

POPULAR MECHANICS

MAY 1967
35 CENTS

The Most
Dangerous
Job in
Vietnam

4-WHEEL-DRIVE SAFARI IN THE ROCKIES
How Jeep, Scout and Bronco Go when the Going's Tough



**RODGER WARD'S
INDIANAPOLIS
PREVIEW**



Plus More
Racing and Driving Tips
from DAN GURNEY

Can America Recapture the Brickyard from the British?



**FAR-OUT BUILDINGS
FOR A FANTASTIC FAIR**

A Peep Under the Tent at EXPO 67's Most Exciting Pavilions

What Chevy
and Cutlass
Owners Say
About Their
Cars...

21 Pages on Camping Vehicles and Outdoor Adventure

Which Car Stereo for You?

Weekend Projects to Make with Pipe

Saturday Mechanic: Checking Electric System

ABCs of Brakes

How to Caulk a Boat

Make Your Own Fishing Spoons from — Spoons!

The new Chevy pickups are game to go anywhere



And look great, ride great, handle great while they're doing it.

A new Chevrolet pickup will get you to the backwoods and home in style. In fact, from inside the cab, you'll hardly know you're in a truck at all. And, from the outside, Chevy's got a lean look of its own that'll make you proud to take it anywhere—down-town or out beyond.

But these looks are not for show alone—they're practical and money-saving. For instance: a new system of sheet metal construction eliminates corrosion-collecting joints around the pickup box. And reduces them on the cab, too. New bathtub fender skirts let you shrug off water. A one-hand-operated tailgate latch on the Fleetside adds a new touch of convenience too. And if conventional drive won't get you where you wish—the new low-profile 4x4s will. Make tracks for your Chevrolet dealer's and see. . . . Chevrolet Division of General Motors, Detroit, Michigan.



a brand new breed!

The Round Tire

rolls at least 3,000 miles further!



This precision-engraved mold is one reason why!



The mold for The Round Tire, the Atlas PLYCRON*—is made with remarkable precision! It is engraved to within 3/1000 of an inch of perfect round! Other molds can be out of round by as much as 30/1000 of an inch!

This near-perfect roundness is just one of the many reasons why an Atlas PLYCRON Tire rolls more smoothly, wears much more evenly, for at least 3,000 extra miles!

FOUR ACTUAL PLYS. The Round Tire has 4-ply construction for greater strength plus many other marks of quality — a unique tread design which puts more rubber on the road—long-

er-wearing tough rubber compounds. These are just a few of the many examples of the care that goes into building The Round Tire.

SAFETY TESTED. You'll be glad to know The Round Tire is also safety tested in 54 different ways. In addition, complete sets of tires from various manufacturers' production for '67 cars were promptly road tested under identical conditions by an independent test fleet. These tests showed you can expect 3,000 more miles from The Round Tire than from tires that come on most new cars.

Get your extra miles with The Round Tire!

ATLAS PLYCRON

*TRADE-MARKS "ATLAS" "PLYCRON" REG. U.S. PAT. OFF. © 1967 ATLAS SUPPLY CO.

Sold at over 50,000 leading service stations
Atlas Tires • Batteries • Accessories

MAY 1967

1

Why your wife needs a phone in your workshop

Chances are she's down in her laundry room as often as you're in your workshop.

So with an extension you're both spared that dash upstairs every time there's a call.

By the way, if she wonders why you're putting her phone in your workshop, point out that she can talk more comfortably when she's away from that noisy washer.



Your Stratolounger might make your wife a little uncomfortable.



You've worked hard so your wife can live comfortably.

And she's given you a fancy living room you can't even sit down in.

It's time you made *yourself* comfortable in a Stratolounger®. A man's reclining chair. We have the chair. A real reclining chair. And more. The Stratolounger.

Lean back a little or a lot and it moves with you. Into as many positions as you want. Feet up and back down for napping. Another for TV. One for reading. And a whole collection for just relaxing.

In fact, your feet, your legs, your neck, your back, your "everything" never had it so comfortable.

And your living room never had it so beautiful. There are lovely, trim looking Stratoloungers in a lot of different colors, fabrics, and styles from Early American to Modern to Mediterranean.

And Stratoloungers start as low as \$99.00.

So your wife may even ask you to buy an extra one.

If you make her uncomfortable enough.

Stratolounger American Furniture Mart, Chicago 90611

Stratolounger

The chair a man can call his own.

This One



WW76-LLO-C1RX

POPULAR MECHANICS

INTERNATIONAL EDITIONS: AUSTRALIAN, SPANISH, CARIBBEAN, FRENCH, DUTCH, PORTUGUESE, DANISH, SWEDISH

AUTOMOBILES AND DRIVING

- [26 Automobile Clinic](#)
- [40 Drivin' with Dan](#)
- [76 Detroit Listening Post](#)
- [94 PM Owners Report: Chevrolet Impala](#)
- [102 PM Owners Report: Olds Cutlass](#)
- [116 Rodger Ward's Indianapolis Preview: Can We Beat the British at the Brickyard?](#)
- [119 Four-Wheel-Safari Test in the Rugged Rockies](#)
- [138 The ABCs of Brakes](#)
- [144 Saturday Mechanic: Solving Electrical and Ignition Problems](#)

