

Better Turf Management Through Reduction of Cost for Sod

by David Frioud
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In June of 1981, the City of Dunedin Parks Division began an experiment which has resulted in considerable monetary savings, and improved aesthetics of the park areas.

The parks' budget, especially for grounds maintenance, had undergone severe cuts during the previous year's budget preparations. Further, in April of 1981, the CETA subsidization funds were cut and the grounds maintenance staff was reduced from ten full-time employees to six. However, the budget cuts were only part of the problem faced by the grounds maintenance section of the Parks Division.

We have three athletic complexes, comprised of twelve fields, which are maintained at a professional level. One of these athletic complexes was constructed in 1977 and, because of improper construction techniques, the soil conditions were very poor. Due to the cost of sod, this three major league baseball complex was seeded with hybrid Bermuda. The poor soil conditions, along with an inadequate irrigation system, caused very little of the seed to germinate, resulting in poor turf conditions. Overseeding had not been done after the initial seed application which compounded the problem and created twenty-one acres of terrible athletic turf conditions.

This challenge caused us to list alternatives which could restore these fields, and provide for adequate maintenance for the remaining athletic fields.



Sod squares as they are being placed on a Little League infield. Sod is laid during the day and play is accommodated during the evening of same day.



Comparison between native Bermuda on right and coarse Bahia on left.

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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.

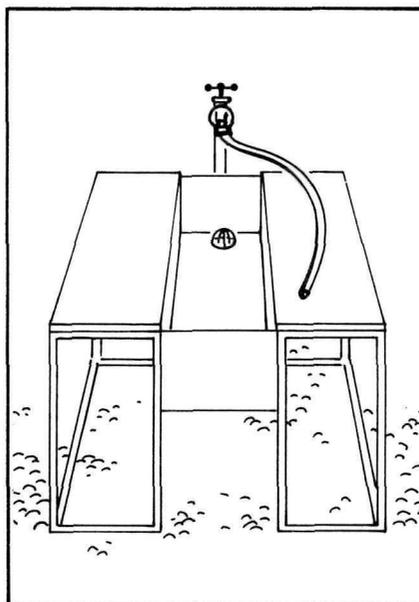
The initial membership fee is \$80; annual renewal is \$20. A separate subscription to *Trends* is \$15 initially, and \$7.50 on renewal. Subscription applications and fees, and membership inquiries should be sent *only* to: National Recreation and Park Association, 3101 Park Center Drive, Alexandria,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



Fish Cleaning Station Hose

Perry R. Crowley, park ranger at the U.S. Army Corps of Engineers at Stanislaus River Parks (CA), has developed this fish cleaning station hose to help clean up fish entrails and scales that litter the cleaning surface.

Using a short piece of discarded garden hose and a clincher coupling, attach an extension to the end of the faucet. Approximate cost for the hose clincher coupling is \$.50.

The hose would aid fishermen in cleaning fish and washing off the metal surfaces of the fish cleaning station, and would reduce maintenance for cleaning the fish station by one-half.

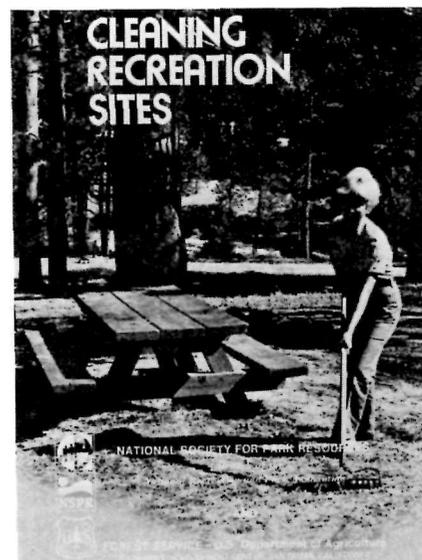
Cleaning Recreation Sites

A new publication is available that offers guidelines for keeping recreation sites clean, safe and sanitary for visitors and employees alike. *Cleaning Recreation Sites* helps recreation maintenance personnel to better organize their tools, equipment, supplies and procedures, and provides recreation site designers with information to satisfy aspects of site development, construction and use.

The publication is well illustrated and offers a step-by-step process of recreation site cleanup, such as cleaning and policing standards, disposing of chemicals, cleaning vault, flush and chemical recirculating toilets, tables, signs, and garbage cans, and a host of other essential topics.

Cleaning Recreation Sites was developed by the USDA Forest Service in 1980 for the guidance of its employees, contractors and its cooperating Federal and State agencies. The National Society for Park Resources, a professional branch of

the National Recreation and Park Association, cooperated with the Forest Service in reprinting, promoting and distributing the publication through NRPA headquarters in Alexandria, VA. Copies of *Cleaning Recreation Sites* may be obtained by contacting the National Recreation and Park Association, 3101 Park Center Drive, Alexandria, VA 22302.



