

GO WEST

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Pollution — What can I do?



Visitors frequently ask park personnel, "What can I do to help improve the environment? How can I get involved?" The problem is so immense that the individual seems to have the feeling that one man can't do very much. Last year Americans produced 720 trillion pounds of solid waste!

"At Indiana Dunes National Lakeshore," says Superintendent James R. Whitehouse, "we believe that one man can do a great deal." A news release to inform the public of their campaign to involve individuals in the cleanup campaign was the starter, additional trash barrels were placed throughout the beach area, and special can recycling barrels were placed at collection stands for visitor use.

A key part of the campaign was a cooperative arrangement between Park Superintendent Whitehouse and a representative of the Bethlehem Steel Corporation. Cans collected in the park are transported to Bethlehem's collection points.

The photographs tell the story:



The park provides special containers, sufficient in number and conveniently located to make visitor cooperation easy.

Personnel are well-informed about the program and involved in encouraging visitor cooperation.



Cans are transported to Bethlehem's collection points.



At Bethlehem, electro-magnetic discs pick up only the steel cans.



The cans are compacted and baled. In every bundle like this there are about 17,000 cans that will not now be part of the solid waste and litter problem. They are now ready to go into the scrap-box mix to make a new batch of steel and eventually to come off the production line as shiny cans ready for reuse.



More than 23.5 tons of containers were tossed into Bethlehem's collection boxes in the first month the program was under way.

What can one man do about pollution? He and thousands of others together can do a great deal.

GRIST

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CODED SETTINGS FOR VEHICLE HOISTS

A code painted on the floor alongside the lift pit will make it possible to align a vehicle before it is driven over the pit. William F. Donati, park ranger, and Jack Stout, mechanic, Blue Ridge Parkway, devised the method.

Many maintenance areas use two-post vehicle lifts which require use of a long rod to adjust axle carriages which slide back and forth on the lift arms on the rear post. These carriages must be aligned properly under the rear axle to insure safe and proper lifting. Adjustment usually is done *after* the vehicle has been driven over the lift pit, often in the dark and with the axle hidden behind the under-carriage gear. This means kneeling, groping, tugging, pushing, and in the case of some sedans, practically lying on the floor to assure proper carriage placement. If it is as little as one inch off, the vehicle's weight will cause the lift post to rotate to a position of balance. This position is usually out of line with the pit. It is not possible simply to push the vehicle around since the pressure would have to be applied to the lift arm itself where the leverage is insufficient for the weight. In this position, it becomes impossible to remove the vehicle since the lift will not retract into the receiving pit. It is then necessary to block up the rear wheels, lower the lift arm, adjust the carriages to a misaligned axle, again raise the vehicle to remove the blocks, and finally remove the vehicle.

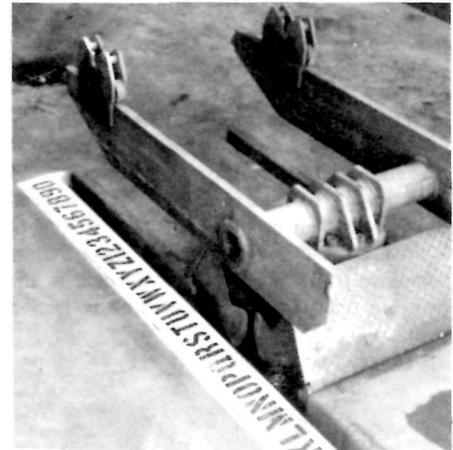
To properly align the carriages *before* driving the vehicle over the pit, paint a code on the floor alongside the lift pit from the point of the farthest forward reach of the arm to the farthest rear reach. Since the front wheels of any vehicle must be placed on the metal pads at the front of the stall to align the front lift, the rear axle must always fall over the exact same point on the rear left arm. As each vehicle is placed on the lift its relative code number could be recorded as in the sample below.

Vehicle Reference Code	
Vehicle Id.	Symbol
I-36139	
I-66503	
I-66883	Q-R
I-66891	G
I-66911	5-6
I-73447	Y-Z
I-73488	5
I-73504	
etc.	

Wheel Base Measurements

Symbol	Wheel Base	Symbol	Wheel Base
A	179"	S	142"
B	176"	T	140"
C	174"	U	138"
D	172"	V	136"
E	170"	W	134"
F	168"	X	132"
G	166"	Y	130"
H	164"	Z	128"
I	162"	1	126"
J	160"	2	124"
K	158"	3	122"
L	156"	4	120"
M	154"	5	118"
N	152"	6	116"
O	150"	7	114"
P	148"	8	112"
Q	146"	9	110"
R	144"	0	108"

Note: The measurements in the Wheel Base column are listed as all being two inches apart. This, of course, is not true since each letter will have a different width and the size of the lettering will determine the actual measurements. But this serves to illustrate the idea.



CLEANING METHOD FOR ROUTED SIGNS

Methods in use at Dinosaur National Monument to clean routed signs before repainting were unsatisfactory. Using a router usually made the letters larger, and use of a torch to heat the paint, even though a better method in some ways, burned the wood.

Foreman George F. Cooksey had a better idea. Now they use a 150-watt flood lamp to heat the paint and make it easier to scrape out. There is no waiting; a worker can be cleaning one letter while the next one is being heated. This makes it possible to do the job in about half the time.

REHABILITATION OF SURFACE MINE AREAS

The U.S. Forest Service, in cooperation with members of the phosphate industry, has published an administrative study on how best to rehabilitate surface-mined areas.

The report entitled, "Surface Mine Rehabilitation," deals specifically with mechanical treatments to retain moisture and minimize runoff, vegetation capable of stabilizing harsh surface-mined areas, chemical and physical treatments to establish vegetation, and micro-environmental conditions.

Copies are available from U.S. Forest Service, 324 25th Street, Ogden, Utah 84401.

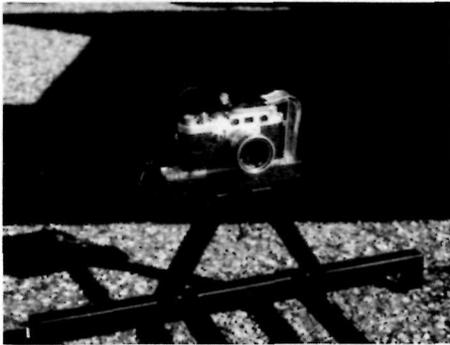


SCRATCHLESS, QUIET ANCHOR



This metal-core anchor is covered with neoprene rubber. It won't scratch your boat every time you up anchor. Scratchless No-Mar is quiet, too. Comes in three sizes: 7, 14, and 24 pounds. Write UMCO Corporation, Box 1120, Cape Girardeau, Mo. 63701.

PRECISION PHOTOGRAPHIC COPYING DEVICE

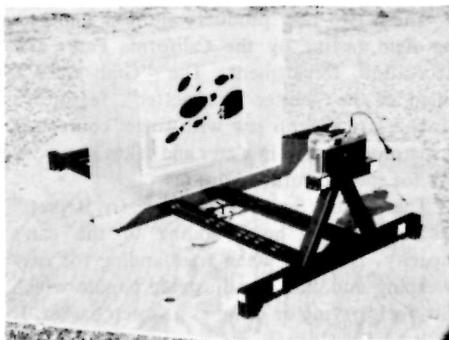
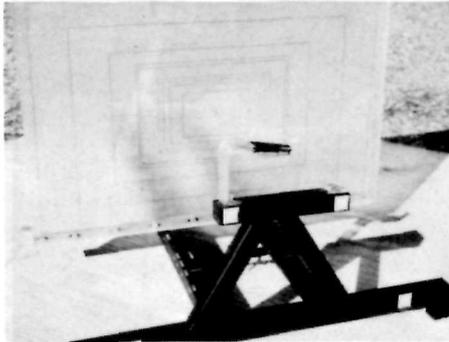


A device designed to re-photograph at lowest possible cost the original artwork and other types of visuals used in a park audiovisual slide program when original master slides begin to deteriorate was invented by Glenn L. Hinsdale, park historian, Richmond National Battlefield Park.

The purpose of the device is to overcome the parallax and composition problems of close-up photography with accessory lenses and to yield a degree of mechanical precision, permitting a given subject to be re-photographed on demand to format tolerance of 1/16".

Properly built and provided with a set of calibrations for a given camera, the device does not require technical insights for perfect results. It can save significant losses of time and material.