SHOP AND CRAFTS

- [34 Two New Tools You Should Know About](#)
- [123 Build a Tin-Can Space Heater](#)
- [162 Make Your Own Flowerpot Wind Chimes](#)
- [172 Build This Two-in-One Chest-Crib](#)
- [177 Why Is It Called a 2x4?](#)
- [178 4 Weekend Projects with Pipe \(Flagged for Filing\)](#)
- [185 Hints from Readers](#)
- [186 Flat Turnings from Round Stock](#)
- [188 Don't Sell Your Drill Press Short \(Flagged for Filing\)](#)

SCIENCE AND INVENTIONS

- [10 Science Worldwide](#)
- [12 New Inventions](#)
- [88 Field Day for Engineers: Expo 67](#)
- [110 I Became an Aquanaut—Third Class](#)
- [152 World's Wettest Drydock](#)

PHOTOGRAPHY

- [24 Photo News](#)
- [176 Photo Hints](#)

HOME AND YARD

- [48 Homeowners' Clinic](#)
- [98 You Can't Call Them Toys Anymore!](#)
- [150 Exciting New Products](#)
- [156 Build a Kit Greenhouse](#)
- [160 New Faces for Your Front Door](#)
- [163 New Hardware to Improve Your Home](#)
- [168 Solving Home Problems](#)
- [170 Build This Low-Cost Diving Board](#)
- [170 Do-It-Yourself Steel Pool for \\$1150](#)
- [184 Pushbutton Yard Maintenance](#)

AEROSPACE, AVIATION, MILITARY

- [62 Aviation Jetstream](#)
- [81 The Most Dangerous Job in Vietnam](#)
- [84 The Flight That Tied the World Together](#)

ELECTRONICS, RADIO AND TV

- [106 The Facts About Car Stereo](#)

BOATING, OUTDOOR RECREATION

- [20 What's New Outdoors](#)
- [112 Make Your Own Fishing "Spoons"](#)
- [124 Campers: 12 Ways to Add Comfort and Convenience](#)
- [128 They Made a Camper Out of a Greyhound](#)
- [132 Add a Boat Rack to Your Tent Trailer](#)
- [134 New for Campers](#)
- [136 Camping Hints from Readers](#)
- [164 How to Choose the Right Boat Caulk](#)

REGULAR FEATURES

- [6 Letters](#)

NEXT MONTH IN POPULAR MECHANICS

The '68 Cars: How New Will They Be? Our man in Detroit has played the Agent 007 role again and come up with a great "sneak preview" of Detroit's lineup for next year. **PM Owners Reports on the Cougar and Falcon.** The owners will tell you what's right and what's wrong with them after driving almost two million miles.

Published by The Hearst Corporation
RICHARD E. BERLIN, PRESIDENT

RICHARD E. DEEMS
President, Magazines Division

JOSEPH F. KERN
Publisher

ROBERT P. CROSSLEY
Editor

JAMES M. LISTON **JOHN A. LINKLETTER**
Executive Editor Managing Editor

WAYNE C. LECKEY **SHELDON GALLAGER**
Home and Shop Assistant Executive
Editor Editor

THOMAS G. DAUER
Art Director

CLIFFORD B. HICKS _____ Midwest Editor
THOMAS E. STIMSON _____ Western Editor
WILLIAM KILPATRICK _____ Automotive
KEVIN V. BROWN _____ Aviation
ARTHUR MIKESSELL _____ Boating
DANIEL C. FALES _____ Outdoors
BILL HARTFORD _____ Electronics
GARRY WINTER _____ Copy and Production
ALVIN KIETZ _____ Assistant Art Director
LEO R. WEEKS _____ Assistant Art Director
NILS NELSON _____ Assistant Art Director
GEORGE W. BLOW _____ Technical Art Director
FRANK P. FRITZ _____ Chief Photographer
EVERETT JOHNSON _____ Cabinetmaker

ADDRESS ALL EDITORIAL COMMUNICATIONS TO: 575 Lexington Ave., New York, N.Y. 10022. For additional sources of information on the articles and products in this issue, write to Bureau of Information, Popular Mechanics, for free "Where-to-Find-It" list.

L. PARK BENJAMIN, Advertising Director

ADVERTISING OFFICES: New York: 575 Lexington Ave., Murray Hill 8-8500; Chicago: 520 N. Michigan Ave., 527-2400; Detroit: General Motors Bldg., TRinity 5-8711; Cleveland: Hanna Bldg., 1422 Euclid Ave., PROspect 1-0456; Los Angeles: 601 North Vermont Ave., 666-6263; San Francisco: 1101 Hearst Bldg., YUxon 2-0823; Savannah, Ga.: 310 Drayton St., ADams 2-1106.

SUBSCRIPTION SERVICE: Mail all subscription orders, changes of address, correspondence concerning subscriptions, and Postmaster notices of undeliverable copies to Popular Mechanics, Box 646, New York, N.Y. 10019.

Popular Mechanics is published monthly by The Hearst Corporation, 57th St. at 8th Ave., New York, N.Y. 10019, U.S.A. Richard E. Berlin, President; George Hearst, V-Pres.; Richard E. Deems, President of Magazines; John R. Miller, V-Pres. and Gen. Mgr. of Magazines; William S. Campbell, V-Pres. and Director of Circulation; Joseph F. Kern, V-Pres. for Popular Mechanics; Frank Massi, Treasurer; Harvey L. Lipton, Secy. Single copy in the United States and Canada, 35 cents. Subscription prices: United States and Possessions, \$4.00 for one year; \$7.00 for two years; \$10.00 for three years. Canada, add \$0.50 for each year. Pan American Postal Union countries, add \$1.00 for each year. All other countries, add \$2.00 for each year. When changing address, give old address as well as the new, with postal-zone number, if any, and allow six weeks for change to become effective. Second-class postage paid at New York, N.Y., and at additional mailing offices. Authorized as second-class mail by the Post Office Department, Ottawa, and for payment of postage in cash. Registered as second-class matter at the Post Office at Mexico, D.F., Mexico, June 20, 1950. © 1967 by The Hearst Corporation. All rights reserved. Printed in U.S.A.