Better Turf Management . . .

(continued from p. 25)

In May of 1981, we began to investigate the possibilities of using native Bermuda sod for athletic turf. We learned that the city's pollution control plant had been dumping approximately one million gallons of liquid sludge per day on approximately twenty acres of orange grove. The areas where the sludge had been dumped were so prolific with native Bermuda sod that weeds had been crowded out and a veritable carpet of Bermuda sod had been formed.

After reviewing several alternatives which were not financially feasible, we began to take native Bermuda sod and place it in sparse areas at one of our ball fields. Two months later our experiment proved successful.

Since June of 1981, we have laid over 90,000 square feet of sod at various athletic fields. This sod program does not create additional expenses to the operating budget, and we are providing excellent field conditions. The sod has become well established in many areas of our athletic fields.

This Bermuda sod (genus—*Cynodon*, species—*Dactylon*) is originally from Africa and has flourished very well in Florida. Apparently, it is resistant to mole crickets, sod webworms, funguses, and diseases. Another pleasing aspect of this grass is that it seeds throughout the months of May through September. Each stalk has hundreds of seeds so the propagation characteristic of this grass is ideal.

The basic difference between native Bermuda and hybrid Bermudas such as Tifway, is that native Bermuda stalks considerably more and also "browns out" earlier in the winter. The blades of the native Bermuda are also somewhat wider and longer, and the color is of a slightly lighter shade than many of the Bermudas such as Tifway.

Maintaining this grass is ideal. Between May and October, the reel mower is set at 1¼ inches. During the dormant months, we set the reels at 1½ inches. We fertilize the grass twice per year with an organic 6-6-6 and trace element fertilizer. We usually fertilize in the last week of February and the middle of September. Since the grass browns out earlier than most Bermuda grasses, we overseed with winter rye for the winter months to accommodate play.

We apply mole cricket bait only on those fields which have a very high concentration of these pests.

As part of the maintenance process, we also have sludge trucks from the pollution control plant dump liquid sludge on our ball fields. The sludge trucks apply one application of liquid sludge on the fields on a Monday-Wednesday-Friday basis for approximately one month. It is also important to note that the pH of the



sludge is 5.7. This means that the sludge has a slightly low pH rating for most of the Bahia and St. Augustine grasses. However, we have found that a pH of 5.7 is appropriate for the native Bermuda.

From the time you begin to dump sludge in an area to the time you can begin cutting sod is approximately two years. Since the sod experiments have proven successful, we have established a sludge application schedule for all of our athletic fields. The results from the sludging of the fields have been outstanding.

After the truck has finished dumping the sludge, we begin rolling with a heavy roller to eliminate any ruts or high spots on the fields created by the sludge trucks.

Future plans for this program are to continue with the same maintenance outline. We are so encouraged with the grass and what it has done and what it will enable us to do in our turf maintenance, that we are looking for additional dumping areas where we can continue dumping the sludge and form a sod farm. We anticipate laying another 140,000 square feet of sod this year. If conditions to support our program and turf conditions continue to improve, we plan to totally convert all of our athletic fields to native Bermuda sod by September of 1983.

The costs of turf management are continually escalating. Most cities are facing great difficulties in providing

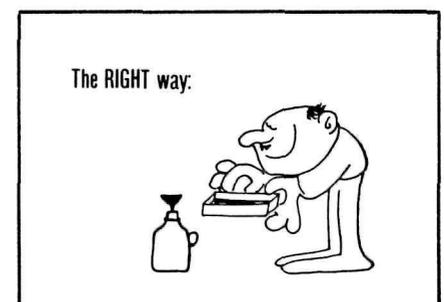
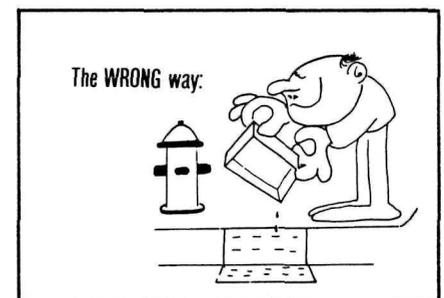
adequate turf maintenance when budgets are continually being reduced. Such was the challenge which faced the City of Dunedin during the spring of 1981. Since adopting our new sod program, we have been able to greatly increase the aesthetic appearance of many athletic fields and park areas without incorporating the high cost of sod. This grass has tremendous maintenance appeal and could be of great service to other cities in Florida.