The pilot model was built of standard aluminum stock and scrap plastic for about \$15 for materials. The inventor brazed the aluminum components together with a butane torch, using an electric cookstove burner as a preheater to



achieve brazing temperatures. Dimensions on the working drawing are illustrative only; in practice, dimensions are governed by the largest subject-matter desired. This determines screen size, which in turn dictates the height of the camera lens axis. Camera block dimensions and design detail depend upon the camera body to be accommodated. Several camera blocks (and cameras) can easily be calibrated to the same machine.

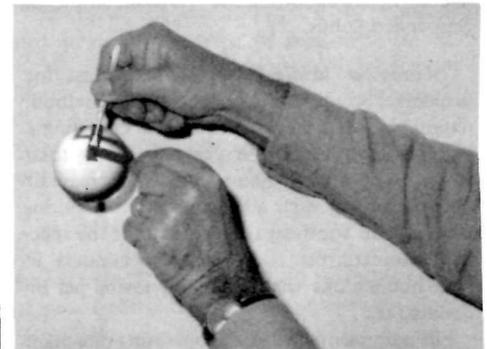
CARING FOR PROJECTOR LENSES

Since most parks or recreation areas have occasional use for audio-visual presentations, here's a tip and suggestion from the late Frank Root, park guide at Richmond National Battlefield Park, Virginia, on maintaining A-V equipment.

Perhaps your A-V personnel have not been aware, but the large amount of electricity needed for the projector lamp also causes the lamp housing to become statically charged. This, coupled with the forced air flow through the housing, amounts to a fairly regular coating of dust and debris sticking to the lens surfaces. The dust coating on the condenser lenses reduces brightness and sharpness in the projected image.

To keep A-V equipment in top shape, a fairly frequent cleaning of the lamp housing and condenser lenses is required. If the lenses are handled by hand, oil from the skin is deposited on the surface further aggravating the problem. In order to provide a non-slip surface with which to remove and handle the lenses and not pose the threat of greasing them up, Frank suggested that a large tweezers be modified and used as a lens tool.

Take a fairly large pair of tweezers and



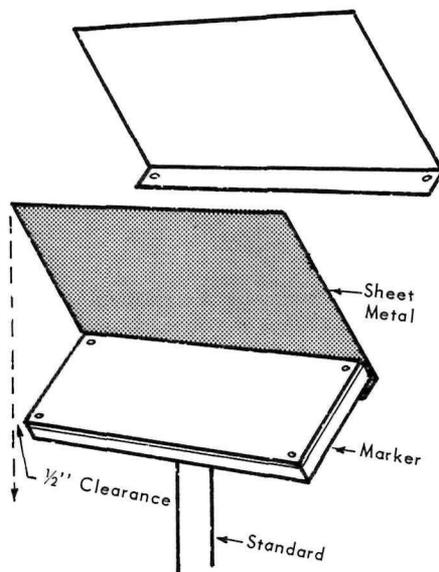
apply rubber cement to the inside of the tips. Cut a size 64 rubber band (1/4" wide) into two pieces each 1" long and apply rubber cement to them. Wait until the cement is tacky and apply a piece of rubber band to each of the tweezer tips.

This tool can also be used for other delicate objects requiring a non-slip grip. This practice, incidentally, is recommended by Kodak.

SHIELD SAVES SIGN

Signs which interpret some natural phenomenon or illustrate a particular aspect of an area provide a pleasant experience for the visitor. A lot of parks are now using sloping horizontal signs to prevent obscuring the visitor's view yet still providing a readily recognizable sign. This type of sign has proven itself, so far.

However, Don Black, Chief Naturalist at Joshua Tree National Monument, California, discovered that an interpretative sign placed in a desert oasis area was attracting more attention from the birds than it was from the humans. The problem, as Don tells it, was that the birds enjoyed using the sign as a "fun target." The sign became covered with bird droppings, which in itself wouldn't have been all that bad, but the excrement was eating into the finish and destroying the paint on the sign.



To counter these dive-bomb attacks, Don cut a piece of sheet metal so that it was 1/2" longer in front and several inches longer in back than the sign, bent it to form an angle section of 45° and screwed the shield to the sign (see illustration).

The shield prevents bird droppings from reaching the sign, so the finish remains intact; and the sharp angle of the screen prevents the birds from using it as a perch.

SIMPLIFIED TEST FOR SUSPENDED SOLIDS

Federal facilities, under Executive Order 11507, must now be designed, operated, and maintained in such a manner as to protect and enhance air and water resource quality. Quality improvement of sewage effluents now being released into waterways is part of this effort.

Thomas L. Harrington, civil engineer, Mount Rushmore National Memorial, points out that present methods of determining effluent quality require many hours of work by trained laboratory technicians through collecting and analyzing samples and interpreting results. Many times important tests are not made because of the time involved and the complexity of the test procedure. Unfortunately, one of these tests, the mixed liquor suspended solids test (MLSS) is also one of the most important tests for efficiency determination of biological treatment facilities. For seasonal plant startups, this test should be run at least daily until a level of about 2500 mg/l MLSS has been attained in the aeration chamber (Ref. 1). This may take several weeks. After this level is reached, suspended solids tests need only be run weekly.

To decrease testing time, reduce manpower, save on operating costs, simplify procedure, assure greater accuracy and thus improve water quality, Tom proposes use of a relatively new and little known test for MLSS. The test is called Spectrophotometric Determination of Suspended Solids.

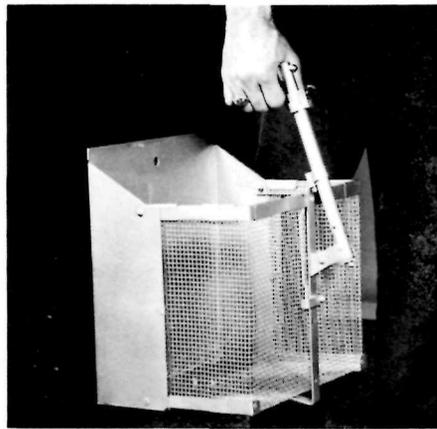
Manpower savings. The standard test for suspended solids, the Gooch crucible method, requires about 5 hours. For a park operating a plant 6 months of the year, the time total would be about 225 hours (with an increase of about 20% for each additional plant requiring the test). In contrast, time needed for the spectrophotometer test is only about 5 minutes. In man hours alone there is a 98% saving per individual test.

Requirements for a park operating one plant for one 6-month season would be 225 hours using the Gooch test and 4 hours using the spectrophotometer, a saving of 221 hours (at \$3.00 per hour) and \$663. For a region with 10 plants (1 per park), the estimated requirement would be 2250 hours using the Gooch test and 40 hours using the spectrophotometer, a saving of 2210 hours and \$6630.

Simplification and increased accuracy. The Gooch crucible test (the most reliable of the three currently used), which involves use of the analytical balance, is difficult for some people to use and requires a considerable amount of practice to master. The spectrophotometric analysis (described below) is much easier to follow and requires very little training. Statistical analysis of all four tests has proven the spectrophotometric test to be by far the most reliable (Ref. 2).

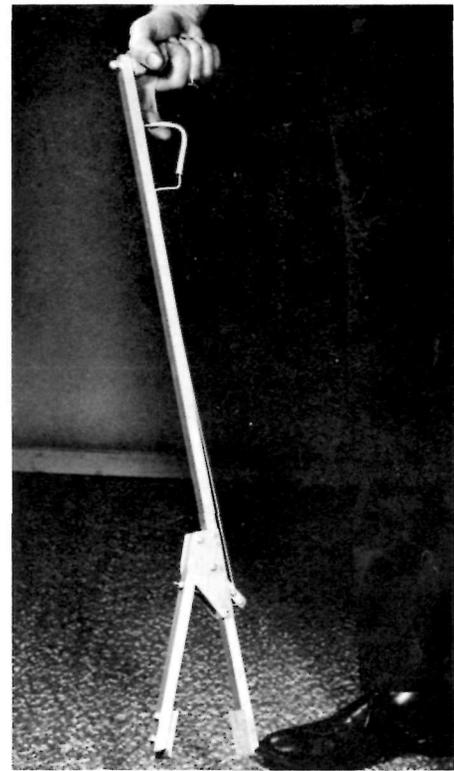
Operating expense savings. The Gooch crucible test requires use of an asbestos filter mat which must be discarded after each test. It also

NEW LITTER DEVICES



These two new products are now undergoing field testing by the California Parks and Recreation Department. The "Grab Stick", billed as the "better litter-getter", features a variable-size pickup jaw with finger control. It is rustproof, works in water and takes accessory tips for special work conditions.

