership in the Park Practice Program includes a subscription to all three publications and a library of back issues arranged in binders with indices, and all publications for the remainder of the calendar year.

The initial membership fee is \$80; annual renewal is \$20. A separate subscription to *Grist* is \$15 initially, and \$7.50 upon renewal. Subscription applications and fees, and membership inquiries should be sent *only* to: National Recreation and Park Association, 3101 Park Center Drive, Alexandria, VA 22302.

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Articles, suggestions, ideas and comments are invited and should be sent to the Park Practice Program, Division of Cooperative Activities, National Park Service, Washington, D.C. 20240.

### For Safety's Sake

All ideas and suggestions shared in the pages of *Grist* are presented as guidelines, not final working blueprints. Be sure to check any device or plan you want to adopt for compliance with national, state and local safety codes.

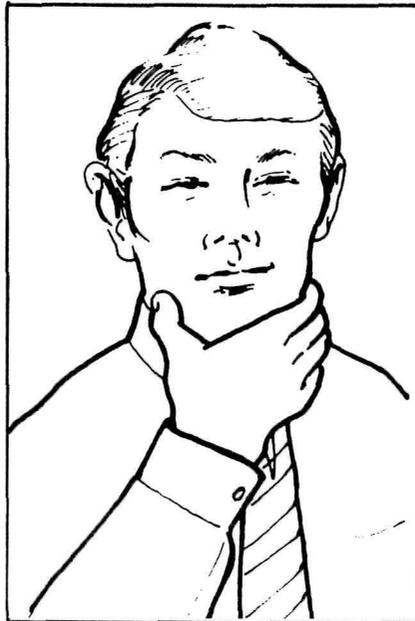
## Choking . . .

(Continued from p.1)

navel or on the lower chest. Clasp your hands together in a doubled fist and press in and up in quick thrusts. Repeat several times. If still unsuccessful—

- C. Make your index finger into a hook shape. Reach down the victim's throat in a sweeping motion, feeling for the object.
- D. Repeat the above sequence. Be persistent. Continue uninterrupted until advanced life support is available.

If the object has not been retrieved but the swallower suddenly seems all right, play it safe. Take victim directly to the hospital. This is especially critical if the swallowed object is a fishbone, chicken bone, or other jagged object that could do internal damage as it passes through the victim's system.



International sign that one is choking.

## Physical Examinations



National Park Service management policy concerning wildland fire qualifications requires that all permanent employees receive a physical examination for arduous fireline duty. Bandelier National Monument in Los Alamos, New Mexico, has 13 permanent employees trained and certified for wildland firefighting. Physical examinations for these 13 employees from a local physician would cost \$175 per person or a total of \$2,275. Additionally, two commissioned law enforcement rangers were required to take physical exams to retain their commissions, another \$350.

Park Ranger John Lissoway was responsible for wildland fire positions certification at Bandelier. Realizing the park did not have the funding to pay for these needed examinations, he contacted Kirtland Air Force Base in Albuquerque, New Mexico. The Air Force agreed to conduct the physical exams for \$28 per person at a savings of \$147 per person, or a total of \$1,911 savings for 13 employees.

Lissoway was presented a \$150 National Park Service incentive award for his cost-saving suggestion.

# Operation



## Water Tank Switch

Maintenance Mechanic Jerry L. Wheeler has come up with a suggestion that saves time, energy and water at Bandelier National Monument in New Mexico.

The water tanks at Frijoles Canyon had to be filled during the cold winter months by opening and closing a gate valve on top of the Canyon Rim. This gate valve feeds a 2" water line which is exposed to freezing temperatures on the Cliff Face. For 6 months each year a person had to drive 3 miles round trip twice each day to turn the valve on and off manually to keep the line from freezing at night. This took approximately 1/2 hour per day to accomplish and consumed gasoline, water and time.

Wheeler suggested installing an automatic clay valve that would be controlled by two electrodes in the water tank which would automatically shut the valve off and turn it on when necessary.

When the project could not be completed before winter, Wheeler devised a temporary improvement by installing a switch that could control the clay valve from the Power House which is the source of power to the clay valve and is located in the Canyon near the Maintenance Yard and office. By simply turning a switch on and off manually, the water tank can be filled without requiring someone to make the 3-mile trip to the top of the Canyon Rim.

