

The Medium Has a Message

Money and imagination go hand in hand for this new development in the parks field. An investment of a few thousand dollars, applied communication theory and voilà, any park can transform a visitor's car into a mobile interpretative laboratory.

What we are talking about is low-power AM transmitting devices which beam messages to car radios. The idea of using radio to communicate with car-bound vacationers was first tried at Yellowstone National Park, Wyoming, about 4 years ago. Since that time, several other states have experimented with the concept.

At Yellowstone, the park has decided to develop a full-scale mobile communications system to interpret park areas to motorists and to provide them with warnings of traffic conditions and park rules.

Stanley G. Canter, assistant chief park naturalist at Yellowstone, explains how they got the project started out there. "We had kicked around the idea of using radio transmissions for several years. Then in 1968 a local electronics firm gave us 6 transmitters built to our specifications. These, coupled to message repeaters, formed the basis for our experiments during the next two years.

"Field tests got underway when we installed a string of transmitters along a 5-mile stretch of one-way road. This 'auto nature trail' interpreted features along the road just as leaflets and signs are used along more traditional nature trails."

The transmitters being used in Yellowstone are capable of broadcasting on any frequency between 550 and 1605 kHz at powers of 100 mw.

Not only is this new aspect of radio communications opening interpretation of natural areas to motorists, but the idea of being able to communicate with hundreds of motorists without having them stop their cars is a patrolman's blessing. Recently in California, for example, a segment of Interstate 5 was rerouted due to earthquake damage to the road. The California Department of Public Works, Division of Highways, used the Info Systems transmitters at the scene of the detour advising motorists of the length of the delay.

Ray O. Perkins, Jr., assistant highway engineer for the state, comments on the system. "Since roadside radio was a new experience for the motorists, we decided to conduct a public opinion survey. From approximately 1,000

cards handed out we got the following results: Seventy-six percent of the respondents said they attempted to receive the radio information (signs had directed motorists to tune to 810 kHz for traffic information). Seventy-two percent of those attempting to get the radio information indicated they had no difficulty in receiving it. The remaining percentage of motorists polled either did not attempt to tune in, did not have radios or did not receive adequate reception."

However, Perkins says that from the results of the survey, people wish to receive information for unusual traffic conditions via roadside radio. Once exposed to radio as a means of receiving traffic information, the pollees prefer it.

Similarly, back at Yellowstone, Superin-

tendent Jack N. Anderson reports that the use of the radio system there has improved the traffic controlling efficiency of the park rangers. "On a busy day, we can move cars through our entrances nearly twice as fast as we could before these transmitters were in operation," he said.

George B. Hartzog, Jr., director of the National Park Service, has said that the broadcasts will be most helpful in implementing the Service's increased emphasis on safety. At Yellowstone, for instance, motorists will be warned not to approach bears, and reminded that it is unlawful to attempt to feed them.

As an example of the flexibility of the system, Yellowstone Park is creating a radio zone along the route through the park. The messages from one zone to another will be changed, but the radio in the person's car remains tuned to the same frequency.

A complete transmission system would likely consist of the following units:

- * Transmitter – 100 mw power with 300 - 3,000 Hz frequency range for voice message units and an extended frequency range for music reproduction.

- * Power supply – the transmitter and power supply are sold together, but can be physically separated for a distance of 30 feet so that the transmitter can be mounted on a pole or other high place. Both the power supply and transmitter are all-weather protected and insulated.

- * Message unit repeater – this device, similar in certain respects to cassette or 8-track cartridge units, consists of a player and tapes wound so they repeat when the message is finished.

Prices for system components are:

- AM transmitter w/power supply, antenna, mounting brackets and connecting cables – \$795.

- Tape-repeater – \$395; tape recorder/repeater – \$495.

- Other accessories include photocell units to automatically turn on and off the transmitter, battery units, timers, differing repeaters and message units and microphone units.

In addition to the equipment, which is made



A warning or interpretative message is beamed to visitor's car radio.

(Continued on page 62)

GRIST

a bimonthly publication of the nonprofit, educational park practice program cooperatively conducted by the National Park Service, U.S.D.I., the National Conference on State Parks, and the National Recreation and Park Association.

Material for Publication should be sent ONLY to:

James A. Burnett, Editor, or
Charles Redmond, Associate Editor
Division of State and Private Assistance
National Park Service, Washington, D.C. 20240

The publishers of GRIST do not guarantee that the ideas or procedures presented herein are suitable for all applications. GRIST serves only as a medium for the dissemination of these ideas.

Advertising is not accepted; however, information is given on those products or services which our contributors believe can provide more efficient and economical park and recreation area operation. The mention of a product, service or procedure does not constitute official endorsement, nor does it imply that comparable products or methods are less suitable.

Subscription Rates

NEW subscr. to Program (all vols. DESIGN, GUIDELINE, TRENDS, 2 prev. yrly. vols. of GRIST; plus all publications as issued; thru 1st calendar yr.), 1st yr. only: \$50.
RENEWAL (all publications as issued thru calendar yr.) . . . \$15.
GRIST only renewal \$5.
GRIST, additional quantities of each issue to new or renewal subscriptions, sent to same address, ea. annual vol. (no binder) \$1.
Same, but with new hard plastic binders, 1 set of four . . . \$10.
(separately, \$3, each)

Subscription applications and fees, and membership inquiries should be sent ONLY to: Executive Secretary, National Conference on State Parks, 1601 North Kent Street, Arlington, Virginia 22209.

Printed by District Service Printers, Inc., Washington, D.C.
Not printed at Government expense.

NOTE: New GRIST binders are available from the National Conference on State Parks, 1601 North Kent Street, Arlington, Virginia 22209 for \$3 each.

The Medium Has a Message

(From page 61)

by Info Systems, the company also offers 4 options for the messages themselves.

* Option 1 — the company secures the information, writes the script, produces and records the original message.

* Option 2 — the company writes the script from information furnished them and produces and records the message.

* Option 3 — script is furnished, company produces and records only.

* Option 4 — original message is furnished already recorded, company merely duplicates tapes.

Prices for these services range from \$5 for a 5 minute Option 4 duplicate tape to \$120 for a 15-30 minute Option 1 production.

More information on the Info Systems transmitters can be obtained by contacting Terry Fox at the company, PO Box 1252, Bozeman, Montana 59715 [406-587-0451].