The "Litter Sweep Pan and Carry Basket," has a screened hood adding to the pan's capacity, is stable when freestanding for easy sweeping and has an adjustable handle which tilts for carrying or using as a sweep basket. It



requires two hours of electric oven drying time at 103° C. Use of the spectrophotometric test will eliminate these costs

Equipment. Some of this equipment may already be available in your lab. Numbers and list prices are from Curtin catalog (Ref. 3).

Bausch and Lomb Spectronic 20	
Cat. No. 065-409	\$395.00

Bausch and Lomb Infrared Phototube Accessory for 950 m μ settings	
Cat. No. 065-714	8.50

Waring Blender	
Cat. No. 215-459	47.95

Siphoning equipment standard lab item	
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Battery jar standard lab item	
	\$451.45

Savings in one season will more than cover cost of new equipment. An additional cost advantage is that the spectrophotometer is easily adapted to use in several other tedious water and wastewater analyses. It is now standard equipment in most sanitary labs.

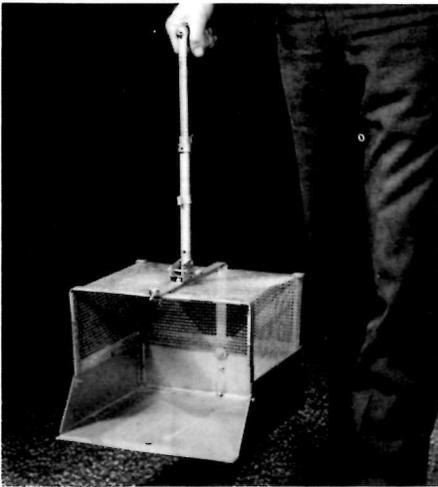
Test procedure. Shake sample well and pour about 700 ml into blender cylinder. Blend at high speed for 1½ to 2 minutes (use watch) and

transfer blended liquor to a battery jar and stir. While stirring, siphon about 25 ml into the cuvette. With a 950 m μ setting, read the transmittancy, using water as a blank. Just before reading, invert the cuvette gently to make sure all particles are in suspension. Do not shake the cuvette as air bubbles interfere with the reading. Read concentration of suspended solids from the prepared graph. Values of transmittancy below 30% should not be considered valid. Dilute the sample as necessary to get results between 30% and 90% transmittancy. Be sure to use tap water for diluting; distilled water may dissolve some suspended solids (Ref. 4).

There is on the market an instrument built by the Hach Chemical Company which uses the same principle to give direct readings of suspended solids, but Tom says it is limited to this one test, whereas the spectrophotometer has many uses.

References:

1. National Sanitation Foundation, *Package Plant Criteria Development, Part I: Extended Aeration*, Sept. 1966, p. 32.
2. McTavish, D. A., "Spectrophotometer Determines Suspended Solids," *Water Works and Wastes Engineering* 2:9:80-82 (Sept. 1965).
3. Curtin Scientific Company Scientific Instruments Catalogue (1971).
4. Kraweszyk, Daniel and Gonglewski, Norbert, "Determining Suspended Solids Using a Spectrophotometer", *Sewage and Industrial Wastes* 31:10:1159-1164 (Oct. 1959).



can also serve as a wall-hung waste collector.

Both of these products are light weight, rugged and use easily replaceable parts.

The "Grab Stick" sells for \$7.50, and the "Litter Sweep Pan" for \$14.50. Both are available from HALs Creative Endeavors, P. O. Box 6506, Santa Rosa, Calif. 95406. The firm will accept purchase orders.

NEW TOILET DIGESTS WASTE

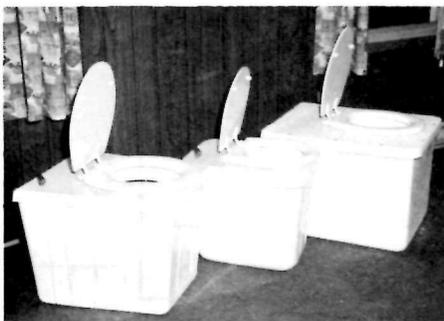
A portable toilet which digests human waste is now available from Pure Way Corp., called the "Bio-Flo." The biological system is available in a wide variety of models and sizes including cabanas suitable for construction sites and outdoor facilities.

The units are constructed of either porcelain-like Fiberglas or stainless steel and weigh approximately 50 pounds, depending on model. They are also available in flushless and flushing models, the latter using recirculating water contained within the unit.

To initiate the digesting action, gravel and a "Bio-Bed" are placed in the unit. Water and digesting powder are added and the unit is ready. The manufacturer recommends continuous usage, e.g. 2 - 3 times a day, for maximum efficiency.

The residual effluent of the toilet is claimed to be bacteria-free.

Prices of the units range from \$285.00 for a non-flush, Fiberglas model to \$764.00 for a



flushing, cabana model with heater. There are mine, marine and cabana models in both Fiberglas and stainless steel.

UNBREAKABLE LIGHT GLOBES

Vandalism! Money, time, effort wasted!

How much easier it would be to operate a park or recreation area if we could only prevent such occurrences. And how much nicer would it be if we could spend the money we occasionally do get on some pleasant fixtures instead of always looking for the cast iron and poured concrete devices.

This new product may not solve all of your headaches, but the city of Atlanta thinks it has solved at least part of theirs. It's a vandal-proof light fixture with globe made of unbreakable polycarbonate plastic. The General Electric compound, called Lexan, has been used for helmet material on Apollo 11 and 12 missions and withstands impact pressures of 16 psi and greater. The globes are seamless and come with a unique locking-type fixture which circumvents unauthorized removal.

The Atlanta Department of Parks and Recreation tested the globes and fixtures in its University Park section for 9 months and reported no incidences of vandalism—possibly a new city record for this sort of thing.

The manufacturer offers the globes in a variety of colors and textures in outside diameters from 8" to 24" and with fixture openings from 4" to 8 1/4". The globes are rated for use with incandescent lamps from 100 to 400 watts and with mercury vapor lamps from 75 to 400 watts. No information is listed for sodium vapor lamps.

The company also manufactures fixtures using 3" tubular aluminum or steel from 8 to 20' in height, and are offered in brushed, anodized and acrylic finishes.

Further information, including isofootcandle diagrams and candlepower distribution graphs on the globes, are available from Trimble House Corp., 3832 Green Industrial Way, Atlanta, Georgia 30341 (tel: 404-458-6685).

TIPS FOR TRIPS WITH CHILDREN

Field trips and tours are fun for children by the happy car or bus load. But, warns CNA Insurance, serious liabilities can be incurred whether it is an hour ride to the museum or an all-day trip to a campground. Administrators or supervisors of such programs, they suggest, must see to it that safety procedures are followed for equipment, personnel, and passengers.

—Vehicles must always be kept in a safe condition and never loaded beyond their capacity—no matter how short the trip.

—Drivers must be properly licensed, reliable, and experienced, for they are responsible for the safety of the passengers while in transit.

—Every vehicle should have adequate insurance coverage, and should carry emergency equipment such as a first aid kit, flares, portable lanterns and a fire extinguisher.

—Drivers should be aware of carbon monoxide poisoning danger in a tightly closed vehicle.

—Adequate supervision for the passengers, especially on long trips is an essential safety requirement. Bored children can create problems, so keep them occupied.

—Never travel too long without a break. Tired and restless children can be potential danger.

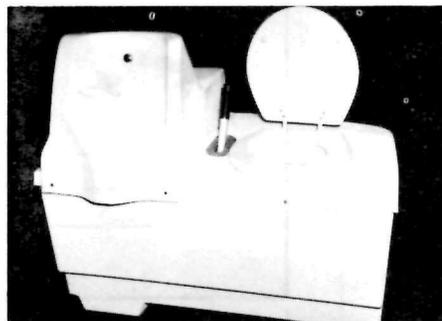


LITTER BAGS REVISITED

Don Black, Naturalist at Joshua Tree National Monument, sends along this idea for a second use for the innumerable plastic litter bags we seem to pick up at gas stations, shopping centers and the like.

Don says that most of the bags are large enough to store 8x10" sheets of paper inside. The bags become, in effect, a portable filing system and help to keep important papers from getting soiled or even wet during inclement weather. The bags can be placed in briefcases, wherein they fit perfectly according to Black, and can be marked for easy identification with matte tape (Scotch Magic Tape, for example).

Eventually, Don concedes, the bags may even be used to hold litter.