Gravity won't let you down.



Kodak designed the CAROUSEL Projector for jamproof slide showing. Your slides (80 in the round tray) are simply lowered into place by gravity. There's no mechanical pushing, pulling, or jamming, no apologizing to your audience.

Choose from four KODAK CAROUSEL Projector models, starting at less than \$80. All have easy push-button controls. Some have remote forward and reverse, remote focusing, fully automatic slide change.

See your Kodak dealer and enjoy cheers all around.

Price subject to change without notice.

Kodak Carousel Projectors

Kodak
TRADEMARK

LETTERS

TO THE EDITOR

Is it Dorado?

I think there are reasonable grounds for believing the unidentified submarine found off Block Island (*They Dive for Wrecks*, page 92, March PM) is the *Dorado* (SS 248) which departed New London for Panama on Oct. 6, 1943.

I refer you to page 65, *U.S. Submarine Losses* (NavPers No. 15784, 1949 issue), published by Government Printing Office.

It is entirely reasonable to conjecture that a submarine leaving the base at New London and apparently bound for the Pacific would run up the coast on the surface and then, rounding Block Island and making its departure, would submerge in the area of the wreck. A diving malfunction on the first dive would place the boat in the area of the wreck.

Bellwood, Ill.

F. K. MANSFIELD

Lt. (j.g.), USN, Ret.

Tornado watchers

Having just completed *Twenty-two Minutes Over Topeka* (page 82, Mar. PM), I feel that E. D. Fales Jr. has done one of the finest literary jobs possible. Lake County Civil

Defense
Painesville, Ohio

ALBERT E. STEWART
Director

We found the Topeka tornado story very well done, and each member of our family found it so fascinating we read it word for word before putting it down.

Topeka, Kans.

MRS. NILES KUEHN

I commend you for a job well done.

State Historical Society
Topeka, Kans.

NYLE MILLER
Secretary

Sticky feeder

Your article, *Bird Cafeteria* (page 86, Feb. PM), tells how to construct a bird feeder from a muffin pan and other materials. If a bird is feeding on a very cold day, there's a danger that his wet tongue will stick or freeze to the metal. To eliminate the problem, use a plastic muffin pan. Baldwin, N.Y.

STEPHAN L. GINELL

Winches in the pile-up

I enjoyed *The Big Pile-Up of 1966* (page 122, Feb. PM); however, there is a mistake in the picture caption on page 126. It states that "Others [cars] folded

(Please turn to page 8)



Smooth finishes every time! Motor is in middle, weight on work. Won't tilt, gouge or rock. Easy to control.



Deluxe belt sander has 2 speeds: high for fast material removal; low for finishing. 1200 feet of abrasive action a minute!



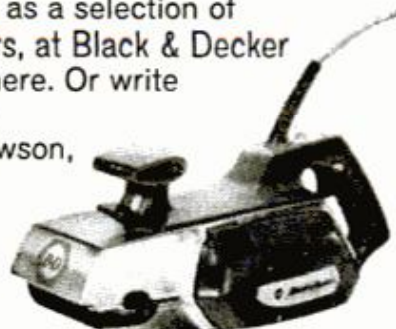
Dust collector on either model keeps workshop clean. Up-front controls make belt changing easy.



Low cost Finishing Sander has 25 sq. in. of orbital sanding surface. Flush sands on three sides. Easy handling.

New B&D sanders add "professional" touch to home projects.

Now you can sand like the professionals and get professional results! Black & Decker new low-profile belt sanders take standard 3" x 24" belts, for wood or metal finishing. They're so well balanced, you can sand with one-hand control. Compact design eliminates top motor housing. Motor is in the middle putting the weight on the work, where it belongs. Gear-driven transmission for smoother power. See new B&D Belt Sanders as well as a selection of finishing sanders, at Black & Decker dealers everywhere. Or write Black & Decker, Dept. C-057Y, Towson, Md. 21204.



LA SALLE EXTENSION UNIVERSITY

A Correspondence Institution • 417 South Dearborn, Dept. 65-125, Chicago, Illinois 60605

Please send me, without cost or obligation, FREE booklet and full information on the field I have checked below:

ACCOUNTING

- Complete Accounting with CPA Training
- General Accounting
- Income Tax
- Accounting Fundamentals
- Auditing
- Controllorship
- CPA Training
- Modern Bookkeeping

BUSINESS MANAGEMENT

- Complete Business Management
- Credit and Collections
- Office Management
- Personnel Management
- Business Correspondence

LAW COURSES

- Bachelor of Laws Degree
- Business Law
- Insurance Law
- Claim Adjusting Law
- Law for Police Officers
- Law for Trust Officers

SALESMANSHIP

- Sales Management
- Complete Sales Training

DRAFTING

- Basic Drafting
- Aeronautical Drafting
- Architectural Drafting
- Electrical Drafting
- Mechanical Drafting
- Structural Drafting

REAL ESTATE

- Complete Real Estate
- Real Estate Brokerage
- Real Estate Management
- Real Estate Sales

TRAFFIC AND TRANSPORTATION

- Complete Traffic Mgt.
- Transportation Law
- Rates and Tariffs
- Agency and Services
- Motor Truck Traffic

STENOTYPE

- Machine Shorthand

TECHNICAL COURSES

- Mechanical Refrigeration
- Air Conditioning, Refrigeration and Heating
- Diesel

HIGH SCHOOL

- High School Diploma

CAREERS FOR WOMEN

- Interior Decorator
- Dental Assistant
- Secretarial
- Accounting
- Bookkeeping
- Real Estate

Name.....Age.....