A pipe overflow by the water tank can be seen from the Maintenance Yard which indicates the tank is full. A light located in the Power House is automatically turned on when the clay valve is activated to indicate that the valve is turned on.

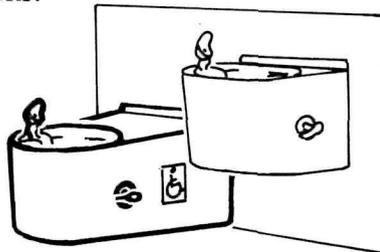
Wheeler estimates a savings of \$810 in man-hours (3-mile trip to and from Canyon Rim), \$189 in gasoline and \$276 in water, minus the labor costs for installing the switch (\$41) brings a total yearly savings to \$1234.

A \$115 National Park Service incentive award was presented to Wheeler for his suggestion.

## Lower Water Fountain

The average water fountain is too high to accommodate children and persons in wheelchairs which was the case at the Visitor Center at Fort Raleigh National Historic Site in North Carolina.

During the warm summer months when visitation increased considerably, long lines would form at the one water fountain. Many of these visitors were youngsters who had to be lifted up to the fountain which caused delays for those waiting in line and posed potentially dangerous and somewhat unsanitary conditions.



Park Technician James E. Eldridge suggested installing a lower water fountain next to the existing one. The lower fountain is easily accessible to young children and persons in wheelchairs, and it is hooked up to the existing plumbing which mitigates installation costs and provides better service to all park visitors.

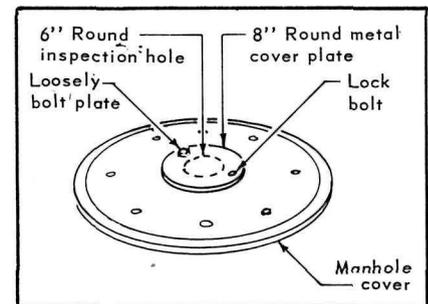
Eldridge received a \$25 National Park Service incentive award for his suggestion.

## Manhole Inspection

Manhole covers along the mid portion of the sewer line at Carlsbad Caverns National Park in New Mexico, are 4' x 4' x 1/4" plate steel. They are quite heavy and require two persons to safely lift and remove them for inspection and cleaning. Also, the sewer line needs to be inspected biweekly.

Maintenance Mechanic Robert W. Lowe suggested that a 6" round hole be cut into the center of each cover and covered with an 8" round metal plate loosely bolted on one side to accommodate a pivot bolt. Drill a 1/2" hole on the opposite side of the cover for a 7/16" stainless steel NC thread bolt. Tapping a 7/16" NC thread directly under the 1/2" hole would allow for an easily removable locking bolt.

This method would provide a window through which one person could easily inspect the manhole and sewer line as opposed to two persons, saving time and money. It would also reduce the possibility of injury to those persons conducting the inspection.



NOTE: Care should be taken to vent the manholes before cutting the center hole in the cover to prevent an explosion.

Lowe received a \$50 National Park Service incentive award for his suggestion.

## Improving Telephone Inquiry Services

Mrs. Carole Bryant, park aid at Guadalupe Mountains National Park in Carlsbad, New Mexico, has come up with a simple and time-saving method to better serve persons telephoning the visitor center for information.

While working at the visitor center desk, Mrs. Bryant and other park employees often received inquiries about various mileages of trails within the park. Since the source of this information is a map located approximately 5 feet from the phone, the caller was put on hold while the park employee walked over to the map, found the precise infor-

mation, and returned to the phone. A further question of this nature would require another wait on hold; a time-consuming and potentially irritating process to the caller.

Bryant saw an opportunity to improve visitor services by suggesting that a long cord be put on the desk telephone. This allows a park employee to walk over to the map or to other sources of information located away from the desk, while talking to the caller—a system which is much more efficient and certainly more satisfying to the caller.