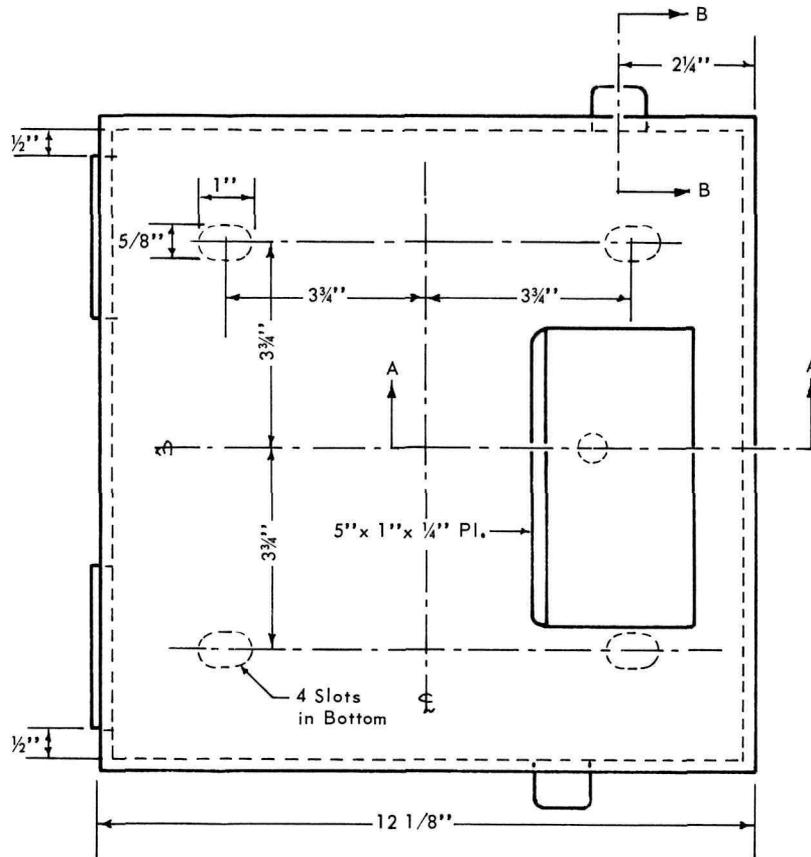


Further information may be obtained from the Pure Way Corp., 4251 Avon Road, Madison, Wisc. 53711 (tel: 608-271-4658).

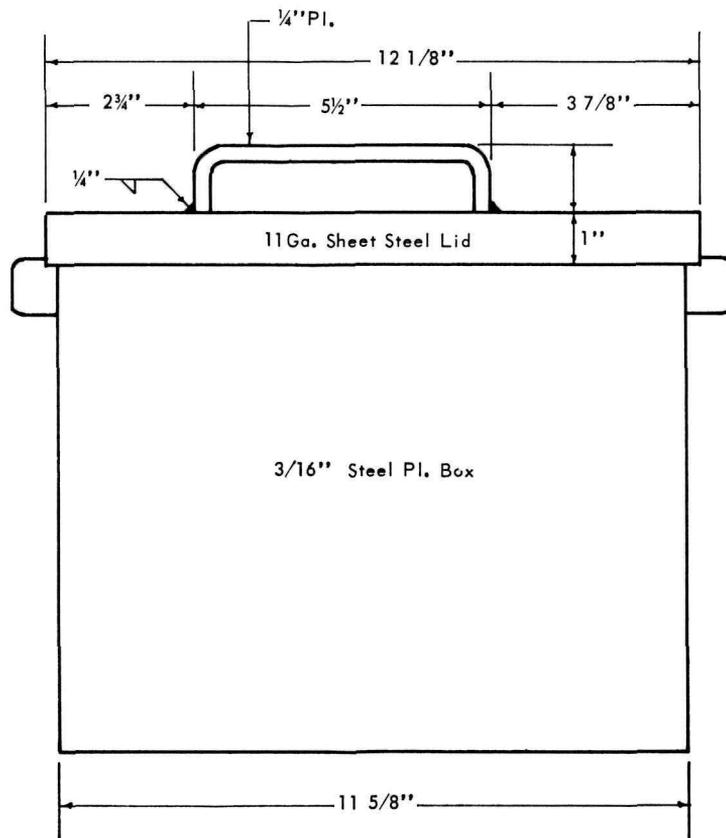
TRAFFIC COUNTER PROTECTION

An article appeared in the September/October 1971 issue of GRIST describing a way of protecting traffic counters. It prompted Elvin Munsell, reservoir ranger, U.S. Army Corps of Engineers, Fort Worth District, to send along another way of solving the problems of protection of traffic counters from theft, destruction, and moisture.

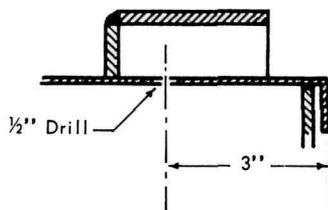
The sketch gives construction details and the photos show the result. The box can be insulated. It is mounted on a concrete block and has a special inside locking device and key. When it was designed in the 1950's, the cost was about \$21 each.



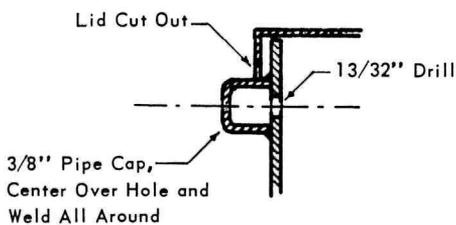
TOP VIEW



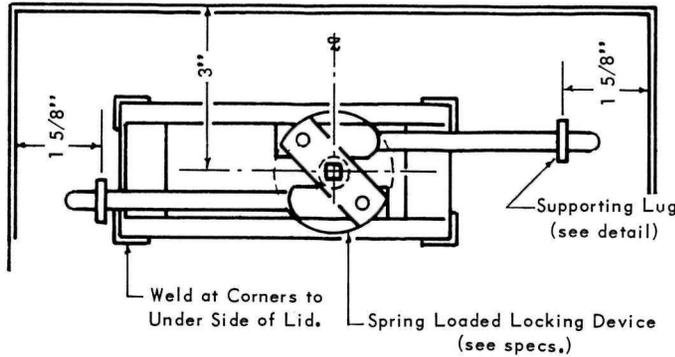
FRONT VIEW



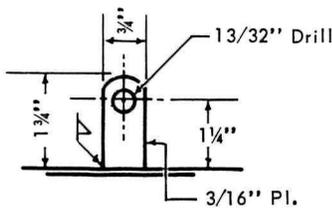
SECTION A-A



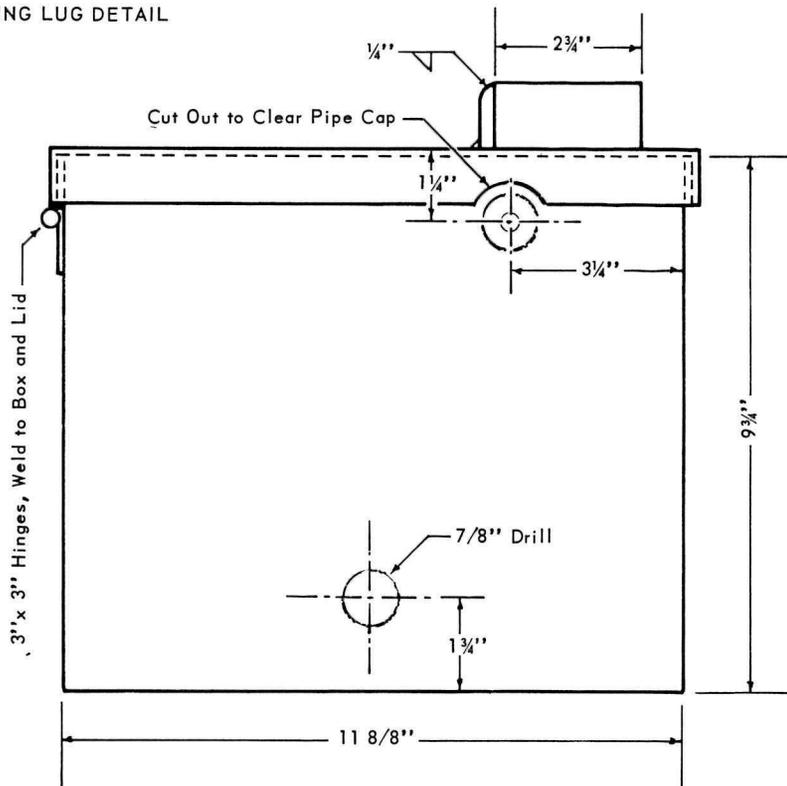
SECTION B-B



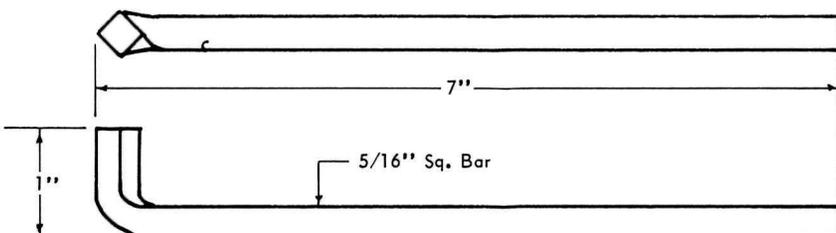
LOCKING, MOUNTING DETAIL



SUPPORTING LUG DETAIL



SIDE VIEW



DETAIL OF KEY

AEROSOL CAN SAFETY

With summer upon us, the potential for accidents involving aerosol cans has increased dramatically.