Address.....County.....

City & State.....Zip No.....

Occupation.....

Working Hours.....A.M.....P.M.
342

HAVE YOU SEEN THIS COUPON BEFORE?

It has started a million people on the road to success. Just looking at it won't get you anything... but putting it in the mail can change your whole future!



The coupon above is one of the most famous coupons in America. To many of those who have already mailed it, it has proved a first step to opportunity and good fortune. Isn't it time you sent it on its way — to set in motion a practical program for your own success?

Right now, ambitious men and women in every walk of life are preparing for lucrative positions through LaSalle spare-time training. If your goals are bigger pay, rapid promotion, and lasting security, you owe it to yourself to find out without delay what LaSalle home study can do for you.

LaSalle training is practical, widely respected. Regardless of your previous education or experience, LaSalle offers you top-grade, up-to-date instruction in a wide choice of today's best-paid, fastest-growing fields where the demand for trained personnel is at an all-time high — and is still growing.

LaSalle trains you in your spare hours at home. You receive individual instruction. You progress as rapidly as you wish under the expert and attentive supervision of LaSalle's distinguished faculty of practicing specialists and instructors.

For more than half a century, LaSalle has been an acknowledged leader in business and technical education. That is why your training is in good experienced hands, why a LaSalle diploma is respected by employers. The cost of this training is remarkably low.

Why you should act now. The direct practical results of LaSalle home study — in terms of pay increases, promotion, and broadened opportunity — come rapidly. One student recently wrote: "The modest investment I made in LaSalle has yielded me a 150% return. And this is in ten months! My only regret is that I had not taken up the course sooner." This is typical of many letters that regularly come to LaSalle. Why not start right now? Mail the coupon to LaSalle, 417 South Dearborn, Chicago, Illinois 60605.

FASTER! EASIER! BETTER!

SHOOT a 1/4"
staple for tacking window screening, shell papers, closet linings, window shades, draperies, etc.



SHOOT a 5/16"
staple for tacking light upholstery, leatherettes, cornices, quilting for closets, wall decorations, etc.

SHOOT a 3/8"
staple for fastening light insulation, roofing papers, electrical wires, weatherstripping, wire mesh, etc.



SHOOT a 1/2"
staple for tacking underlayments for carpets, porch screening, felt stripping, canvas, fiberglass, etc.

SHOOT a 9/16"
staple for tacking metal lathing, cornerite, wire fencing, roof coverings, insulation board, etc.



SHOOT a Ceiltile
staple—especially made for safe, secure installation of ceiling tile.

**SHOOT A STAPLE
WHEREVER YOU'D DRIVE A NAIL!**

ARROW
Heavy Duty
STAPLE GUN
Model T-50

LOADS 6 STAPLE SIZES

- 1/4"
- 5/16"
- 3/8"
- 1/2"
- 9/16"
- CEILTILE

All-steel construction, lasting chrome finish—built to last a lifetime. List \$12.95. Other models from \$5.95.

At Hardware, Lumber, Building Supply, Stationery and Other Retail Outlets.

ARROW FASTENER COMPANY, Inc.
Saddle Brook, New Jersey 07663

LETTERS

(Continued from page 6)

when plows, of necessity, hurled them aside to clear highway." This is not true and was a mystery until we explained how cars got on the center mall.

We were ordered to clear the road, so we drove the tow car up the westbound lane and as we came to piles of damaged vehicles, we winched them up on the mall. The snowplows didn't come through this area until several hours later.

Batavia, N.Y. H. LEE HOUSEKNECHT JR.
Houseknecht Motors, Inc.

Thanks for an interesting article, but didn't author Fales overdo the dramatics on page 127: "A cross-country bus came to a stop, brakes screeching."?

Brakes screeching on a snow-covered road? Aw, come on, now!
Bartlesville, Okla. H. L. LYNCH

Maybe it was the driver.

Racewatchers' racewatcher

Racewatchers Guide to Competition Cars (page 95, Mar. PM) is a very interesting and informative article. I did notice one flaw, however. Under the heading "Sports Prototype (Under Two Liters)" you show a Porsche Carrera 6 which has a horizontally opposed 6 o.h.c. engine with a top speed of about 174 mph. You describe it as a Porsche 906 with a flat 8 and top speed of 165 mph.
Bethesda, Md. THOMAS J. DETTLOFF JR.

And you, sir, have flawless racewatchers' eyesight. We had to go back to the original (and larger) painting to find the identification mark proving you are right.