Used Motor Oil

Disposal of used oil (in your backyard, down storm sewers, in the alley, in the garbage, etc.) is a messy proposition. It doesn't have to be that way.

The District of Columbia's Energy Office tells us how we can contribute to an energy conservation program by having this oil recycled.

1. Drain your oil into a suitable container.
2. Transfer into a clean, unbreakable container with a tight-fitting screw cap. For example: a one-gallon plastic milk jug or can. (CAUTION: Do not mix the recovered oil with other liquids.)



3. Bring the oil to your local participating service station where it will be picked up by a used oil collector and recycled at no cost to you. For further information call the DC Energy Hotline on 724-2100.

Picnic Table Lifter

In the process of rehabilitating recreation areas it is often necessary to relocate, re-adjust, and level the concrete picnic tables that exist in the campground. In order to simplify the task of lifting the approximately 1700-pound tables, Maintenance Worker Billy Givins with the U.S. Army Corps of Engineers at Lake Greeson (AR), designed the following



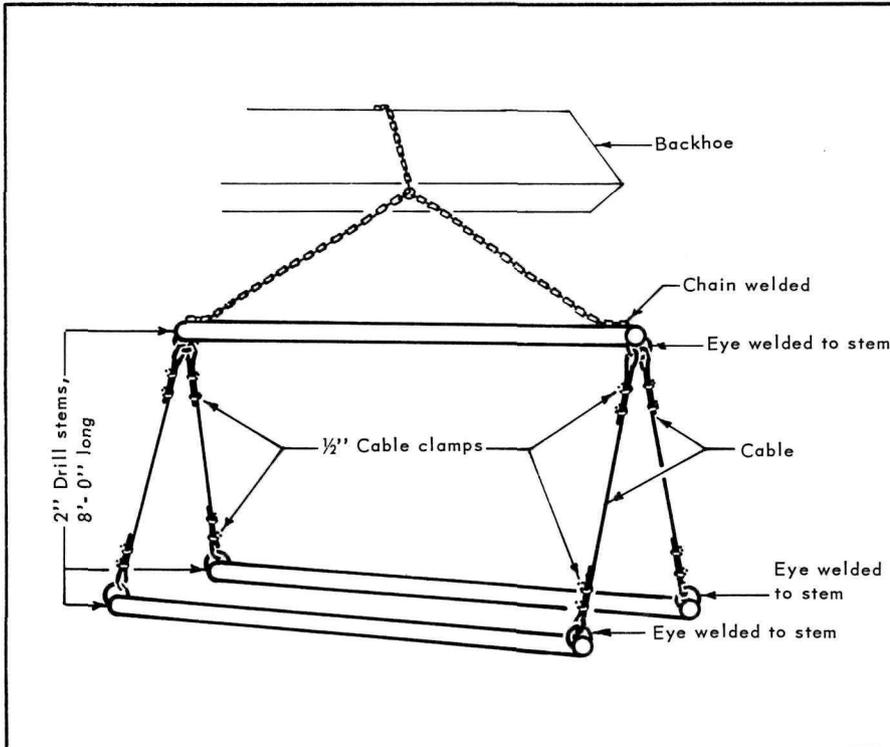
device that can be affixed to a backhoe bucket and lifts the tables with the aid of only one backhoe operator and a person on the ground.

Materials needed for the device are: (a) 3 lengths of 2" drill stem 8' long, (b) 4 lengths of 1/2" cable 4' 6" long, (c) 16-1/2" cable clamps, (d) 2 chain hooks, (e) chain to fasten rig to backhoe and safety chains to loop over drill stems and around bench supports.

The cables are looped through welded eyes on the drill stem to make a triangular-like configuration. The peak of the triangle is affixed to the backhoe by the 8' chain that is welded to each end of the top piece of drill stem.

The lower section of drill stem fits under the supports of the table top with safety chains looped over the drill stem and around the bench supports. After the device is attached to the table, it is a simple matter to lift the table and place it in position.

This system saves time in moving tables in that it takes only five minutes to hook up. Previous makeshift methods took about 45 minutes to rig up. The device also does no damage to the picnic tables and provides an element of safety that is often non-existent in makeshift methods. In addition, the device saves man hours because it only takes an operator and one person on the ground to operate instead of a group of workers to move tables.



Hand Tool Safety Strap

A hand tool that is used in a thrusting motion such as a sharp sickle can easily slip from the user's grasp, causing severe injury to the user, a co-worker, or a bystander. Accidents such as these sometimes occur when the worker's hands are wet (often from perspiration) or gloved (as on cold days).