To illustrate this point, here's the story of an accident which could have been avoided if the person involved had used common sense.

A Park Service vehicle with a black-colored dashboard was parked while the driver went on an errand. Prior to leaving the vehicle, the driver placed an aerosol can on the dash, apparently so he would notice it when he returned. Fifteen minutes later, and fortunately after the driver had left on the errand, the aerosol can exploded - shattering the safety-plate windshield of the vehicle.



The damage to the truck was avoidable and fortunately no one was injured. The moral of the story is simple: read the instructions on aerosol cans, specifically the section warning about storage above 120°F. The black dashboard on the NPS vehicle absorbed heat from the overhead sun and created an oven effect.

Most of us know how hot parked cars get in the summer. That's too hot for safe storage of aerosol cans. And, never puncture a can - it could explode in your face.

EASY VEHICLE SERVICE REMINDER

Is your park vehicle typical? If so, it is used by a variety of drivers and run many hundreds of miles without regular servicing.

To combat this situation, Gary Patzke, Assistant Park Superintendent, Devil's Lake State Park, Baraboo, Wi., devised a simple sticker which can be placed on the dashboard of vehicles reminding the driver of regular service.

The trick is both easy and inexpensive: Self-adhesive labels are stamped and the park mechanic places the appropriate mileage on the sticker which is then conspicuously placed in the cab of the vehicle.



The stickers can be purchased at office supply stores for about \$1.50 per 250, and rubber stamps can be purchased for a comparable price. Happy Maintenance!

BIOLOGICAL WASTE SYSTEM

An integrated purifier system for organic kitchen and toilet waste has been developed by the Swedish inventor Rikard Lindstrom. The system is based on biological decomposition and is fully independent of water and sewer networks. Called the Clivus, the system is principally intended for single-family houses, cottages and other small housing units in areas

with insufficient provision for removing waste or where it is difficult or expensive to use conventional systems of waste transport.

It is claimed by the inventor to be odor-free and comparatively inexpensive to install. Typical systems in Scandinavia cost \$600 to install.

The system consists of a garbage chute in

the kitchen and a toilet stool requiring no flushing. Both are connected through vertical pipes with a decomposition container of special design and made of reinforced plastic.

The waste is decomposed biologically in the container aided by a supply of air and with the support of the inherent humidity in the waste. No additional water is necessary. The impermeable bottom section of the container protects the surrounding soil and water from contamination.

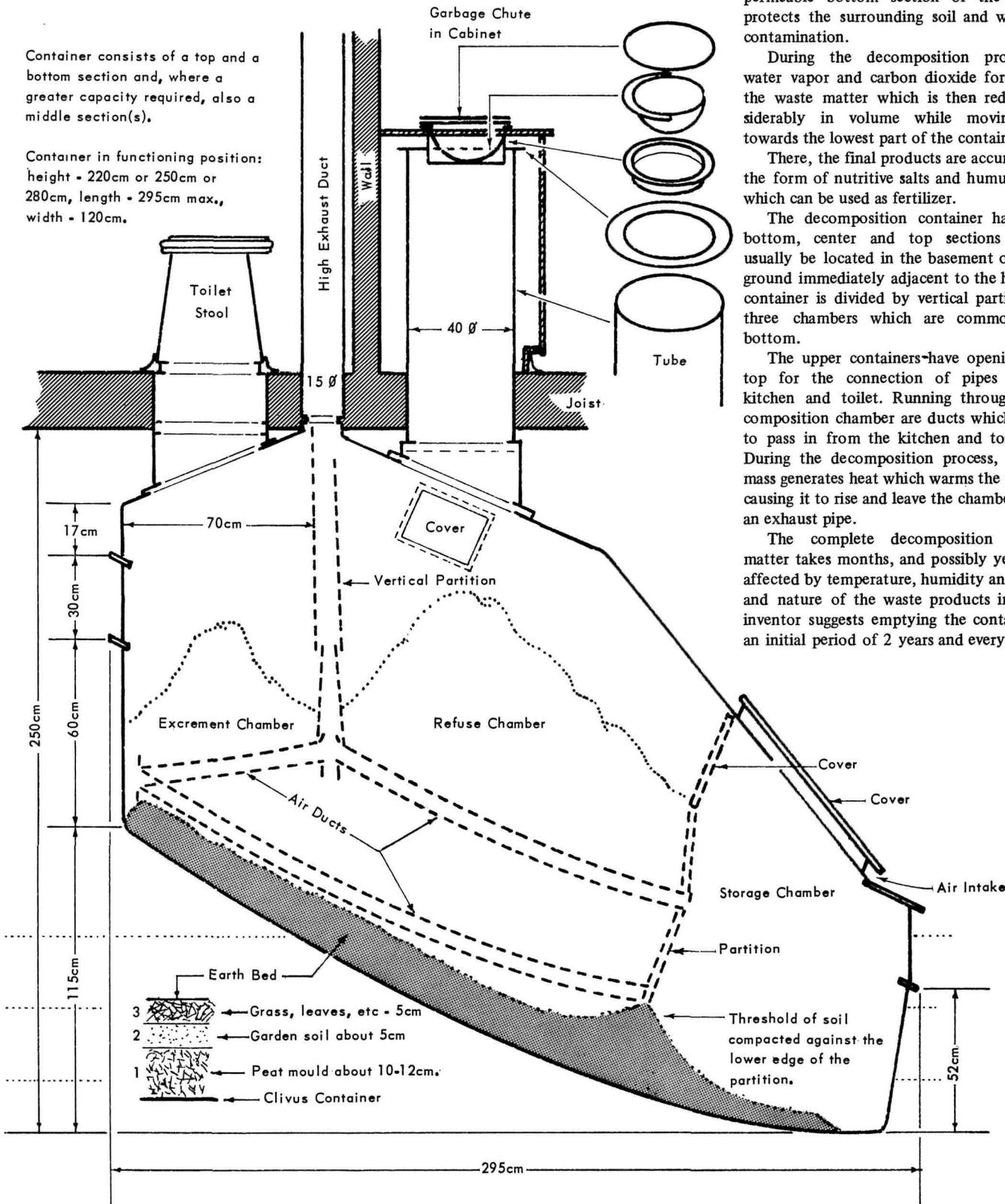
During the decomposition process, the water vapor and carbon dioxide formed leave the waste matter which is then reduced considerably in volume while moving slowly towards the lowest part of the container.

There, the final products are accumulated in the form of nutritive salts and humus, both of which can be used as fertilizer.

The decomposition container has sloping, bottom, center and top sections and will usually be located in the basement or on solid ground immediately adjacent to the house. The container is divided by vertical partitions into three chambers which are common at the bottom.

The upper containers have openings in the top for the connection of pipes from the kitchen and toilet. Running through the decomposition chamber are ducts which allow air to pass in from the kitchen and toilet inlets. During the decomposition process, the waste mass generates heat which warms the passing air causing it to rise and leave the chamber through an exhaust pipe.

The complete decomposition of waste matter takes months, and possibly years as it is affected by temperature, humidity and the level and nature of the waste products inside. The inventor suggests emptying the container after an initial period of 2 years and every year after



Container consists of a top and a bottom section and, where a greater capacity required, also a middle section(s).

Container in functioning position: height - 220cm or 250cm or 280cm, length - 295cm max., width - 120cm.