International Telephone and Telegraph Corp., Industrial Products Division, also manufactured the low-power AM transmitters, some of which are still in operation at Yosemite National Park, California. However, spokesmen for ITT have stated that the company is now out of the business of manufacturing these items except in the event of a large-scale contract.

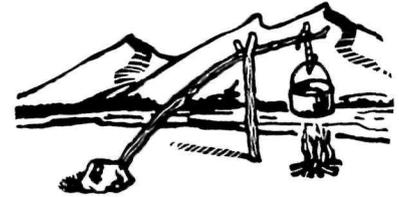
CAMPING FOOD CATALOG

Chuck Wagon Foods of Massachusetts has a new camping meal catalog which lists 15 separate and complete meals. The meals are intended for back-packers and others who must conserve weight and space. The foods require no refrigeration and are guaranteed fresh for 12 months. The meal packs are portion-packed in waterproof plastic containers, which the manufacturer states are completely disposable — you burn them.

The company estimates that for 2 campers per day, the meals average \$1.42; for 6 campers, the meals average \$.82 apiece. Each meal pack measures 9x6x2" and weighs less than 6 oz. per meal per camper. The meals come ready for any number of campers from 2 to 6.

The company also offers freeze-dried meats, meat salads, fruits and vegetables. Up to 98% of the liquid content of the food is removed in a low temperature vacuum process. The freeze-dried items are available only in cans.

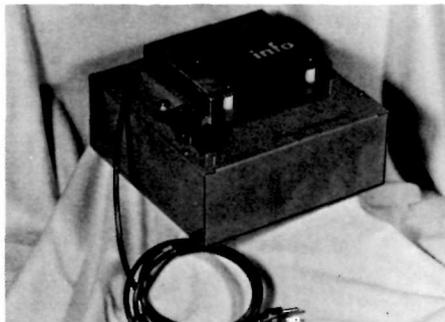
In addition to high calorie candy, fruit tear sheets and an enormous listing of staples and processed foods, the company sells a con-



centrated food kit designed for emergency use. Each food item in the kit was selected for its compactness, flavor and high nutritive value (guaranteed caloric content of the kit is 900 calories). Three of the items in the kit were especially designed for military use: the non-melting tropical chocolate bar; the starch jelly bar; and the compressed cereal bar.

The kit comes in a scrim pouch (a laminated pouch material consisting of polyethylene, aluminum foil and cloth). The pouch will preserve the food for 12 months and is waterproof.

Each kit weighs 8 ounces and sells for \$2.00. A copy of the camping food catalog and further information may be obtained from Chuck Wagon Foods, Micro Drive, Woburn, Mass. 01801 [617-729-7450].



This audio-message repeater connects to the transmitter via cable and functions as an 8-track stereo cartridge.

Information about the ITT devices, though, can be obtained by contacting ITT at 15191 Bledsoe Street, San Fernando, California [213-362-1511].

Other sources of information about AM lower-power transmitting can be obtained from the following agencies which are considering the use of or are already using similar systems: The Montana Highway Department, which is using interpretative radio transmitters at rest stops on its Interstate freeways; The Los Angeles Highway Division, Freeway Operations, which is intending on establishing a 16-mile radio information zone on a section of the San Diego Freeway; Yellowstone National Park, where the system is about to expand to include the entirety of the park; Yosemite National Park, which was a pioneer developer of the system; and the California Department of Public Works, Division of Highways, which is using the transmitters to direct rerouting of traffic through earthquake-struck freeway sections in the state.



The transmitter is equipped with a whip antenna and mounted high to increase its transmission range.



Mounted indoors or alongside transmitter outside, this unit furnishes the power.

ON BEING CHARGED

The US Forest Service Equipment Development Center's Equip Tips offers the following suggestions on handling blasting caps in dry weather.

Because of the possibility of accidental discharge of the blasting cap by static electricity generated between the body of a person and his clothing, it is recommended that only garments of wool or cotton be worn.

If at all possible, do not wear a mixture of garments, some wool and some cotton. Do not wear any garment that is made from synthetic fabric. (The reasoning behind this is that the dry weight water content of a fabric correlates inversely with its static potential. Wool is highest, and polyester and acrylic fabrics lowest.)

Never remove a garment such as a jacket or sweater while working close to electric caps, especially if one of the garments is wool and it is in contact with a synthetic fabric.

Removing a nylon jacket from contact with a wool shirt can generate enough static electricity to detonate an electric blasting cap.

If you remove a garment, discharge the static charge by holding a water pipe, or by pressing both hands against damp earth. While this will not completely discharge the clothing, it will reduce the charge considerably.

Treat clothing with a fabric softener, which will increase moisture retention and lessen the tendency to build static charges.

Accidental discharge of electro-static devices is not uncommon. Typically, 3 to 15 millijoules of electric energy are enough to insure a 100% reliable detonation of a blasting cap. Arctic research done by the US and Canadian Navies has shown that removal of a nylon parka after exercising at -30°F can develop a potential static charge of over 7,000vdc, or nearly 4 millijoules of energy - enough to set off a blasting cap!

REDUCE SANDBLAST GUN WEAR

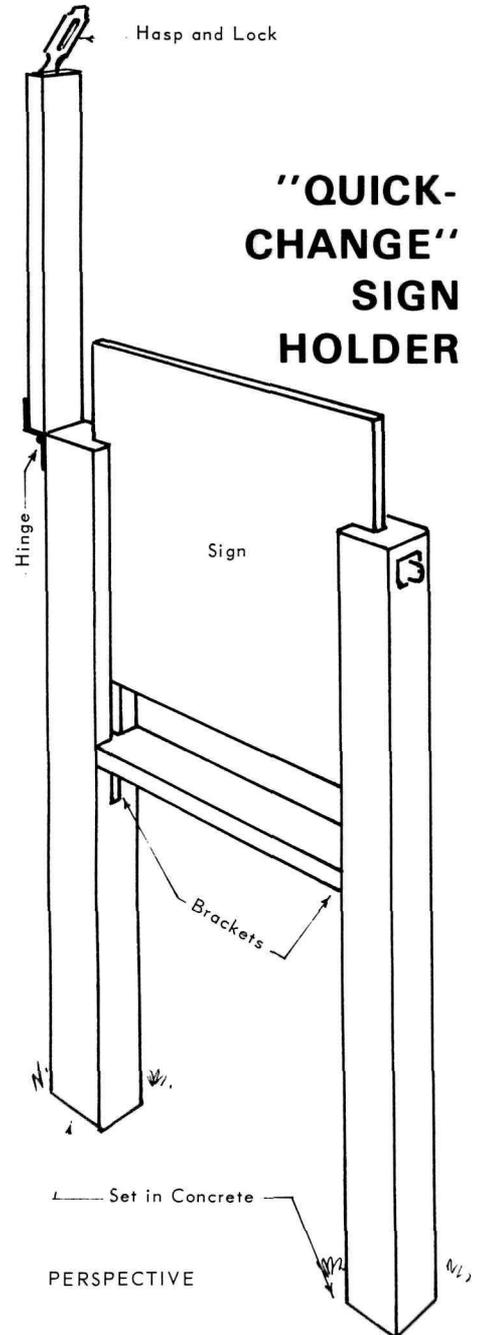
A fabricated sandblast gun developed by the Bureau of Reclamation, although well suited to its intended job, does have the problem of fast deterioration of pipe wyes, nozzles, and bushings because of the abrasive action within the gun caused by sand and air. Frequent replacement of these fittings was a constant problem.