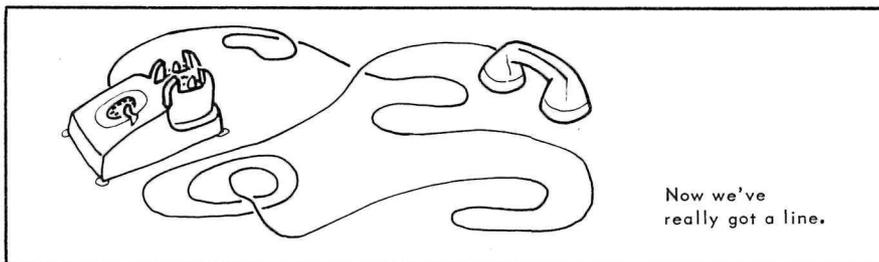
A \$25 National Park Service incentive award was presented to Bryant for her suggestion.

## Temporary Telephone Service

Guadalupe Mountains National Park in Carlsbad, New Mexico, was paying \$25 a month for telephone service for the McKittrick information trailer. This information trailer was occupied only a few days each year. Most communications between park staff in the canyon area and the Frijole and Dog Canyon ranger stations are done through the park radio system.

Maintenance Worker Donald R. Cory suggested discontinuing telephone service at the McKittrick information trailer on a year-round basis. If phone service is deemed necessary for peak visitation times (Spring Break, Easter, Fall Colors) a telephone is put on vacation rates for a considerable dollar savings.

Cory estimates that the park saved \$288 per year. He was presented a \$30 National Park Service incentive award for his suggestion.



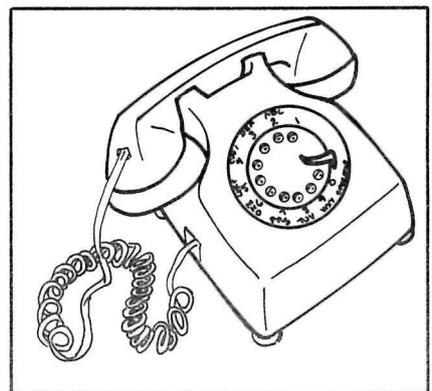
## Traffic Warning Device

A potential hazard existed in an uncontrolled traffic concentration area in the Pine Island Maintenance Area at Everglades National Park (FL). The area between the supply warehouse and the resource management buildings was congested with ranger, resource management and supply vehicles, commercial motor freight carriers, visitors, etc. Considerable pedestrian traffic to and from the buildings added to the problem.

Thomas R. Beasley, supply

technician, suggested installing two warning devices to alert vehicular traffic of the potential danger—speed bumps with yellow diagonal lines and a sign at the first corner to alert drivers to slow down and be cautious. Now these warnings are particularly helpful to visitors who are unfamiliar with the heavy traffic patterns of this area.

A \$50 National Park Service incentive award was presented to Beasley for his suggestion.



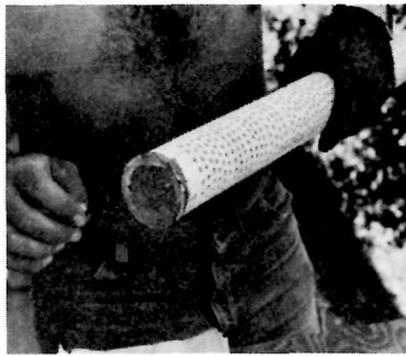
# Maintenance

## Filter Tubes for Swimming Pools

Park Foreman Gregory L. Roth and Assistant Foreman Dean Corl of the State College (PA) Parks and Recreation Department developed and built their own fiberglass mesh filter tubes for one of their municipal pools.

For several years their fiberglass mesh filter tubes collapsed in the diatomaceous earth filter. Some tubes collapsed at different times, probably due to old age. Replacement tubes cost \$95 each. When 36 tubes collapsed overnight (out of a total of 200 in the filter), Roth and Corl decided to build their own using the ends and the nylon covers from the old fiberglass tubes.