- 3 ← Grass, leaves, etc - 5cm
- 2 ← Garden soil about 5cm
- 1 ← Peat mould about 10-12cm.
- ← Clivus Container

BICYCLE INFORMATION

Is a bike route an integral part of your park or recreation area? If so, the Bicycle Institute of America lists the following items of interest which may be obtained by writing to the sources listed. Most of the items are free.

*Preservation Bike Tour - A kit of materials actually used by the National Trust for their successful bicycle tour. Includes map and information sheet for cyclists, guide for tour leaders, advance news release, attractive poster and newspaper publicity. Write for bike kit to National Trust for Historic Preservation, 748 Jackson Place NW, Washington DC 20006.

*Highway Engineers Bike Map - A new map of a 50-mile backcountry tour between Rome and Syracuse, New York, closely following the old Erie Canal. The map was designed by Jim Konski, consultant to the New York State Highway Department and is the first of a complete set of such maps for the state. Write to Bike Tour, Recreation Facilities Division, Konski Engineers, 113 East Onondaga Street, Syracuse, New York 13202.

*Missouri Slow Road Map - Forrest G. Stith, a bicycle enthusiast in Kansas City has mapped county and secondary roads connecting 114 county seat towns in the state. Map

As the proprietor of a campground, how much electricity should you be prepared to furnish to "overnighters?"

Whether electricity is included in the daily rate or you make a separate charge for it, there is no practical way to see that everyone pays his fair share of the cost. One traveler may arrive late and leave early, while another may arrive early and leave late. One may use a toaster for 10 minutes, while another may use a heater for several hours.

costs \$1.00. Write to Stith at 209 Brush Creek Blvd., Kansas City, Missouri 64112.

Also, the Bicycle Institute says the following magazines are now being published for cyclists:

BIKE WORLD - PO Box 366, 2562 Middlefield Rd., Mt. View, Calif. 94040

CYCLING TODAY - PO Box 96, Silver Spring, Maryland 20907

NORTHEAST BICYCLE NEWS - 12 Cherry St., Brattleboro, Vermont 05301

BICYCLE LIFE - PO Box 36312, Los Angeles, Calif. 90036

SPOKESMAN - 19 South Bothwell St., Palatine, Illinois 60067

By Willard Allphin

Of course an individual electric meter at each space would tell the story, but this would add considerably to your investment, and it would be a nuisance to collect the money.

The best solution is to let the usages average out, but some operators would like to limit how much wattage can be plugged in. This can be done at moderate cost by installing a small, locked fuse box serving a single outlet at each space. Many people don't know that plug fuses are made in sizes other than 15 and 20 amperes. Actually, they come in the following sizes: 1, 2, 3, 4, 5, 6, 8, 10, 15, 20, 25 and 30 amps.

For example, you might say to an over-nighter, "The rate we charge is intended to cover only electricity for your lighting and allows for a load of 200 watts. If you use more than that the fuse will blow and there will be no way to replace it until tomorrow." In this case you would have a 2 amp fuse in the padlocked box.

The flexibility of this system is that, for an additional charge, you could put a 10 amp fuse in the box and allow him to connect 1000 watts, or a 15 amp fuse and allow 1500 watts. Actually, there is some latitude in this, because at 115 volts a 15 amp fuse would theoretically permit 1625 watts, or at 120 volts it would permit 1800 watts, but it is better to leave a little leeway.

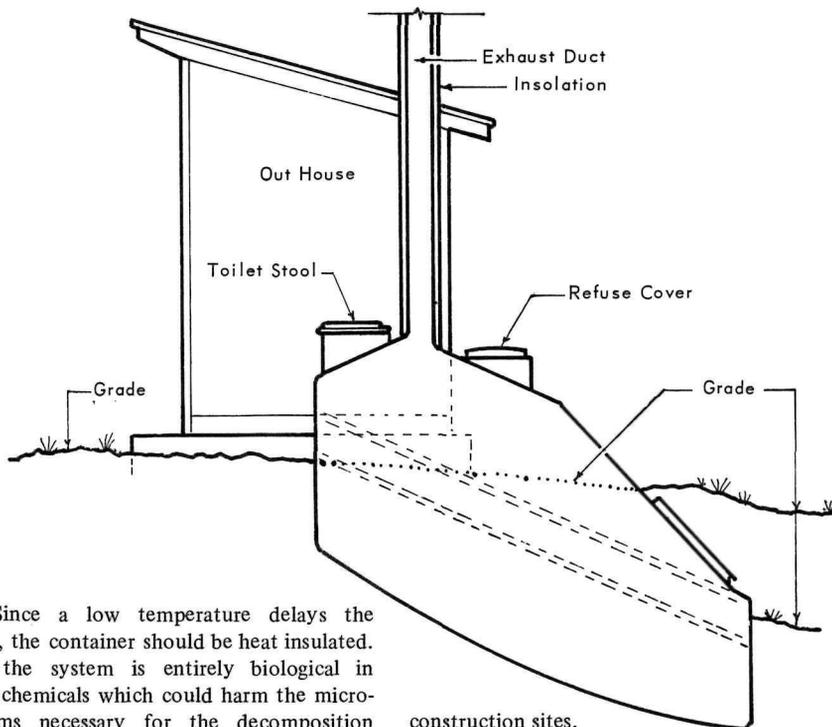
For your purpose, it makes an easy calculation to simply multiply the fuse rating by 100 to get the permissible wattage. If the traveler blows a fuse, you know that he has really exceeded the limit. With the simplicity of plug fuses, and with 11 sizes to choose from, you can set up any schedule you wish.

Of course for heavier loads the wire sizes must be larger, and the number of outlets per branch circuit must be reconsidered. Such points should be resolved with the cooperation of your electrician, and with recognition of national and local wiring requirements.

This brings us to the matter of air conditioned recreational vehicles. If you permit these, it would certainly seem that you are justified in making an additional charge. The outlets may require heavier than normal wiring, and you may wish to set aside special spaces for this use. Or, if you are starting from scratch, you may wish to use heavy wiring to all outlets and put in smaller fuses when air conditioning is not being used.

Another point is that alternating current motors draw more current in proportion to their wattage than do lighting and heating devices and, in addition, they draw heavier currents when starting. For example, a motor such as that in an air conditioner draws from two to two and a half times its normal current for a few seconds when starting. Therefore you should use a time-delay fuse instead of the simple type. It screws into the same fuse socket.

Thus with just a little more equipment you can provide a flexible service which will be fair both to you and to the over-nighter.



that. Since a low temperature delays the process, the container should be heat insulated.

As the system is entirely biological in action, chemicals which could harm the microorganisms necessary for the decomposition must be kept free of the system. These include strong acids and bases and poisons. Also, nonorganic hard waste products must be kept out of the container. Glass bottles, tin and aluminum cans, plastic and similar products will not decompose and only add bulk to the waste matter.

Although the Clivus system is intended for single-family dwellings, it can readily be adapted for use at camps and temporary

construction sites.

It has been tested and approved by Swedish health authorities and installed in over 1,000 Scandinavian houses. The system won 2 gold medals at the International Inventors Exposition in Brussels last year, one for technical superiority and one for social significance.

More information may be obtained by contacting the company directly; the address is AB Clivus, Tonstigen 6, S-135 00 Tyresö, Sweden.

SAFETY DEVICE FOR TRUCK MOUNTED SNOWPLOW

When Hammond E. Skeen, automotive mechanic, Natchez Trace Parkway, mounted a Meyer Snowplow on a park truck he eliminated a possible safety hazard.

On the adjustable front frame mounting he welded two 3/8" safety chains. These chains can be hooked over the front bumper and will carry the weight of the snowplow when it is not in use.

The snowplow operator may remove snow from the parkway to a distance of 20 or 30 miles from the maintenance area. When finished he raises the plow and hooks the safety chains, releasing the weight of the plow from the Electrolift onto the chains. This enables the operator to drive with confidence, knowing that the plow cannot break loose and fall in



front of the truck, causing injury to himself or parkway visitors.

COASTER PADS SAVE TILED FLOORS

If your office has tiled floors and steel coasters underneath the legs of the chairs, your janitor has a problem. To prevent the unsightly marks left by the coasters, they can be covered with felt.

To make this task simpler, William R. Richins, maintenanceman at Dinosaur National Monument, suggests cutting a piece of 3/4" or 1" conduit 6" long, ream the inside of one end and finish sharpening with a rattail file or whetstone. Then, using the sharpened pipe as a cutting instrument, cut out felt disks from old hats or other sources of discarded felt, glue them to the bottom of the coasters with epoxy cement and you've eliminated the cause of the marks. The pipe can be kept for use as your office gets new chairs.