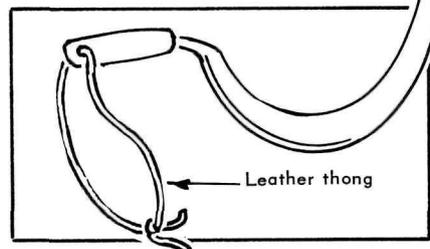
Park Technician Michael T. Kilareski of Hopewell Village NHS (PA) suggests equipping tools with a safety strap to keep them in the user's hand.

A 1/4" hole should be bored through the tool handle. Insert a leather thong or cord 20-25" long through the hole and tie at the ends forming a circle. The user inserts his or her hand through the circle, twists the tool to take up the slack, then

grasps the handle. Thus, if the worker loses his or her grasp on the handle, it will not fly about dangerously.

This safety strap reduces injuries to workers and bystanders and enables the tool to be stored hanging by the strap loop which will minimize rusting of seasonally-used items and reduce cleaning time.

Kalareski was presented a \$50 National Park Service incentive award for his suggestion.



Visual Records

Supervisory Park Ranger Edward E. Lacy of Natchez Trace Parkway (MS-TN-AL) suggests taking close-up photographs of all interpretive exhibit panels and maintaining a record of these. This visual record can be used by field personnel in identifying any panels should they be stolen, and it will help in making a case incident report of the theft more accurate and timely. The visual record would also assist in restoration of the panels.

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



Roadside Cleanup

Collecting trash along the Natchez Trace Parkway (MS-TN-AL) was time-consuming, costly, and often dangerous. The pickup vehicle driver would pull off to the right-hand side of the road, leave the motor idling while he or she stepped out of the vehicle into the traffic lane, and walked around the vehicle to pick up the litter on the right side of the road. Or, the driver often had to cross the road when the trash was on the left side of the road.

Because of the efforts of Facility Manager Otis E. Robertson, right-hand drive kits were installed on several of the cleanup vehicles in the Natchez Trace Parkway for approximately \$500 per vehicle. These kits permit the operator to have complete control of the vehicle while sitting on the right side of the vehicle with the original steering wheel and other controls remaining intact. The kits can be removed and fitted on other vehicles, when necessary, within a few hours.

Since Robertson's suggestion was implemented, the cleanup vehicle driver works only on the right side of the road going out and coming back, and has a much better view of the work area resulting in improved efficiency. The driver never alights from the vehicle to cross the road in fast traffic which is a significant safety improvement. For trash pick-up on the right hand side of the road, the driver is able to pick up fifty percent of the trash without getting out of the vehicle, thus reducing motor idling and precious fuel waste.

Robertson estimates 1,000 hours of employee time (approximately \$7,500) and approximately 1,000 gallons of gas are saved each year.

A \$75 National Park Service incentive award was presented to Robertson for his suggestion.

Removable Anvil Mount

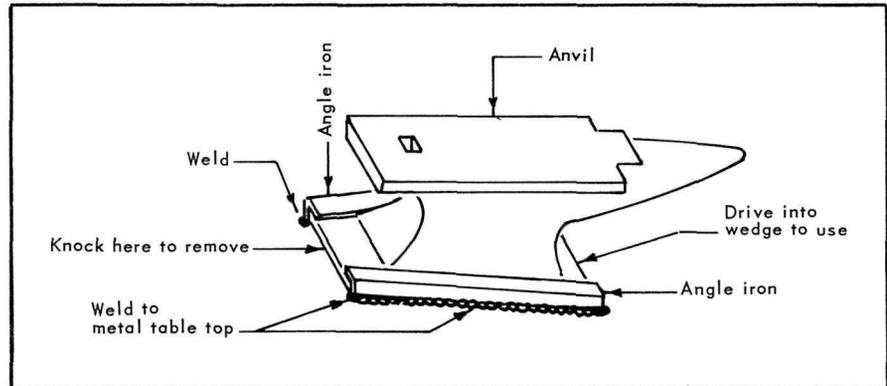
Dale Miley, maintenance worker at George Rogers Clark NHP (IN) has devised this removable anvil mount.

Form a dovetail-like mount welded to the table top to hold the anvil tight. Form-fit a piece of angle iron to the curved base at each of the long side of the anvil. Weld the angle iron strips to a corner area of the table top. The anvil will now fit inside these tracts so it can be used without moving. When it is necessary to remove the anvil from the table, the anvil can be

driven out of this dovetailed holding base.

Miley's device provides a firm and secure mounting for a 100-lb anvil so that the anvil cannot fall from the table and cause serious foot injury or floor damage. The mount saves space in the Maintenance Shop that a separate anvil mount would occupy, and it also makes it possible to use the full top area of the metal table when the anvil would be in the way.