Longer and higher

I've just read *America's Longest and Highest Thrill Ride* (page 118, Feb. PM). The Sierra Nevada Cable Car System in the state of Merida, Venezuela, dwarfs even the Jackson Hole Tramway, making it the highest and longest in the Americas. The Merida cable car climbs from the capital city, Merida, 5172 feet above sea level, to Mirror Peak, 15,269 feet high, covering 7¾ miles within four hours.
Manila, Philippines A. M. VELASCO

Well, we used "America" to mean "United States"—it's been done before and will probably be done again—but, of course, Merida is also in America, as are Buenos Aires and Toronto. Anyway, the tramway we showed is the biggest one in Jackson Hole. And as American as apple pie and frijoles. ★★★

We're out to bait you

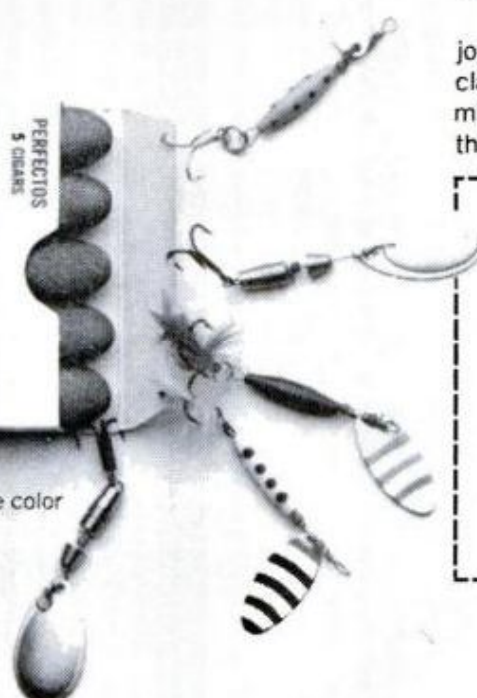
Any set for \$1.00 and the top flap from a Wm Penn 5-pack.

The total value for the three sets is \$15.55. Lures, spinners and flies for the ones that got away last year.

Even if you don't catch any, you can still enjoy the day with a Wm Penn Planter's Tip or the classic shaped Wm Penn Perfecto. They're so mild, you could smoke a dozen a day. Hook onto this offer and get lured over to a great smoke.



SET B-68. Five matched spinners, from string-bee color to brass flasher.



Mail this coupon with \$1.00 and the top flap from a Wm Penn 5-pack for each set to Box 860, Pilgrim Park Station, Warwick, Rhode Island 02888. Offer expires Dec. 31, 1967.

FILL IN QUANTITIES

- A-68 _____ sets @ \$1.00
- B-68 _____ sets @ \$1.00
- C-68 _____ sets @ \$1.00

PRINT

Name _____
 Address _____
 City _____
 State _____ Zip Code _____



SET A-68. Seven master lures, from silver-tone to red-leopard colors.



SET C-68. Fourteen true flies, from yellow wing to green bass flies.

BY JOHN F. PEARSON
SCIENCE
WORLDWIDE

SHORTAGE OF ENGINEERS during the next 10 years is forecast by the Engineers Joint Council, a professional organization. Some 830,000 college-trained engineers will be needed, surveys show, but only 500,000 will be available from the nation's engineering schools. Looks like a wide-open field for technically minded students.

AS MUCH LEARNING POWER is packed in sugar pills as in a highly touted memory drug, magnesium pemo-line. This was established in recent experiments at the University of Michigan in which student volunteers gulped pills and performed tests. Not only did the sugar-pill eaters outperform their fellow students, but learning ability actually decreased with increased doses of the memory drug. The drug reportedly enhances learning ability and memory in rats.

BUDDHIST SCROLL discovered in a South Korean temple is thought to be the oldest printed matter ever found. Scholars say it was produced some time between 704 and 751 A.D. The 20-foot-long scroll was printed from 12 wooden blocks bearing carved Chinese characters. Block printing was the precursor of printing with movable type, the method used to produce the Gutenberg Bible, published in Europe around 1455.

CURIOUS OFFICIALS of an English museum wanted to know if a mummy, an Egyptian princess about 2500 years old, was wearing jewels or anything else of value under her wrappings. They couldn't unravel the fragile linen, so they appealed to the British army. An X-ray machine designed to detect land mines was turned on the princess. Nothing of value was found, but the films showed one thing—the old girl had a fine set of teeth.

GOLD-BEARING ROCK, located in northwest Wyoming and estimated to total 50 cubic miles, is a special target of investigation by scientists of the U.S. Geological Survey. In a preliminary report, geologists said the gold content in large units of the rocks ranges in value from 6 to 35 cents a cubic yard. This indicates to government experts that richer zones will be found in the area, which will be-

come "target areas for exploration by private interests."

DRUG THAT CUTS CHOLESTEROL levels in the bloodstream will become available in the United States this spring. Already in widespread use in Europe, the drug, named clofibrate, reduces cholesterol in many cases by 7 to 35 percent. Cholesterol is a fatty substance that coats walls of blood vessels and is thought to be a leading cause of heart attacks.

LONG, LONG HEAT WAVE DUE. So say researchers at the Naval Oceanographic Office who base their prediction on old historical records indicating that weather is subject to cyclical changes. But don't panic. The heat wave won't hit for a century or so, and the worst heat may not be with us until about 2400 A.D. A cooling trend will then set in, lasting until about the year 3300.

LSD EXPANDS MORE THAN MINDS. It causes spiders to build oversized webs, according to scientists at a Canadian mental hospital who inject small amounts of the controversial drug into the tiny



critters. Morphine causes a normal 30-minute spinning job to take three hours, and a spider under the effects of marijuana builds a rectangular web instead of the conventional type.