At times when using this gun the 1/8" pipe shown in the drawing is out of line, and when this happens the abrasive action begins, soon wearing out the parts. Patricio V. Padilla of the Power Field Branch, Rio Grande Project, corrected the difficulty. He designed a tool with which to align the 1/8" pipe so that there is a direct feed of sand and air into the barrel of the nozzle.

As shown in the drawing, a 1 1/2" x 3/4" pipe bushing threaded into the opposite end of a 3/4" to 3/8" bushing will permit the threading of a 3/8" piece of pipe so that it will extend approximately 1 1/8". It is necessary to ream the 3/8" pipe so that it will receive the 1/8" inside the gun. The device must be removed after the alignment is completed.

Abrasive action has been substantially decreased and cost of replacing pipe and fittings has been reduced approximately 75 percent.

Further information, if needed, may be obtained from Project Superintendent, Bureau of Reclamation, Rio Grande Project, El Paso, Texas 79901.

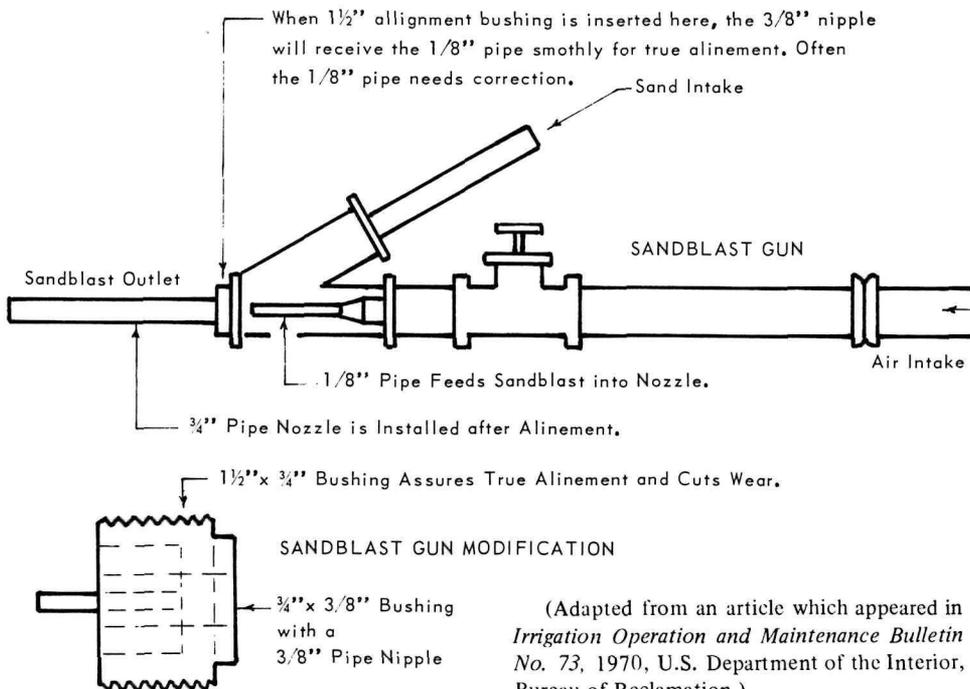


Here's an idea for a vandal-proof sign holder with multiple use capabilities. The sign holder is attractive, permanent and provides easy access for changing signs.

To construct the holder, groove 2-4X4" posts on one side to a width and depth of 1/2" to 3/4", depending on the thickness of the signs you will be using. A 2X4" piece of lumber is then bracketed to the posts using steel "L" brackets. The top of the holder is another 2X4" which is attached to one side with flat door hinges. The opposite end of the 2X4" is fitted with a hasp.

The holder is then placed in holes in the ground and the appropriate sign placed inside. Exact dimensions for the length of the groove and 2X4"s, and for the height of the 4X4"s, will depend on the size of the sign being used and the desired height above ground.

This design was submitted by Alan D. Schultz, Chadron State Park, Chadron, Nebraska



(Adapted from an article which appeared in *Irrigation Operation and Maintenance Bulletin No. 73*, 1970, U.S. Department of the Interior, Bureau of Reclamation.)

SPLINTER-FREE BENCH SLATS

It may have been a long time since you sat on a park bench and stood up abruptly with a splinter in your derriere. It may have been just recently, though, that you wished your wood-slat benches would wear better. After scrapping and refinishing benches, replacing splintered or worn slats and moaning over loss time spent keeping wood benches looking new perhaps you're ready for an alternative.

Mind you, this new product won't blend with every environment or fit in at every park. However, for ease of maintenance and durability it might be impossible to beat the new plastic Perma-slats offered by North American Recreation Convertibles, Inc.

The slats are rigid steel reinforced polyvinyl

chloride (PVC) and are available in green and yellow. The supplier guarantees them not to oxidize, flake, pit, peel, corrode or mildew and will replace any which break for a period of three years after purchase.

The PVC material is heat and ultraviolet stabilized and lubricated, which means it will not fade or dry out and crack — a common complaint with earlier vinyls.

The slats are 1x2 1/8" by 4, 6 and 8'. Special sizes and colors can be ordered. Price of the slats is \$.39 a linear foot.

More information on the product, which can also be used for walks and railings, may be obtained from North American Recreation at PO Box 668, Westport Conn., 06880 [203-227-4370].