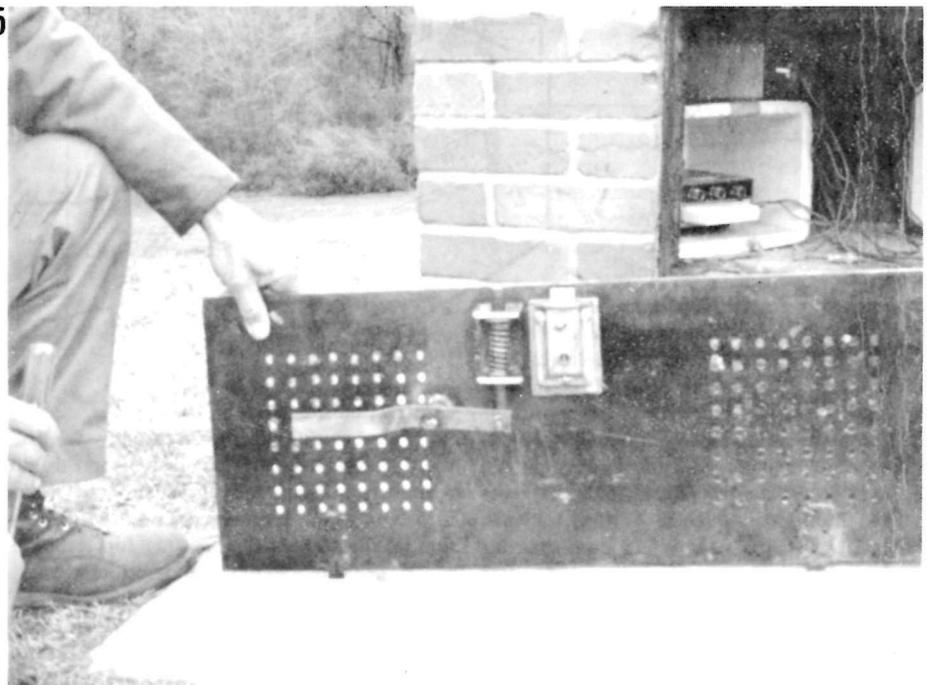
VANDALISM PREVENTION FOR AUDIO-VISUAL BOXES

Audio-visual boxes at Vicksburg National Military Park originally consisted of a single course brick and mason box with a slab top. Photo 1 shows the work of vandals. An attempt was made to secure the system by totally encasing it in a welded steel box. This stopped the vandals' attempts to enter the unit through the top slab or by means of the push-button conduit. Now the only means of entry was through the lock, and about twelve months later vandals pried the lock cylinder and punched through to steal the audio sytem. A 1/4" deep circular escutcheon was then welded about the key plate to prevent vandalism by this method.

Still trying to thwart the vandals, Henry E. Hill, maintenanceman at Vicksburg tried a secondary latch system. Photo 2 shows an audio unit left after destruction of the primary

locking system. Photo 3 shows that the audio system was still intact. Photo 4 shows the means of opening the audio for weekly maintenance, and photo 5 shows the secondary latch

device as mounted on the steel door. To date the secondary latch system has twice proved to be effective in vandalism attempts.



CONVERSION OF FORESTER FIRE PUMP

Fire! The wind was 15 mph; the burn index was high. A Forester siphon unit (fill-by-hose) of 50 gallon capacity and a crew of 8 men responded. A hand line was established near a cliff edge to cut the fire off in its movement toward Mammoth Cave National Park. If the fire dropped over the cliff edge it could destroy more than 1000 acres of prime pine woods and at least drastically alter one of the park's unusual ecosystems. The water gave out—empty tank!

Although there was a water supply within a quarter of a mile, a 10-mile round trip had to be made to refill the tank from a hose supplied water system. That delay resulted in the loss of an additional 10 acres and almost lost the entire hand line.

That and other experiences prompted Harry J. Hobbs, Jr., supervisory park ranger, to convert the Forester type siphon fire pump from the standard fill-by-hose to a self-contained siphon system. It can be done for less

than \$5.00 per unit. Parts needed are as follows:

- 1 - 1 1/4" pipe cap
- 1 - 1 1/4" valve (whatever is available)
- 2 - 1 1/4" x 3" pipe nipples
- 1 - 1 1/4" pipe T
- 1 - 1 1/4" 90° pipe joint
- 1 - 1 1/4" x 4" pipe nipple

WINTER FUN WITH SAFETY

From the *Safety Release* of the National Capital Parks come 2 items on winter safety, adapted from the National Safety Council *Recreational Safety Newsletter* and from an article on first aid for frostbite by Donald M. Higgins, director Health and Safety Service, Boy Scouts of America, which appeared in *Scouting Magazine*, February 1976.

Skating Safely. Some experienced skaters feel that 3 inches of hard sound ice is sufficient for small groups and 4 inches for large groups. However, the National Safety Council cautions that skaters should not be deceived by the thickness of the ice when judging its strength. Ice that is a foot thick may not hold a child if it is snowy and sun-rotted. Also, ice may be strong in one place and thin in another. Cracked areas are especially hazardous to skaters.

Skating surfaces should be clear of snow, because snow melts ice.

If possible, skate on flooded areas or shallow ponds where the water is only one or two feet deep.

Do not skate alone in an unfamiliar area, and do not skate at night unless the area is adequately lighted.

Skates should fit properly and be sharp.

Don't try to compete with experienced skaters unless you are experienced, and stop skating before you become overly fatigued or chilled.

Cold and Frostbite. Outdoor Americans in our cold-weather states have to watch out for frostbite. The sudden blanching of the skin, later accompanied by numbness and tingling in appendages and/or face is a warning. Heed it! The best way to avoid frostbite is to dress properly. The best method known at present to care for frostbite is rapid warming, but only in a particular way. Instructions in *Emergency Care*, published by the Committee on Trauma of the American College of Surgeons, state:

"In the care of frostbite, the best method known at present is rapid warming, but this *must be carried out in a definite way or not at all*. The part should never be thawed until a place is reached where adequate warmth can be maintained. Otherwise, numerous complications will occur.

"When conditions are right for the patient to remain warm, comfortable, and at rest continuously afterward, then rapid and thorough rewarming by immersion in warm water should be started. Put the injured part in a large container of water at 108° F. to 112° F. (42° to 44° C.). Never have the water warmer than 112° F. (44° C.), keeping the water at the required temperature by adding more. Do not add hot water close to the injured part. The hand or foot should not rest on the bottom, but be free in the middle of the container. Do not keep heat under the container. Immersion should continue only until the temperature of the affected tissue returns to normal, that is, about 20 minutes."

Get the patient to a doctor or hospital as soon as possible, delaying the rewarming if this will assure that it will be done under the proper conditions.

Some cautions.

Never try to warm a frozen part of the body by exercising it.

Never rub a frozen part before, during, or after rewarming.

Never expose a frozen part to open fire, hot water, or other forms of intense heat.

Always keep Patient warm after rewarming and handle as a litter case.

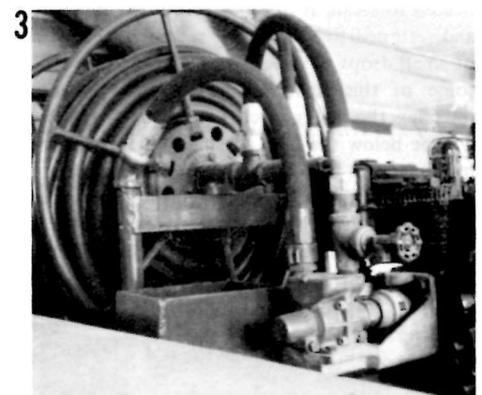
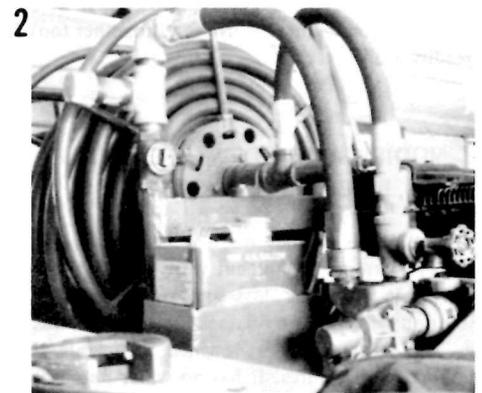
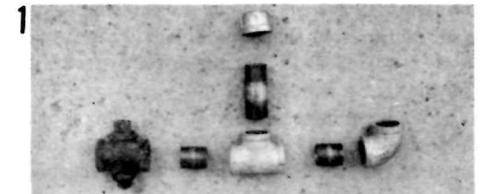


RANGER TIME SAVER

Larry D. Clark, Park Ranger at Lake Mead National Recreation Area, suggests that park district rangers use 3x5" cards to notify owners of vehicles which have been impounded. The normal procedure is to notify the owners by letter; however, by using the preprinted postcards, the Western Region Awards Committee estimated that \$500 can be saved annually.