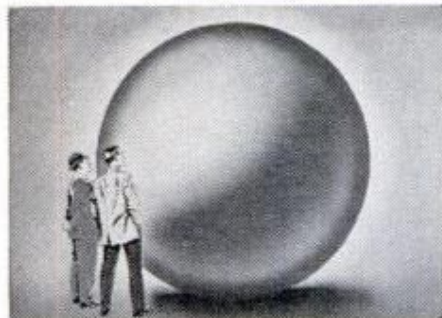
ARTIFICIAL FACIAL PARTS that look real enough to fool most people have been developed by Army researchers at Walter Reed Medical Center in Washington, D.C. They're made of a new plastic material called "polyderm." A nose or chin made from the material reportedly can be painted to match precisely a patient's skin—including details such as freckles and tiny blood vessels. A special adhesive holds the part in place. ★★

MAIL
ORDER

SHOPPING MART

UNUSUAL
VALUES

A selection of products available by mail for readers of Popular Mechanics.
All merchandise sold in a money-back guarantee. Order Direct by Stock No. Send check or M.O.



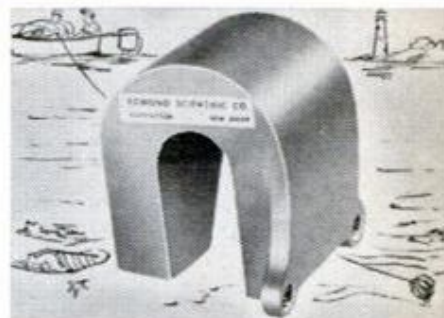
GIANT WEATHER BALLOONS

"Balls of fun" for the kids, traffic stoppers for stores, terrific for amateur meteorologists. Create a neighborhood sensation. Great backyard fun. Exciting beach attraction. Amateur meteorologists use to measure cloud heights, wind speed and temp. Made of heavy duty neoprene. Inflate with vacuum cleaner or auto air hose; or locally available helium for high rise. 8' diam. \$2.00 ppd. #60,568H. 16' diam. \$7.00 Ppd. #60,632H. Edmund Scientific Co., Barrington, New Jersey 08007.



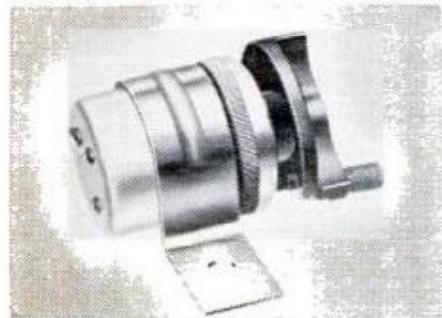
AMERICAN MADE OPAQUE PROJECTOR

Projects illustrations up to 3" x 3½"—enlarges them to 35" x 30" if screen is 6½ ft. from projector, larger pictures if screen is further away. No film or negatives needed. Projects charts, diagrams, color or black-and-white. Operates on 115 volts A.C. current . . . 6 ft. extension cord and plug included. Size 12" x 8" x 4½" wide. Weight 1 lb. 2 ozs. Plastic case \$7.95 Ppd. Order No. 70,199H. Edmund Scientific Co., Barrington, New Jersey 08007.



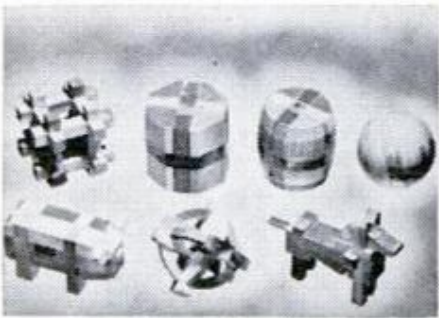
"FISH" WITH A MAGNET

Go treasure hunting on the bottom! Fascinating fun & sometimes profitable! Tie a line to our 5-lb. Magnet—drop it overboard in bay, river, lake or ocean. Troll it along bottom—your "treasure" haul can be outboard motors, anchors, other metal valuables. 5-lb. Magnet is war surplus—Alnico V Type—Gov't. cost \$50. Lifts over 150 lbs. on land—much greater weights under water. \$12.50 Ppd. Order Stock #70,571H. Edmund Scientific Co., Barrington, N.J. 08007.



WAR SURPLUS ELECTRIC GENERATOR

Brand new Signal Corps Electric Generator. Generates up to 90 volts by turning crank. Use in high impedance relays. Charge ground & bring up night crawlers for bait or study. 2 Alnico Magnets alone now worth more than original gov't. cost of \$15. Wt. 2 lbs. \$6.95 Ppd. Order Stock No. 50,225H. Mtd. with light, to demonstrate electricity. \$11.95 Ppd. Order Stock No. 50,365H. Edmund Scientific Co., Barrington, New Jersey 08007.



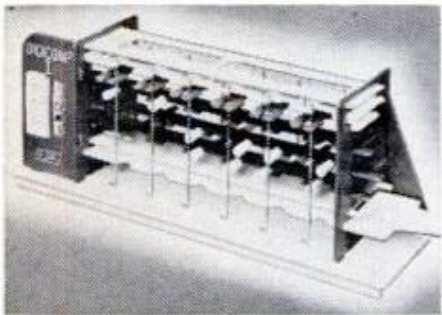
WOODEN SOLID PUZZLES

Here's a fascinating assortment of 12 different puzzles to provide hours of pleasure and stimulate ability to think and reason. Animals and geometric forms. Take them apart and reassemble them. Lots of fun for the whole family—young and old. Will test skill, patience and ability to solve problems. \$3.50 ppd. Stock No. 70,205H. Edmund Scientific Co., Barrington, N.J. 08007.