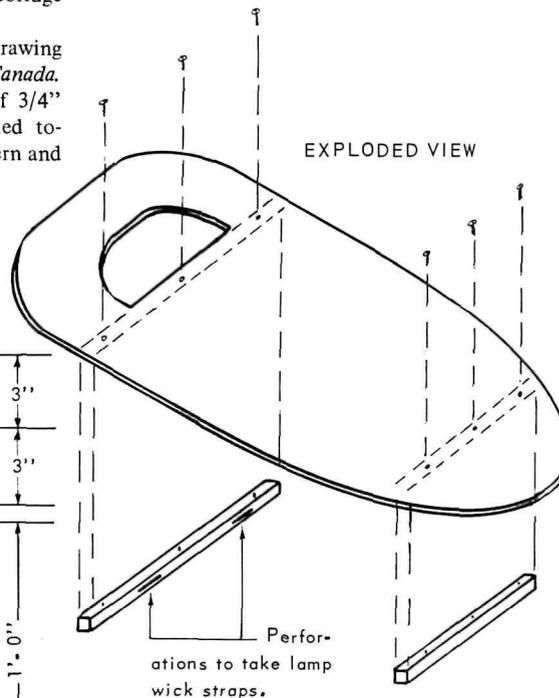
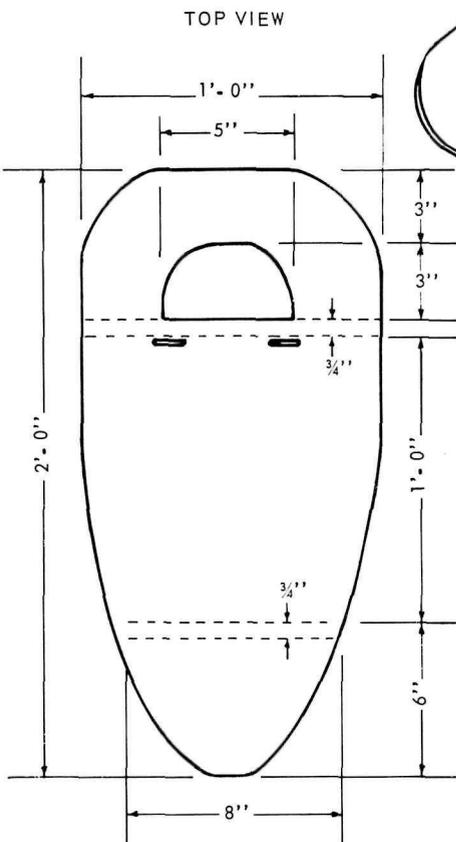
WALKING ON SNOW WITH PLYWOOD

These plywood snowshoes were designed by John E. Purchase, Muskoga Out-of-classroom Education Program, and the Boys of the Fabulous Night Panther Patrol, 1st Bracebridge Troop, Boy Scouts of Canada, Ontario.

The idea for the shoes came from a drawing out of a book entitled *The Indians of Canada*.

To make the snowshoes, 2 pieces of 3/4" firply measuring 12" by 24" are tacked together with small nails. The outline pattern and

Crossbars of 3/4" square fir lumber are fitted to each snowshoe bottom with glue and screws. Slots cut in the crossbars and in the



blanks with a drill and chisel permit the attachment of the harnesses. After the edges are smoothed with a plane and sandpaper, 2 coats of Urethane varnish are applied for waterproofing.

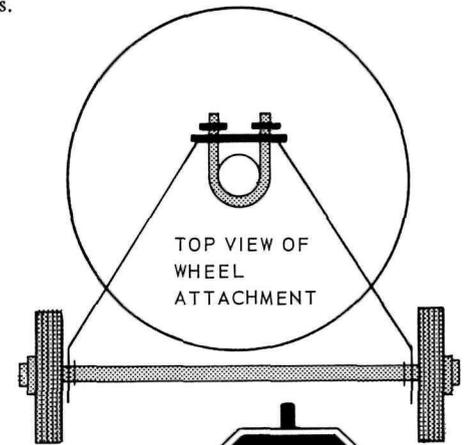
Harnesses may be of any type desired; however, the easiest to obtain are probably those using 1" lampwick. For an adult, almost 5' of wick is required for each snowshoe, somewhat less is needed for children.

The shoe illustrated is capable of properly supporting a 165 lb. man. Increasing the length of the snowshoe from 24" to 36" would be advisable for heavier persons or if carrying a backpack.

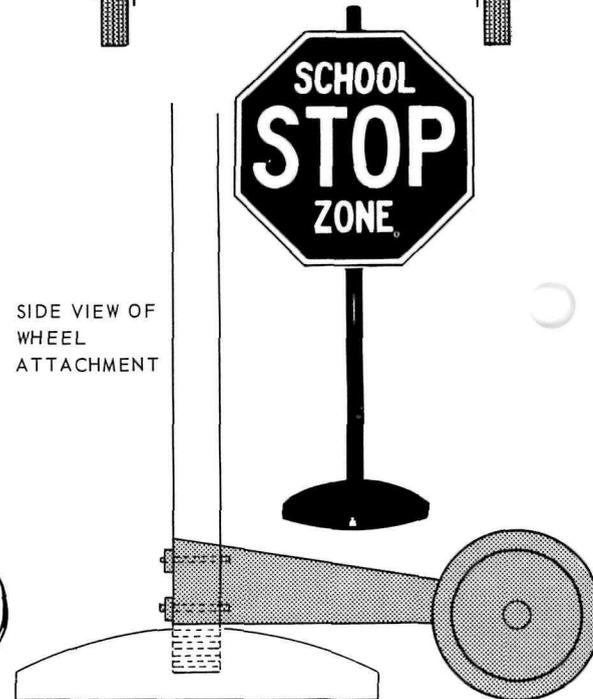
the toe hole are cut out using a sabre or jigsaw. While still joined, the blanks are smoothed with a plane.

PEDESTAL FOR SIGNS

If you have occasional use for a traffic sign but balk at the trouble of putting up and then taking down the sign, Grimco Inc., of St. Louis, Missouri, offers signs with portable wheeled bases.



SIDE VIEW OF WHEEL ATTACHMENT



The sign pedestals are made from deeply formed steel plate, 1 1/2" X 4' standard drilled to allow mounting of any sign. NPT threaded bases and posts screw securely together. The portable bases come with wheelbarrel-style wheels and can be assembled in a few minutes. The portable base with wheels less sign weighs 25 pounds and is moved in the same fashion as one moves a wheelbarrel.