A \$25 National Park Service incentive award was presented to Miley for his suggestion.

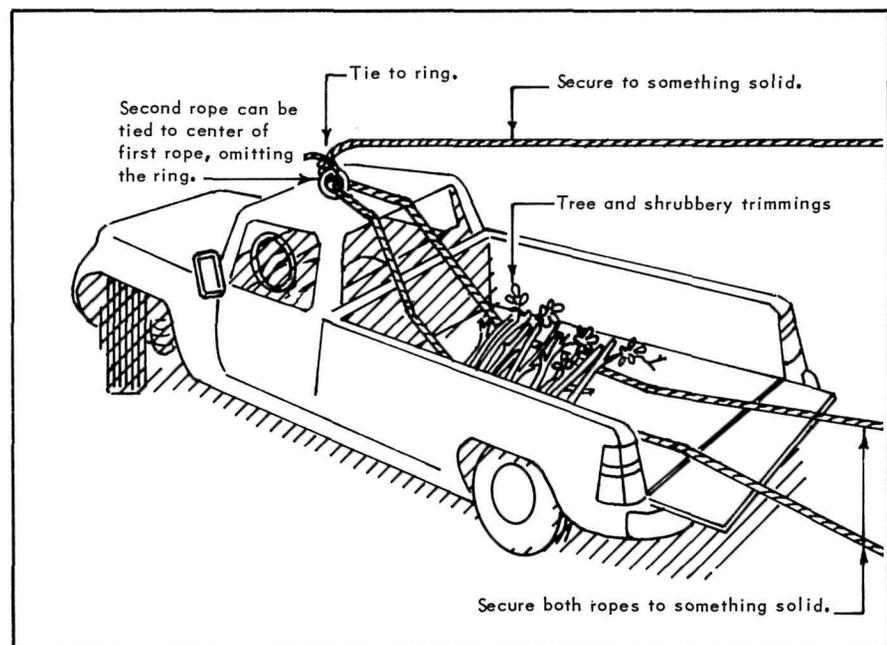


Unloading Trimmings (revisited)

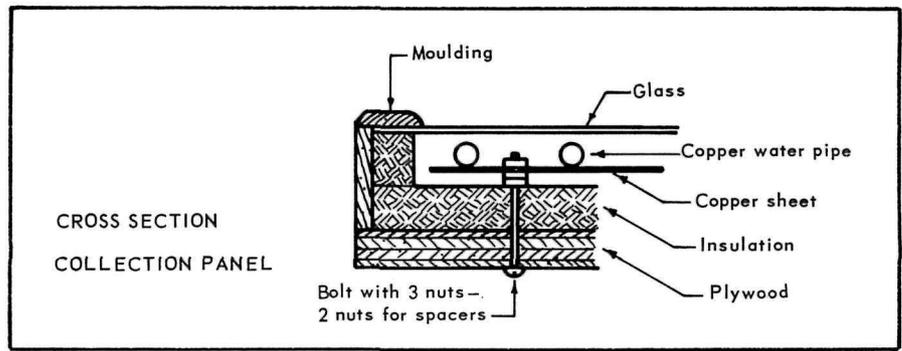
In the Mar/Apr 1981 issue of *Grist*, Vol. 25, No. 2, Iris R. Coumes at the Chalmette unit of Jean Lafitte NHP (LA) shared a quick method of unloading tree and shrubbery trimmings from a truckbed.

Richard J. Peppin, I.E., deputy safety manager with the National

Park Service points out to *Grist* subscribers and readers that a safer method would be to attach *both* ropes to something solid such as a tree. This will ensure a lower stressed condition on the rope and a generally safer procedure.