The \$500 saving comes from reduced processing time and the lower cost of materials used for the cards.

Larry says he got the idea from the Nevada Highway Patrol, which had been using the card notification system for some time.



Lay out and assemble as in photo #1. (Photograph #3 shows the pump before modification.)

Proceed with installation as follows:

1. With pipe wrench, remove flex hose from draft side of the pump and from the stand pipe on the tank.
2. Remove 45° pipe joint from tank stand pipe and discard the joint.
3. Replace 45° joint with valve and complete assembly as in photo #2.

To operate the siphon system:

1. Attach draft hose at T.
2. Close valve on stand pipe.
3. Insert nozzle from hose reel into tank fill port and open nozzle (this speeds filling).
4. Start the pump.
5. For normal operation, reverse the procedure.

SILENT SALESCLERK SAVES FUNDS

When an austerity program forces you to charge for previously free items, but you can't afford an attendant, what do you do?

Ronald Pilbin, Maintenance Mechanic, Department of Forest & Parks, Groton Forest Area Maintenance Shop, came up with this "Silent Salesclerk" for Vermont Forests.

To build the Salesclerk, a 5' length of 3" black iron pipe is set in concrete and fitted with a #3 can to hold change. A Standard cap fitted with a welded padlock hasp serves as security for the change inside.

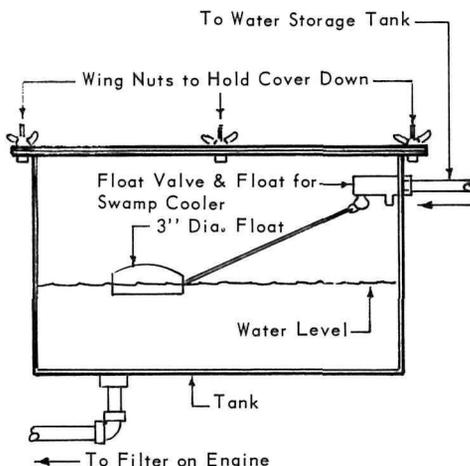
Pilbin estimates the cost will run about \$400 for about 50 of the stands, but notes that most of the materials can be purchased cheaply at any plumbing supply house.

The concrete base was mixed in the field and the number three cans are (altogether too) readily available.

MODIFICATION OF WHITE ENGINE COOLING SYSTEM

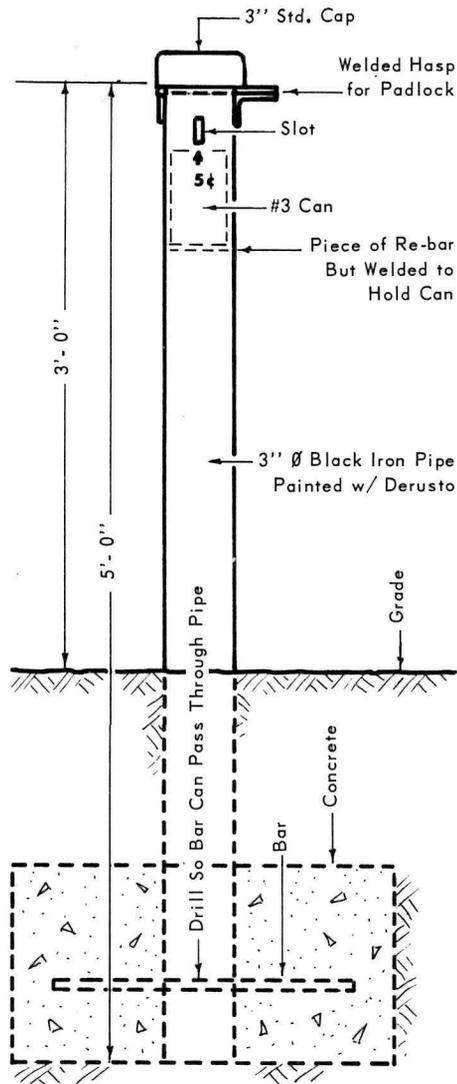
The Witte engines on Rogers Peak, Death Valley National Monument were causing problems due to water loss and overheating. A solution was found by James Smith, mechanic.

The Witte engine is designed to operate at boiling temperatures. It has no water pump or radiator, but uses a condenser. As the water is heated to steam it is collected in the condenser and returned to the cooling system in the form of small drops of water. Over a period of weeks some of this steam escapes to the outside, lowering the water level. Eventually the water will be below the heat sensing bulb. When this happens the motor will continue to operate without sufficient cooling until the whole engine is ruined. If the heat shut-down switch is set below the boiling point the motor will shut down before the critical point is reached, but a trip must then be made to fill it with water and start the plant.



The sketches show the changes which would correct the problem.

This collection stand is used for the sale of firewood in Vermont parks and applies the honor system for correct amounts of the wood.



INCREASE YOUR HAMMER'S UTILITY

When driving nails into hardwood, the nails sometimes meet with knots or other hard areas and bend under the pressure of the hammer. To prevent this from happening, Raymond E. Norman, maintenanceman at Homestead National Monument, Neb., suggests dipping the nails into a lubricant prior to hammering.

In order to make this procedure even easier to accomplish, Norman drilled a 1/2" hole about 1 1/2" into the handle of his hammer and filled the hole with beeswax. Thus, he is never hammering without a supply of the lubricant.

Beeswax is not the only "goo" which works either, axle grease or similar substances are just as good.

The practice of lubricating nails will ease their entry into wood and will help ease temperments sharpened by fingers smashed with hammers.

CHEMICAL SKIN PROTECTS BUILDINGS, MONUMENTS

In the March, 1972, issue of *The American City*, we discover that once again technology seems to have found an answer to itself. This time an antidote for the already proven permanent markers and spray cans of iridescent paint which vandals seem to have claimed for their weapons. The anti-vandal chemical is called Hydron 300 and when applied to walls and concrete monuments forms an impervious barrier, preventing paint and inks from being absorbed into the material.

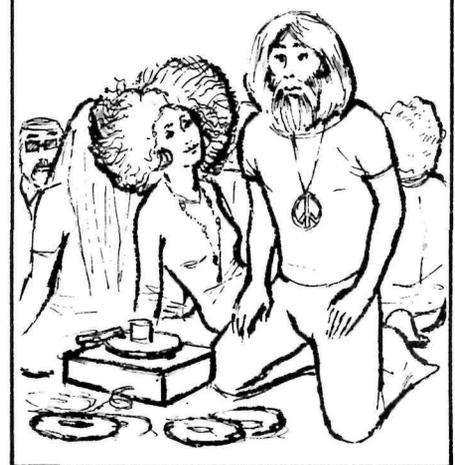
The chemical was recently tested on the George Washington Monument in Boston's Public Gardens. Hydron 300 was coated on a side of the monument and left to dry. The monument was then splattered with paint which was also left to dry. The experimenters then easily wiped away the paint with the help of ordinary paint remover. Had the monument not been treated, the cleanup job would have consisted of the usual scrubbing with detergent and steel wool, or the not-so-often used, but more effective, technique of sand-blasting.

The manufacturer states that the primary use of the chemical is to preserve masonry building surfaces. It is claimed to have an unusual "breathing" quality which inhibits the passage of moisture into the building material but also allows moisture trapped inside to escape to the air outside. Dirt rests on the outer skin and under normal conditions will be washed off by rain. Atmospheric pollutants including unburned hydrocarbons and sulphur dioxide will not penetrate the chemical barrier and the company claims the chemical skin is completely stable, non-corrosive, non-toxic and inhibits efflorescence.

Further information on the polymer coating can be obtained from the Samson Chemical Corp., 880 Third Ave., New York, N. Y. 10022 (tel: 212-832-3150).

THE SURVIVAL KIT

... a cool new sound or the record's scratched.



By Jim Burnett