The company offers over 300 standard worded signs in addition to bases. Special signs can be ordered.

Prices of the sign pedestals and portable bases are \$19.50 for 24" sign with standard base; \$18.50 for 18X24" sign with standard base; \$33.00 for wheel assembly and 18X24" sign; \$28.75 for wheel assembly without sign; and \$14.25 for standard basewithout wheel assembly or sign.

A catalog of signs and bases may be obtained from the company at 141 Hanley Industrial Court, St. Louis, Missouri (314) 654-0101.

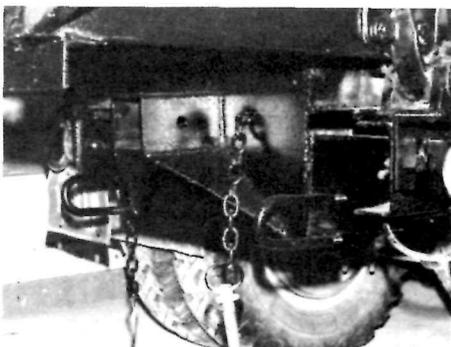
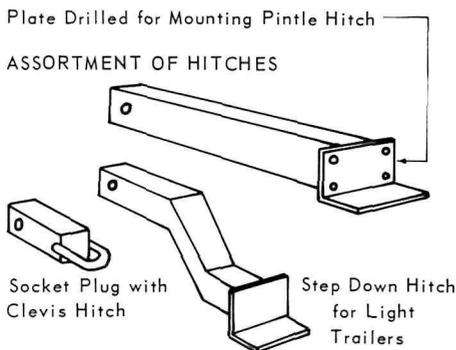
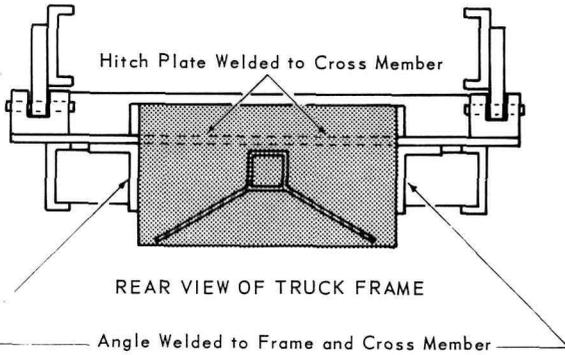
MULTI-PURPOSE VARIABLE HITCH

This do-it-yourself trailer hitch allows park vehicles to be used for more different types of hauling and therefore represents a saving in equipment and manpower by freeing regional or district equipment which might otherwise be

requested to perform specific jobs at local parks.

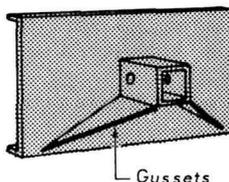
It was designed and constructed by Steve Poleshuk, a mainstream worker at Matamora-Hadley Recreation Area, Michigan and was submitted by Assistant Park Manager Russell Cooley.

Attached to your park truck, this hitch allows the following hauling jobs to be performed merely by changing the hitch accessory; (1) Allows a stepdown bar at bumper height for attachment of ball hitch for light duty trailers. (2) Allows straight draw bar to allow higher attachment of pintle hitch for heavy duty trailers. (3) Allows a socket plug to keep socket clear of mud when hitches are not in use and features a clevis for towing. In addition, the hitch attachment is flush with the rear of the truck, which allows for a minimum turning radius.



Construction should be fairly easy due to simple design. Materials consist of a frame mounting plate cut from 12" channel iron 3/8" thick cut to suit the truck width; a truck frame socket constructed from two pieces of 3/8" angle iron 6 inches long welded to mounting plate with socket gussets out of 1/4" steel plate; hitch draw bars of 1/4" wall, 3" square steel tubing snug fit to socket; hitch mounting plates and frame attaching plates of 3/8" wall angle iron; the draw bars and socket are drilled for a 3/4" draw pin with draw bar length varying according to make of truck, size and bed overhang.

The materials for this truck were purchased from a salvage yard at nominal cost, but are common enough to be found in many park shops. Picture shows the finished hitch.



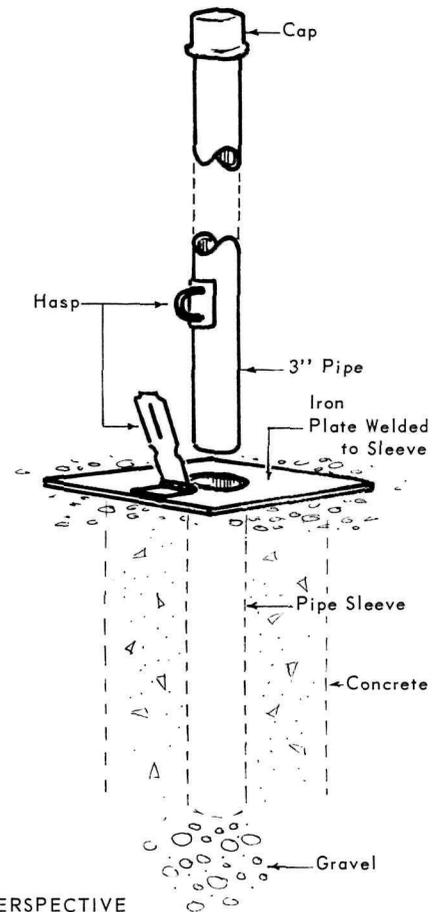
HITCH PLATE

Gussets

INEXPENSIVE ROAD BARRIER

Occasionally those of us here at Grist put on our tinkers' hats and come up with some suggestions. Herewith is presented a Grist original.

The design illustrated is intended for closing off roads to public use when such a need arises.



PERSPECTIVE

Typical situations would include parks with roads which close at dark; park roads which are used for maintenance only; park roads which are closed at certain times - for instance in the winter to allow sledding.

The concept behind this temporary barrier is basic. A hole is dug in the street, either in the middle if the street is narrow, or in two places if the road is wide so the road will be closed to cars but open to people. A section of pipe about 12-18" with a top plate welded on is inserted in the hole and the hole filled with concrete, up to but not covering the top plate.

Another section of pipe, 1/2" smaller in diameter and about 4' long is fitted with a metal loop about 12-18" from the bottom. The top plate on the other pipe section is fitted with a matching hasp.