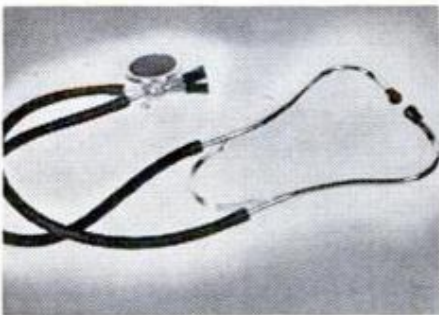
3" ASTRONOMICAL TELESCOPE

See the stars, moon, phases of Venus, planets close up. 60 to 180 power. Aluminized and overcoated 3" diameter f/10 primary mirror, ventilated cell. Equatorial mount with locks on both axes. Equipped with 60X eyepiece and mounted Barlow lens. 3x finder telescope, hardwood tripod. Included FREE: "STAR CHART"; 272-page "HANDBOOK OF HEAVENS"; "HOW TO USE YOUR TELESCOPE" book \$29.95 ppd. Order #85,050H. Edmund Scientific Co., Barrington, New Jersey 08007.



NEW MODEL DIGITAL COMPUTER

Solve problems, tell fortunes, play games with miniature version of giant electronic brains! Adds, subtracts, multiplies, shifts, complements, carries, memorizes. Colored plastic parts easily assembled. 12" x 3½" x 4¾". Incl. step-by-step assembly diagrams, 32-p. instruction book covering operation computer language (binary system) programming, problems & 15 experiments. \$5.98 Ppd. Order stock #70,683H AD. Edmund Scientific Co., Barrington, N. J. 08007.



DIAGNOSE MECHANICAL TROUBLE

Professional Stethoscope. Designed for use by physicians. This super-sensitive Stethoscope is ideally suited for detecting faults in machines and engines, and in fluid, air and gas leakage. Dozens of uses in auto repair shops, labs and for hobby and educational applications. \$7.50 Ppd. Order #50,270H. Bargain price Stethoscope: \$3.25 Ppd. Order #50,223H. Edmund Scientific Company, Barrington, New Jersey 08007.



GIANT FREE CATALOG

Completely new 1967 Catalog. 148 pages packed with nearly 4,000 unusual bargains. Exciting new categories. Many new items, 100's of charts, illustrations. Many hard-to-get war surplus bargains. Enormous selection of telescopes, microscopes, binoculars, magnets, magnifiers, prisms, photo components, etc. For hobbyists, experimenters, workshops. Shop by mail. No salesman will call. Write for Catalog "H" to Edmund Scientific Co., Barrington, N.J. 08007.

FOX MINI-BIKES

Do-It-Yourself or Fully Assembled

16 MODELS from \$59.50

2½ hp to 5 hp

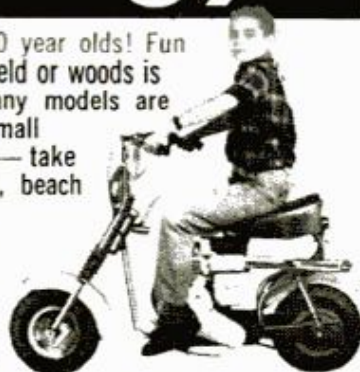
Simple enough for even 10 year olds! Fun and easy! Any empty lot, field or woods is your playground. And, many models are licensable for street use. Small enough to fit in a car trunk — take it camping, to the cottage, beach . . . anywhere!

BIG CATALOG \$1

Shows Bikes, Plans, Parts, Access., Pictures

Colored Brochure only - 25¢

FOX CORP. Box 797PM • Janesville, Wis. 53545



Tape this ad to the back of your TV or Radio Set

ALL TV-RADIO RECEIVING TUBES \$1 ea.

● ALL BRAND-NEW, First Quality. All Types Available. ● Orders Shipped First Class Same Day Rec'd. ● Unconditionally Guaranteed. ● 24 Month Warranty.

Send \$1 for ea. tube + 50c. postage & handling of entire order. FREE: Write for "do-it-yourself" TV Test Chart and Tube List to Dept. PM-57



UNIVERSAL TUBE CO. Ozone Park, N. Y. 11417

Two or four-wheel drive
JEEP or SCOUT
owners

REPOWER with a 6 or V-8. H.D. ADAPTORS for using Car, Compact and some Truck engines. Conversion Kits \$45.35 to \$56.90. Want fast action? Give us FULL INFORMATION. Send \$15.00 Dep. and we will ship correct kit, bal. COD. Send full amount for prepaid shipment. Wire, phone or write today. Details FREE

HOOSIER MACHINE PRODUCTS CO.

312 S. E. 6th St., Phone 276-3442, Pendleton, Oregon 97801

HEAVY DUTY BALL-BEARING PUMP

IRRIGATE • DRAIN • SPRAY • CIRCULATE • Famous all-metal, rust-proof XB pump with stainless shaft. Use ¼ HP or larger. 1 HP for up to 5,200 GPH 60' high or 3,000 GPH from 25' well. 1¼" inlet. 1" outlet. For belt or direct drives. Only \$12.95

Famous Type P won't rust or clog. Bronze bearing. Hundreds of thousands in use. Up to 2,400 GPH. 1" inlet. ¾" outlet. Only \$8.95

Postpaid cash with order. Money Back Guarantee.