Energy Saving



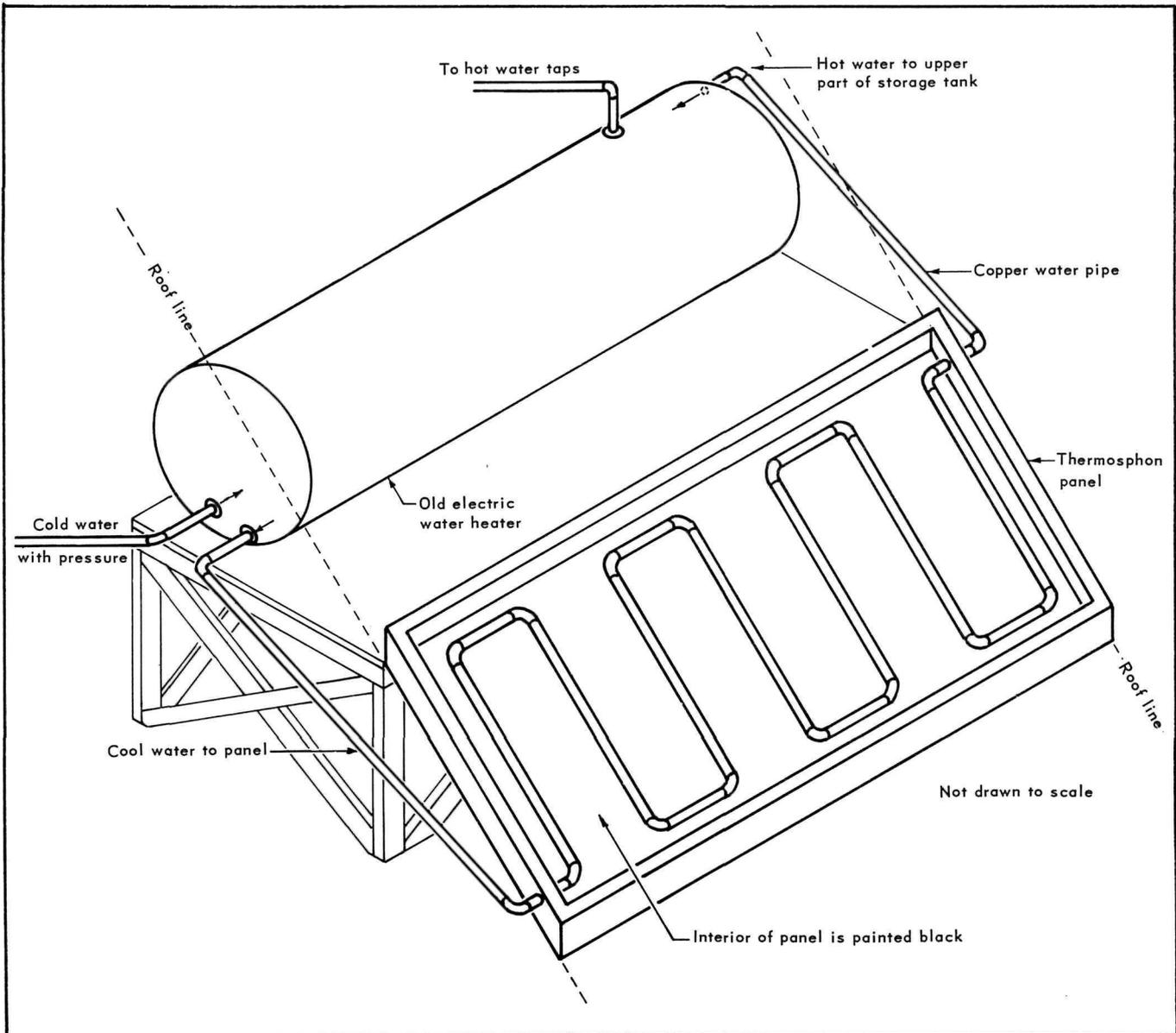
Solar Hot Water Heater

This solar hot water heater was built and is presently in use at Fort Pulaski National Monument (GA). Park Technicians Mark Padgett and Grady C. Webb designed this heater with the advice of Don Essix, a leading solar technician. Actual construction was

done mostly by Thomas C. Knight and the Maintenance Division staff.

The solar water heater takes advantage of two designs working together, a storage tank collector on top, and a thermosyphon panel on the bottom which can be folded closed to insulate the system at night or on a cloudy day.

The storage collector has three basic parts: a water tank (an old electric water heater tank), the cover glass (kaolwal—specially designed for use in solar collectors), and an insulated box. The heat of the sunlight is trapped inside the box, reflected off the foil baked insulation, and absorbed by the black tank. →



The thermosyphon panel consists of an insulated box, a cover glass, and a series of copper tubing which the water runs through on a sheet of copper, both painted black. A pipe from the bottom of the tank leads to the bottom of the panel, and a pipe from the top of the panel runs to the top of the tank. When the water in the panel is heated by the sun, it rises and flows into the top of the tank. Simultaneously, the cool water in the bottom of the storage tank flows into the bottom of the panel. Pressure is kept on the system by an incoming water line. The hottest water is drawn off the top of the tank for use in the restrooms.

The total cost for materials was about \$368. About 112 manhours of work were put into it from the drawing board to final product. This system has the potential of producing over 10,000 kw hrs/yr at this latitude. This works out to an estimated savings of around \$300 per year compared to an electric water heater at the present rate for electricity.