To use the barrier, insert the smaller pipe into the larger one and lock the two together with a padlock over the hasp. To use the road again, simply remove the lock and pipe and turn the hasp down.

Total cost should be less than \$15, and even less if you mix the concrete.

DO-IT-YOURSELF ENVIRONMENTAL HANDBOOK

Amid all the brouhaha and concern for ecology, there has finally emerged a useful, step-by-step guidebook which details exactly how the average citizen can conserve and what steps he can take to improve his own, local environment.

The "Do-it-yourself Environmental Handbook" has been prepared by the Dayton (Ohio) Museum of Natural History and published by Little, Brown & Co., Boston. The handbook, available through either the publisher or the museum, sells for \$1.95 and contains 76 pages of information and instructions.

The handbook is divided into two major sections: A master checklist with step-by-step methods for conservation and an action guide with detailed information on how to go about a personal conservation effort. The table of contents lists the following subject areas:

Conservation in Your Home. **

Conservation in Your Backyard.

Sensible Shopping Habits.

Conservation with Your Car.

Conservation while You Travel. *

Conservation in Your School.

Personal Commitments.

How to Start an Environmental Information Center and a bibliography for each section.

The following excerpts are reprinted from sections of the handbook indicated above.

* CONSERVATION WHILE YOU TRAVEL

Use disposable diapers sparingly – Make sure this traveling convenience does not defile the environment. If you use disposable diapers while you travel, make certain they do not end up in your host's sewage disposal system. Only incineration satisfactorily handles the problems created by this convenience.

Watch out for wildlife – Give consideration to all living things you come across. Some animals are unavoidably killed on the highway, but some are deliberate kills – snakes and turtles often being the intended victims. To avoid this kind of mindless killing, drive slower in areas where wildlife is abundant. Watch ahead and slow down when you spot an animal that might dash under the wheels.

Don't burn lights unnecessarily – It's a temptation to because it's included in the bill, but not a good reason for wasting power. Turn out lights and appliances in hotel and motel rooms as conscientiously as you would at home. Don't keep the room cooler or warmer than necessary when you have control of the thermostat.

Carry reusable cups – Avoid the litter and waste that result from throwaway cups. Carry cups and other dishes with you while you travel to cut down on the need to add to that trash which normally stays behind the American tourist.

Don't be an ad collector – Avoid the habit of picking up brochures merely because they are there. Look them over, take what you need, and leave the rest. Discourage children who may feel they need one of everything.

Don't collect plants and pets – Leave vegetation and animal life where you find it. Buy your pets at the pet store. It's a temptation to dig up interesting plants and catch little animals to take home, especially if they are unusual. Most states have laws prohibiting this, and most plants so collected die. Turtles of all kinds, horned toads, and other lizards, snakes and the like are high on the list of things kids want to take home. Little thought is given to what will happen to the animal when it gets home and too often it ends up "released" in a foreign environment. It's best to adopt a "hands-off" policy and enjoy flora and fauna where you find it.

** DEVELOP INTELLIGENT HEATING AND COOLING HABITS

Many times we may want temperatures which are higher than necessary in winter, lower than necessary in summer. Authorities agree that, in cold weather, a temperature of 68° to 70° F is healthful. If this seems too cool, do as our English cousins do: Dress a little more warmly. In summer, cooling a house or room to the low 70s can be extremely wasteful and expensive. If the temperature is 90° or above outside, an indoor temperature in the high 70s or low 80s will feel cool and very comfortable.

Regular annual service and major repairs to your heating/cooling equipment should be made by experienced servicemen, however, you can make periodic checks on the following aspects of the equipment:

(1) *Air Filters*: All modern gas, oil and coal burning furnances have air filters. These should be changed or cleaned monthly. You may save more than your fuel bill by doing this as many house fires start in dirty or oily filters.

(2) *Chimney*: Check your chimney for obstructions at the beginning of the season. Leaves, twigs, bird nests and the like can block the chimney and pose a real danger from fire. Smoke coming out of your chimney is a sure sign of improper operation. It is usually caused by improper burner adjustment.

(3) *Burner Adjustment*: Many manufacturers provide instructions on how to check the oil or gas pump pressures and how to make burner adjustment. If you don't have instructions, contact the dealer and have him adjust the unit.

You can also save on fuel and pollute less by:

–Weather-stripping or caulking the doors and windows.

–Installing storm windows or insulating glass.

–Installing overhead and sidewall insulation.

–Closing draperies or pulling shades at night during the winter, and, in little used rooms, during the day in summer.

–Sealing the attic and garage doors tightly to prevent heat leaking to or from the rest of the house.

–Fixing broken or loose windows.

–Keeping air registers and returns clear of obstructions.

–Closing the registers, radiators and cold air returns in rooms which are not being use or used infrequently.

These excerpts give an only indication of the completeness of the handbook.

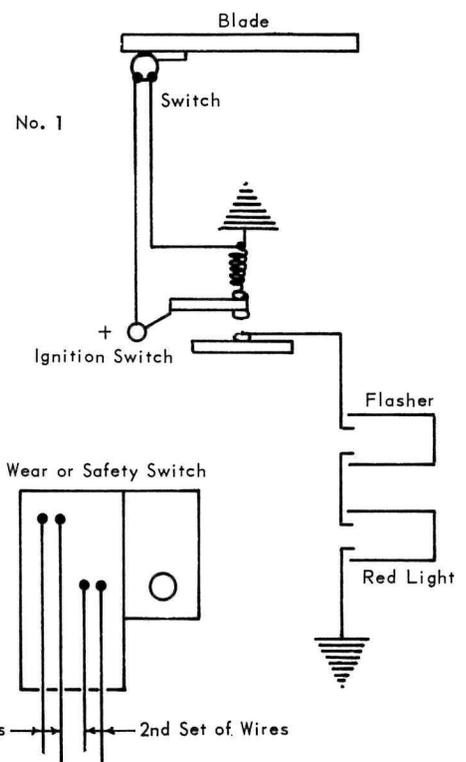
Further information on the handbook may be obtained directly from the publisher at 34 Beacon Street, Boston, Massachusetts, 02106 [tel: 617-227-0730]

WARNING SIGNAL FOR SNOWPLOW BLADE SERVICE

When a snowplow blade is worn out it can do some mighty expensive damage and result in a lot of down-time at a critical peak period. Donald L. Johnson, mechanic, Grand Teton National Park, estimates a recent blower unit rebuilding job at more than \$1,200. He suggests a safety switch or an automatic turn-off switch to stop the blower engine when the plow blade is worn out, thereby preventing damage to the mold board, augers, shoe holders, and other parts.