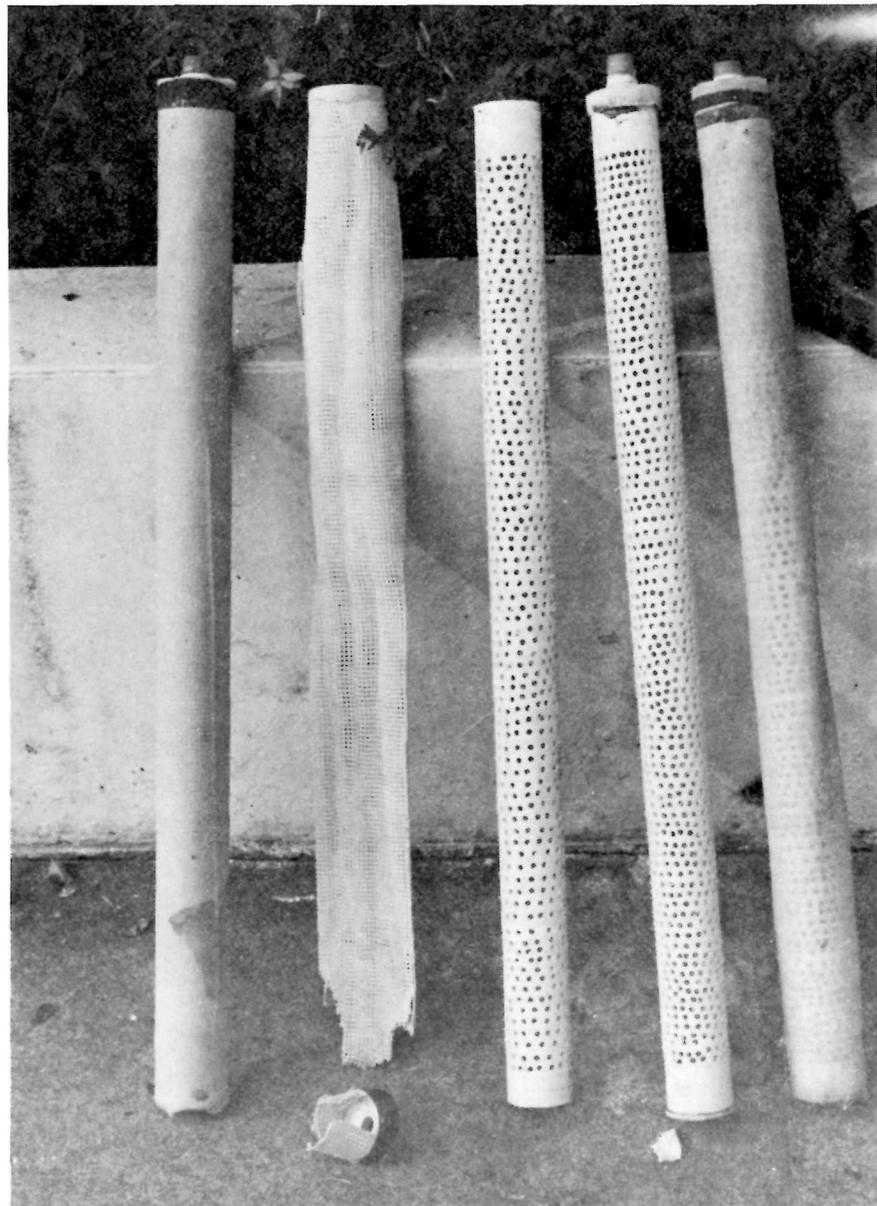
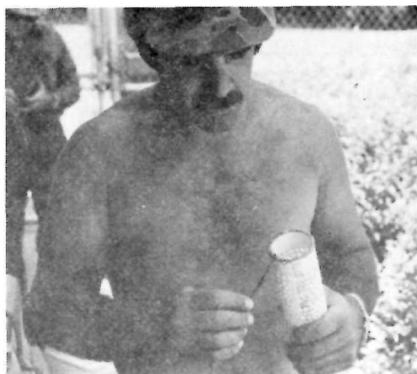
The new tubes were made of



2" schedule 40 plastic pipe. Approximately 1000 holes were drilled into a length of 35" pipe. Then the ends from the old tubes were glued on with epoxy and the old filter tube covers put on. They have worked fine and provide a considerable savings to the department.