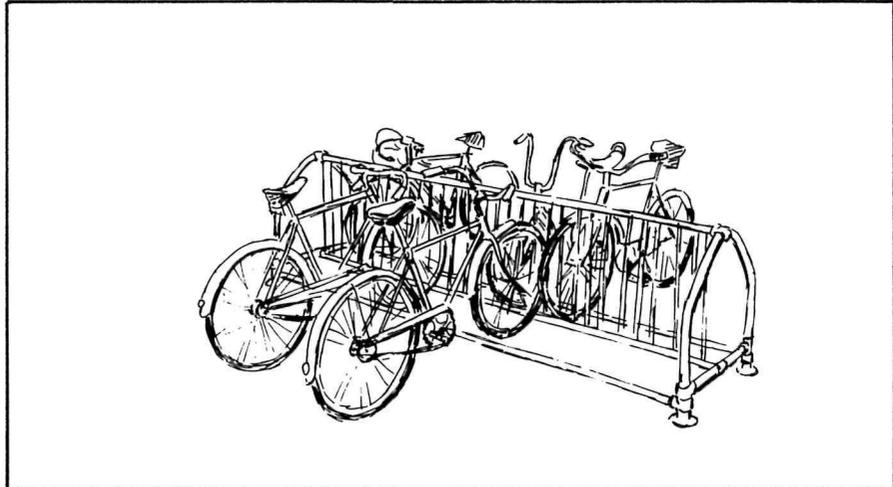
Bicycle Racks

Jan Gauthier, museum aid at Voyageurs NP (MN) suggested installing a bicycle rack outside the park headquarters office for employees and visitors.

The rack provides a place to park and secure the bicycles, keeping them

off the lawn and out of the way of pedestrians, and helps prevent the theft of the bicycles. Also, the rack provides an incentive for park employees to ride bicycles to work rather than use costly fuel for automobile transportation.

Gauthier was presented a National Park Service certificate for her suggestion.



Mopeds—A Viable Alternative to Automobiles?

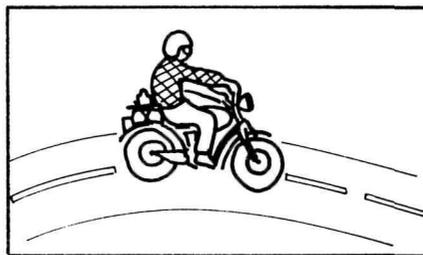
Superintendent James W. Diamond of Roger Williams Park in Providence, Rhode Island, shares his experiences of using a moped for transportation in connection with his duties as superintendent of parks.

Diamond states that from August 1978 through February 1981, he was responsible for forty-three parks scattered throughout a city of seventeen square miles. In addition to trips from his office on the outskirts of the city to the City Hall in the central business district, Diamond visited each park weekly. Except in the very coldest portion of the winter when the moped was unable to climb the hills in Roger Williams Park near his office from a cold start, he used the moped almost exclusively.

The Honda Express at \$325.00, was substantially cheaper than most mopeds at that time. However, when the cost of a helmet, saddle baskets, repair of damage done by vandals, insurance, license plates and annual inspections were considered, the cost per mile of operations was remark-

ably close to the cost per mile of operating his family Volkswagen Rabbit. The total cost, of course, was much less.

The public relations impact would have to be described as mixed. Some people regarded Diamond's use of the moped favorably in view of its economy and its lack of ostentation. Others, particularly senior citizens,



regarded it as dangerous and undignified. In political circles, it was regarded as simply odd, since the custom was to attempt to obtain the largest and least economical city car possible. Eventually, after the Friends of Roger Williams Park informally approached the Board of Park Commissioners on the matter, Diamond was assigned a two-door 1981 Volkswagen diesel Rabbit which is now giving him over fifty miles a gallon in city traffic. This is far more comfor-

table and convenient.

In regard to the safety aspect, there is an extensive analysis of various types of mopeds in a recent issue of Consumer Union's *Consumer Report*, which indicates in general that mopeds are considerably more dangerous than automobiles, but less dangerous per passenger mile than bicycles. This publication also evaluates the various mopeds available and recommends the more powerful and expensive Honda Passport at approximately \$800.00, which requires a motorcycle license to operate.

Diamond feels that it is to park staff members' advantage, particularly in the case of security guards, senior supervisors and foremen, to use mopeds and bicycles whenever possible instead of automobiles and trucks. On a moped it is easier to see your parks better than you can from inside a car.