The hookup (see sketches) is inexpensive and does not interfere with the plowing if blades are changed when service is due.

Alternate wiring schematics are given from which to choose the one best suited to your equipment. The red light schematic (No. 3),





Station which triggers automated treatment of stream.

ANOTHER LOOK AT LAKE NEEDWOOD

In 1965, a dam was constructed on Rock Creek in suburban Northwestern Washington, D.C., creating Lake Needwood—a multi-purpose lake of 74 acres designed to meet flood control, recreation and sediment control needs of Capitol suburbanites.

Since the lake's creation, the area surrounding it has become increasingly urban and the

runoff into the lake has been increasingly laden with sediment. To combat this situation, which Maryland National Capitol Park and Planning Commission executives said would result in a dead lake in the short time of 50 years, the Commission with the Department of Agriculture's Soil Conservation Service and the Dow Chemical Company, began investigating methods of artificially flocculating the runoff sediment into a settling pool prior to the water's entry into Lake Needwood.

Dow Chemical, the SCS and the Commission took water samples from the various areas of the watershed covered by that part of Rock Creek and began experimenting with different flocculants. The team finally settled upon a Dow product called Puriflo-C-31.

Seven years later, the settling basin has proved itself along with the flocculant. In March, the basin was dredged and more than 11,000 cubic yards of sediment that would ordinarily have been washed into Lake Needwood were removed. The first dredging of the forebay, which occurred in 1969, reclaimed more than 6,600 cubic yards of sediment, of which 84 percent was identified as having been flocculated.

This reclaimed sediment is saved and used for landfill operations.

The Soil Conservation Service estimates that through use of a flocculant, Lake Needwood's life has been extended from 50 years to a new estimate of 200 years.

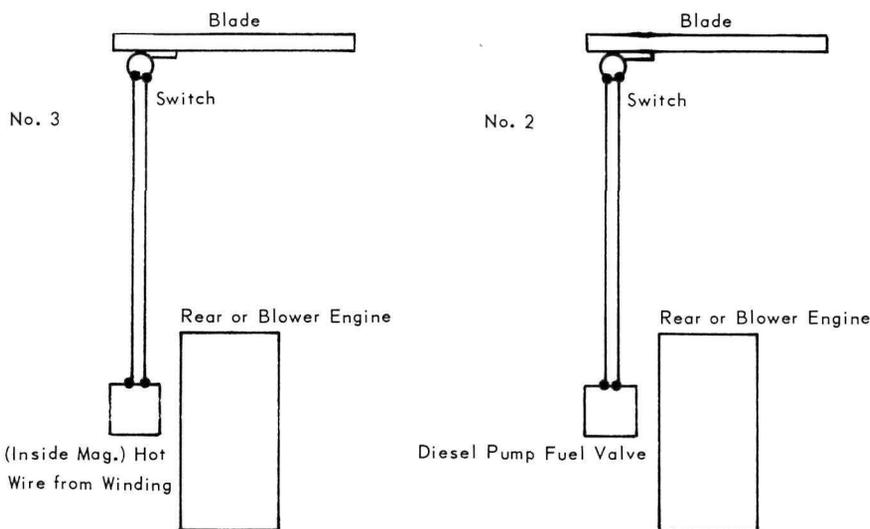
The accompanying diagram illustrates where the stream is sprayed with the flocculant and where settling occurs.

Prior to installation of any kind of flocculant system, a thorough analysis of the watershed must be conducted. Dow offers suitable flocculants for most types of sediment and provides consultation prior to the installation of a system.

Further information about systems and Dow flocculants may be obtained from Charles Piel (tel: 517-636-3093) or James Pollack (tel: 517-636-0325) at Dow Chemical, Midland, Mich.



Flocculant being sprayed into sediment laden branch.

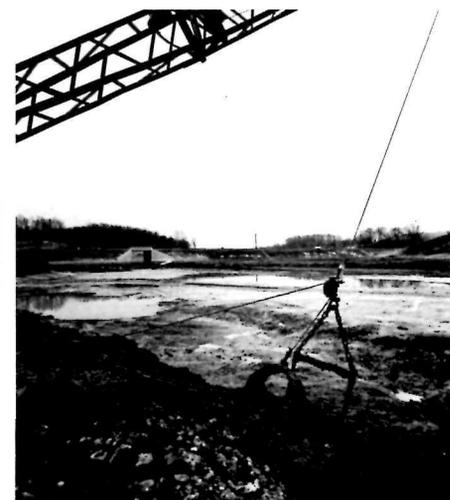


could be used for truck-mounted push plows. Two hours ahead of shutting off the rear engine it signals that a blade replacement is due. This is accomplished by using a double wire (wear or safety switch) as shown.

Items used to construct the switch are: wire,

pipe, body and fender filler and catalyst. After construction allow to harden. Switch is installed by bolting to mold board and welding.

Implemented last winter at Grand Teton, the signal switches have prevented any recurrence of costly repairs.



Sediment deposit dredged from forebay.

DRUM COMPETITION

Time was when an oil drum could be used for just about any job. Time also was when only an oil drum could be used for certain applications. Now, however, Rotocast Plastic Products, Inc., is offering competition for the drum, at least as a pontoon.

The picture shows a section of Bayshore Marina, Nassau, which recently began a dock construction program using the Rotocast pontoons.

The polyethylene pontoons are in 3' sections



and are 3/16" thick. The firm claims that they are highly impact resistant and impervious to deterioration from contact with saltwater,

acids, fuels, solvents or marine life.

One feature of the pontoons which allows rapid assembly is the built-in reinforced mounting flange designed to take 2" lumber stock. This feature should greatly facilitate pontoon mounting whether underneath a dock or other floating platform.

Additional information pertaining to cost and support capabilities can be obtained by contacting Rotocast Products, Inc., 6700 NW 36th Avenue, Miami, Fla. 33147, telephone 305-693-4680.

WINTER SPORTS SAFETY

With the approach of winter not too far away, now is a good time to go over some winter safety tips. These tips come to us from the Hamilton County [Cincinnati] Ohio Park District.