The cost breakdown for the new tubes is:

- 1 hour hole drilling time per tube = \$3.50/hr. labor
  - 15 minutes to glue on ends and put cover on = 88¢
  - glue cost = 50¢ tube
  - plastic pipe per 3 ft. = \$1.32
- TOTAL \$6.20/tube

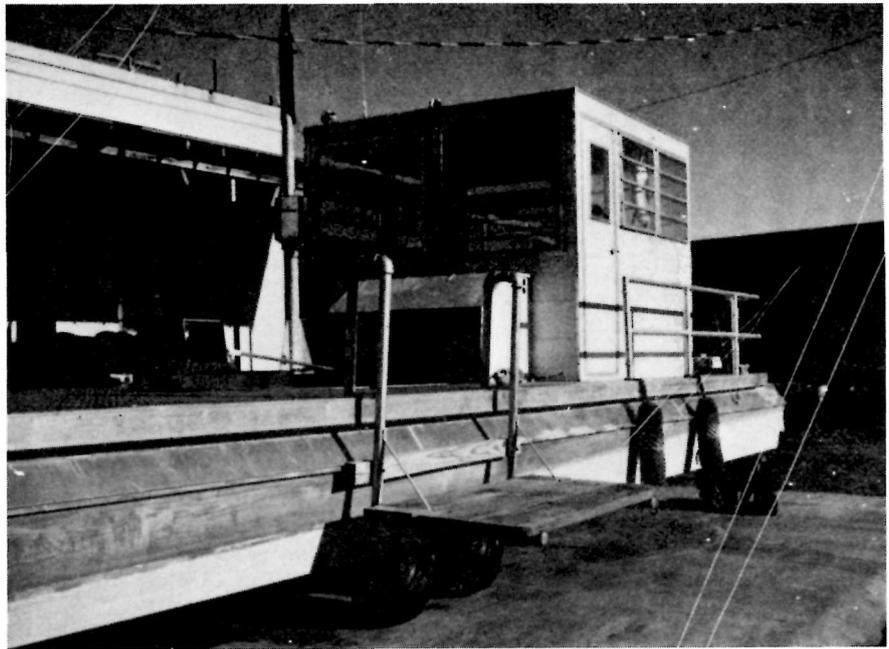


## Scuba Diver Platform

Carpenter Allan Pond of Bighorn Canyon National Recreation Area (MT-WY) designed and built this platform for scuba divers' use while entering and exiting the water.

Much of the scuba diving by NPS divers at Bighorn Canyon is done from the maintenance barge. The barge's deck is approximately 3' above the water line, making it extremely difficult for a diver with full gear to get onto the deck. Should the diver be impaired or unconscious, or if the divers should recover a body in the water, it would be almost impossible to reach the deck.

Pond solved this problem by building a portable dive platform which can be connected to the side of the barge. The platform is at the water line and provides divers easy access to the barge when entering and leaving the water. Should a diver be injured surface personnel can use the



platform to bring the diver out of the water and onto the barge.

Pond received a \$50 National Park Service incentive award for his suggestion.

## Grass Mower

Weeds and high grass can easily stall the average lawn mower. However, Clinton Engines Corp. has developed a "Chieftan" mower which will cut through almost any overgrown "jungle."

Powered by a 5.5 hp. two-stroke engine, the Chieftan provides greater cutting output than other comparably-sized mowers, making it ideal for professional, governmental, and commercial use. Yet this mower is easy to transport and use since it weighs only 23 lbs.

With only three moving parts, the 140 cc. displacement engine needs minimum maintenance. Its use of pre-mixed fuel assures lubrication on every stroke, regardless of operating angle.

Standard features include needle and ball bearings throughout the engine, 8 x 1.75 inc. ball bearing wheels that can be adjusted to four cutting heights, a heavy-duty blade clutch, variable speed control, a low tone muffler that discharges exhaust below the deck, and a larger-than-normal 3-qt. fuel tank. The 20" and 22" blade models have safety features



that include a floating rear guard and toe guard on the discharge chute.

For further information, contact Clinton Engines Corporation, Clark and Maple Streets, Maquoketa, IA 52060.

## Halyard Help

The halyard on the flagpole outside the Mount Rushmore National Memorial visitor center used to be replaced yearly. Although the 3/8" nylon rope would weather well, the knot securing the top clip onto the halyard was pulled just a little through the pulley whenever the flag was raised. This eventually stretched the rope and wore it thin.