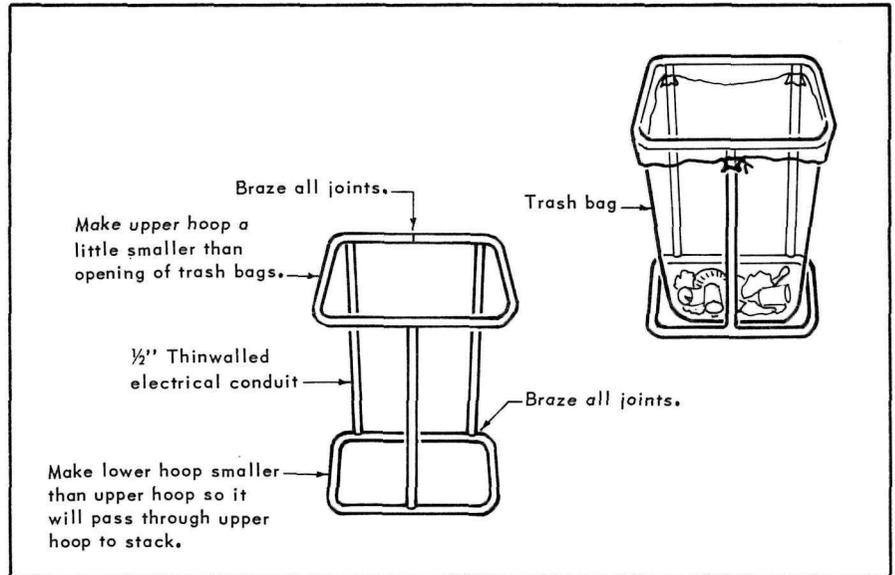
In sum, Diamond feels there is a use for mopeds, particularly in season, but when the additional capital funds are available, small diesel pickup trucks and sub-compact diesel automobiles are both more comfortable and more practical for most purposes—with mopeds primarily to be considered as an auxiliary vehicle.

Temporary Trash Bag Holders

When park and recreation areas hold special events such as outdoor festivals, group picnics, and the like, the trash containers fill up quickly. Excess trash is usually stacked next to the containers and becomes scattered throughout the area. This creates an unsightly, unsanitary condition which leads to increased maintenance cost in policing the grounds.

Facility Manager Robert H. Gerecke of Chamizal National Memorial (TX) developed this temporary trash bag holder which is not only light in weight but also sanitary. The holder is made from $\frac{1}{2}$ " thinwall electrical conduit to the dimensions of a standard 32-gallon GI can. It can be constructed by anyone familiar with bending and brazing this conduit.

These trash bag holders are easy to handle and store, and they can be set



up quickly at strategic places to hold the bulky, light-weight trash usually found at picnics. Approximate cost per holder is \$8.75 (\$2.25 for material and \$6.50 for labor) as compared to

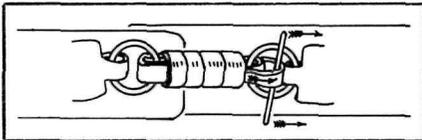
\$35 for a standard trash can of equal size.

Gerecke received a \$70 National Park Service incentive award for his suggestion.

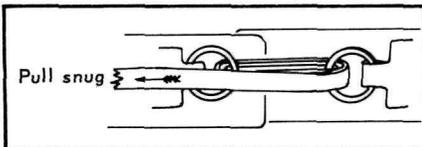
Adjusting Hatbands

Robert C. Zink, District Ranger at Gateway National Recreation Area (NY-NJ) sent in his idea to make a hatband fit correctly.

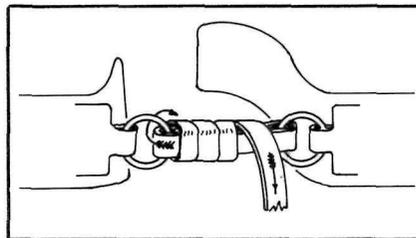
Zink suggests finding the better end of the hatband, pulling it out and releasing the knot. Then place the band



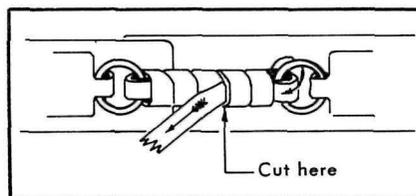
around the hat and make several loops through the two rings, pulling the end until the band is snug.



Next you hold the loops tight and remove the hatband from the hat. Holding the band leather clear, wrap the strap around the loop until the space is filled with wrappings.



Loosen the last two loops and slip the end under the loops and draw it tight. Work the wrappings smooth



and tight, drawing the excess under the loops. Cut off the free end neatly at the loop junctions and make it disappear between the loops.

Zinks says an alternate method is to run the strap through the loops on the back side rather than the front. The free end can be run under all loops rather than just two.

Zink's suggestion eliminates the threads which will show when using the holes in the hatband. It also solves the problem of how to tie the knot when the hatband arrives untied from the manufacturer.