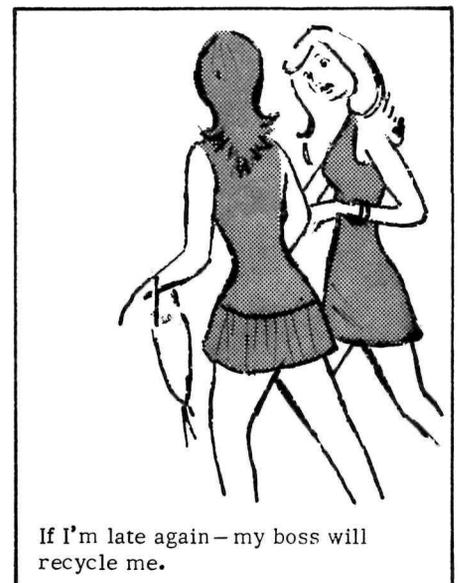
"We cannot emphasize too strongly the importance of being positive that the area you choose for ice skating is a safe one. Ice should be at least 4" thick if a large crowd is skating. Stay off ice that is covered with snow as light magnified by snow crystals can melt ice.

"Sheath skate blades when not skating. Sharp skate blades can slash flesh as well as ice. Don't speed skate in crowds. If you are a beginning skater, stay away from skilled skaters.

"No skier should ski on terrain beyond his ability. Deep bumps, ruts, obstacles and soft spots should be avoided as these can be handled only by the most competent skier. Skiers should keep their eyes open for the unexpected — another skier darting out of the trees along the trail, wildlife running away, etc.

"Check your sled for broken runners or board, loose nails or screws. Check for loose ropes on your sled — don't let them dangle. And make sure the coast is clear before heading downhill, steer a straight course and watch out for others."

THE SURVIVAL KIT



By Jim Burnett

MOTOR WATCHMEN

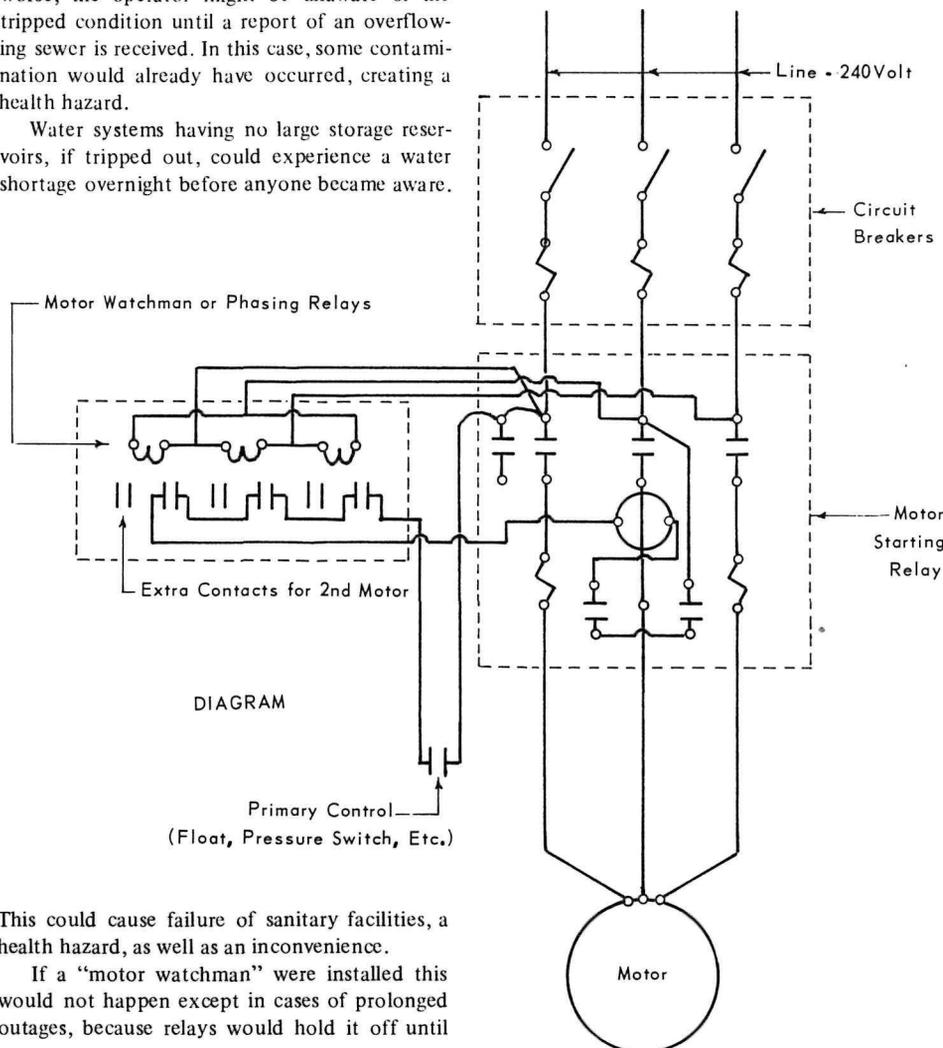
Motor-burnout means costly repairs, and at Grand Teton National Park costs were mounting due to frequent power failures and single phasing conditions resulting in the need to rewind motors at around \$100 each. Electrician Curtis G. Cates proposed the installation of small industrial type relays on all 3-phase electric motor controls to serve as "motor watchmen."

In sewer lift stations, if the regular tripout works to protect the motor, it will lock out and the station will remain off until someone resets it. This can happen at night or weekends, necessitating overtime for someone to reset, or worse, the operator might be unaware of the tripped condition until a report of an overflowing sewer is received. In this case, some contamination would already have occurred, creating a health hazard.

Water systems having no large storage reservoirs, if tripped out, could experience a water shortage overnight before anyone became aware.

service was restored on all phases, and then they would restart without requiring an attendant.

The worth of "motor watchmen" will soon be proved through motor performance, less check-up time, less overtime call-outs, better service to the public and less chance of contamination. A set of the relays installed on a continuous operating agitator motor at a Grand Teton sewer disposal plant had in 8 months saved hundreds of trips to restart the motor and had not failed to function a single time. Installation is going forward on all 3-phase motors as a result.



This could cause failure of sanitary facilities, a health hazard, as well as an inconvenience.

If a "motor watchman" were installed this would not happen except in cases of prolonged outages, because relays would hold it off until