Park Technicians Tom Haraden and Dale Ditmanson, while replacing the halyard last fall, slipped a 1 1/4" diameter, 1/2" thick rubber washer onto the rope above the top clip. Now when the flag is raised to the top, the rubber washer takes the abuse rather than the rope and knot. And after a year, the halyard showed no sign of wear.

## Dumping Ramp

Hauling refuse out of Grand Teton National Park (WY) was a costly and time-consuming process, especially during peak visitation periods. The refuse had to be hauled to the Jackson Sanitary Landfill (50 miles round trip) in a "Pup Packer." Since the truck had such a low capacity, the trip often had to be made twice a day during the busy season.

Motor Vehicle Operator Dennis L. Sportsman suggested building a ramp which led to a nearby 8-yard dumpster. The Pup Packer's refuse could be emptied into the dumpster, thus reducing the long trips to the landfill and time involved.

Sportsman estimates a savings of:

- 2 manhours per trip (2 persons usually made the trip)
- 2 trips per day during peak periods
- 10 gallons of gas per trip
- 50 miles of vehicle use per round trip.

A \$175 National Park Service incentive award was presented to Sportsman for his suggestion.

## Dock and Marina Systems

Topper Industries, of Vancouver, Washington, recently completed a marina-construction project near Puget Sound. The site for this project was Pleasant Harbor, an exclusive condominium development on Hood's Canal, a particularly pristine area near the Sound. Because the developers wanted to complete a partially finished wood deck system and add new concrete deck walls, floating modular panels were used.

The required number of new finger-pieces were shipped by truck, in 40-ft. sections. The panels are easily installed, and

float on old tire casings filled with polystyrene closed-cell foam, a Topper-patented process.

Although ruggedly built, the modular panels are easily replaced if damaged, and galvanized hardware is used in all installations. Flotation, guaranteed for 25 years, is attached to the modular panels with corrosion-free nylon straps.

Topper Industries (PO Box 1611) is located in Vancouver, WA 98663.

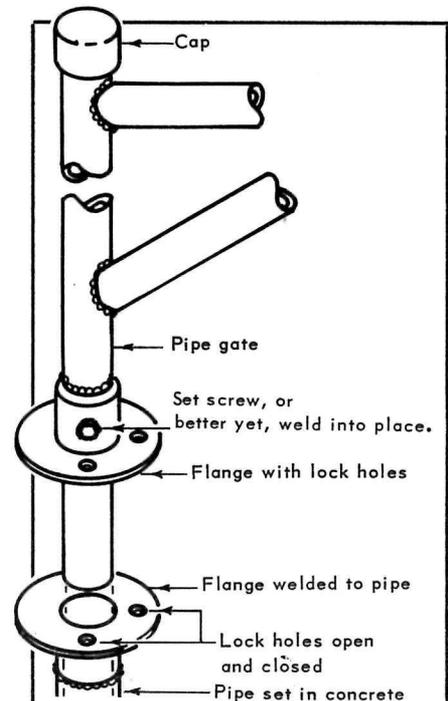
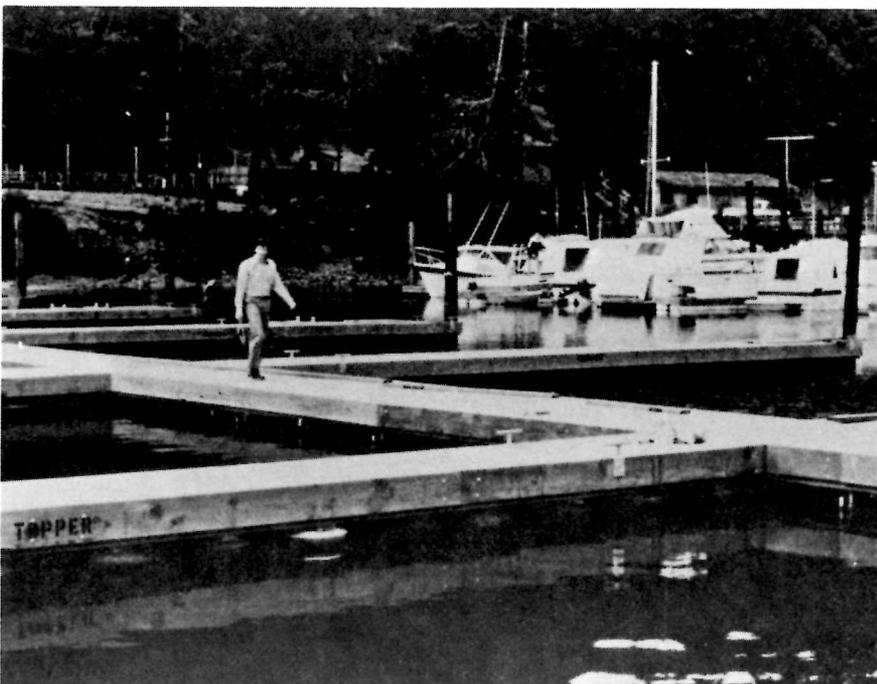
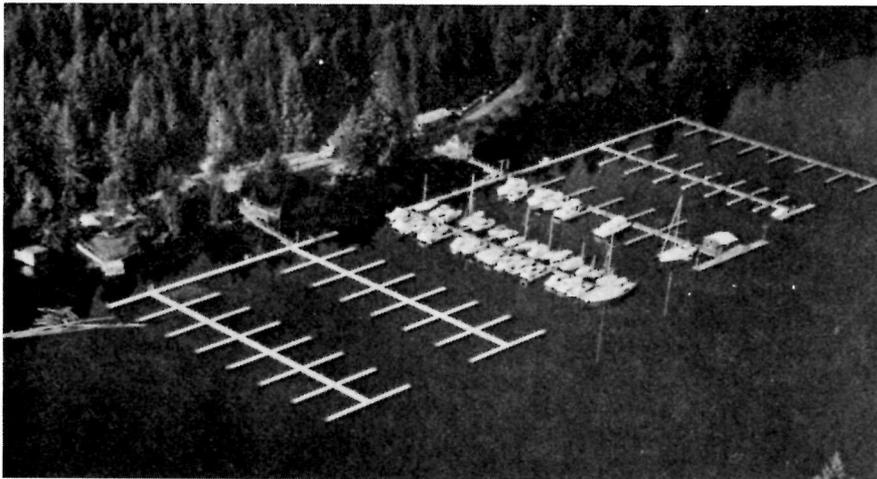
## Utility Gate Post

Maintenance Mechanic Jim Bruns of Fort Caroline National Memorial in Florida designed this simple steel gate and post.

The gate and post are made from standard size pipe that fits into a sleeve made from the next larger size pipe and set in concrete. The two flanges can be locked together to hold the gate open or closed.

NOTE: The Editor recommends welding the top flange firmly after deciding the proper height.

Occasionally this type of gate swings out into the road when it is unlocked and it's possible to run an automobile against it, running the gate pipe through the windshield and rear window. This gate must always be locked either open or closed.



# Development

## Vault Toilet

An almost totally odor free vault toilet was designed by John Day Fossil Beds National Monument (OR) using the convection suggestions from the U.S. Forest Service study for vault toilets.

Four of these toilets were built at John Day using a concrete tank, constructed in place, with an opening in the lid of the tank for the two waste holes—a vent hole and a 2' x 2' entrance hole to the tank. The inside of the toilets are preconstructed fiberglass liners. Two of the toilets are standard size and two are of handi-capped size.

The buildings housing the toilets are wood frame with board and batten rough sawn lumber siding. The walls are insulated with R-11 foil faced insulation sheathed inside with 1/2" AC plywood and outside with 1/2" CD plywood. The ceilings are constructed of 2" x 6" ceiling joists sheathed with 1/2" AC plywood. The roof is constructed of 2" x 6" rafters sheathed with 1/2" AC plywood covered with 15 pound felt, and sheathed with dark brown metal roofing.

These toilets are odor free on warm days. However, on cooler days the convection is not as good and occasionally some odors are present.

Our thanks to Maintenance Mechanic Leader Robert W. Trodahl at John Day Fossil Beds NM for sharing this information with *Grist* readers.