LABAWCO, Box 9, Belle Mead, N. J. 08502



INVENTORS

INVENTIONS—NEW PRODUCTS—IDEAS DEVELOPED & PREPARED

For Commercial Appeal & Sales

DESIGN—MARKETING—PATENT SEARCHES—DRAWINGS

United States Patent Office former Patent Examiner

United States Government former Patent Adviser

Member: United States Chamber of Commerce

Second Decade of Reliable Service to

INVENTORS—MANUFACTURERS—ATTORNEYS

THE RAYMOND LEE ORGANIZATION

130-Z West 42 Street—New York, New York 10036

SEND FREE "INVENTION RECORD" Form & "IMPORTANT PATENT INFORMATION"

Name _____

Address _____

City _____ State _____ Zip _____

FROM THE PATENT OFFICE NEW INVENTIONS

BY M. J. PEDERSEN

SINCE THE PATENT ACT OF 1836, no basic changes have been made in U.S. patent laws. However, a Commission on the Patent System, established by President Johnson in April, 1965, means to modernize the system. It recently recommended a series of reforms:

- To shorten the waiting period from time of application to final disposition of a patent. (Average time now is 2½ years.)
- To lower the cost of getting a patent.
- To make U.S. patent practice more compatible with that of other major countries, wherever consistent with the objectives of the U.S. (On the average, patents are now granted in three different countries for the same invention.)

GAS-TURBINE ENGINES may be monitored by fluidic fuel control systems that employ fluids under pressure instead of the electronic circuits presently in use. The new control system earned patent 3,302,398 for Lael Taplin, Walter Datwyler, Joseph Madurski and Thomas Thompson. It senses how fast the engine turbine is moving, compares it with the speed the throttle is set for, and feeds more or less fuel into the combustion chamber until the actual speed matches that desired. The system also prevents the combustion chamber from getting either too hot, which could damage the engine, or too cold, which could cause flame-out.

NEW CAMOUFLAGE PAINT for concealing vehicles and buildings in snow reflects ultraviolet light like real snow—something that conventional white paints don't do. Gunnar W. Lindquist of Sweden received patent 3,300,325 for the development. Ordinarily camouflaged objects can easily be picked out by film or other detection devices sensitive to UV light.

A HOME IN SPACE may be provided for as many as 24 astronauts in orbit for a year or more by a huge three-winged "house" 150 feet across that would erect itself in space after an unmanned launch. For launching, its three wings would fold to form a smooth cylinder. Once in space, the wings would fold out. Patent 3,300,162 was assigned to NASA by inventors Owen Maynard, Willard Taub, David Brown, E. H. Olling and Robert Mason. ★ ★ ★

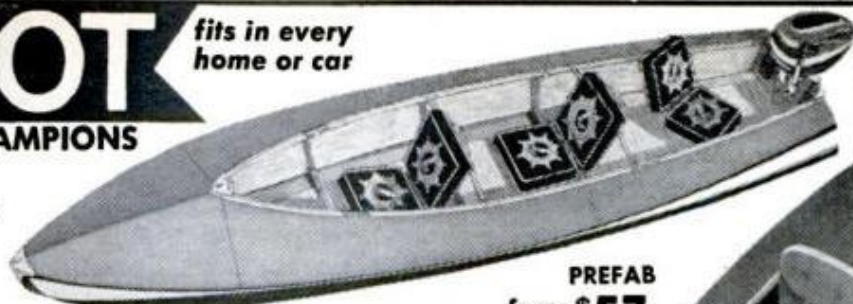
FOLBOT

fits in every home or car

FACTORY BUILT
\$162

CHOICE of CHAMPIONS

belongs to You



PREFAB from **\$57**

Most inexpensive too

GENUINE Folbot RECREATION for just ONE small investment, WITHOUT the continuous burdens of complicated 'big rig' operation. You GO CAREFREE anytime with COMPACT Folbot . . . rocky streams, lakes, marsh, surf & open sea. Superior non-sinkable designs provide SAFEST low gravity center, balanced low & high seating, substantial construction, protective decks & EXCLUSIVE swivel-back COMFORT. ALL within your reach. In handy Folbot YOU GLIDE smoother, faster & NOISELESS with paddles, oars, or sails and ride softly w. 1 to 10 HP. motors. Many styles & sizes from 1 to 4 seaters, FOLDING or rigid PORTABLE come in PREFAB KIT, or expertly FACTORY BUILT

NOW at SPECIAL SAVINGS
YACHT-SMART large DACRON Sail Rig **\$112**

NEW Fabulous 16 foot **\$129**

Factory BUILT Folding from \$189 Factory finished

FREE ACTION CATALOG

Mail coupon or address to: FOLBOT CORP., Dept. PM-567 Charleston, S. C. 29405

**NATIONAL SAFETY RECORDS
WORLD RECORD FISHING**



for YOUR SPORT & FAMILY FUN

Name _____
Address _____
City _____ State _____

Need a better job? Want to own a business?

Train at home for BIG MONEY in the AIR CONDITIONING REFRIGERATION & HEATING FIELD!



Skilled men are desperately needed in the Air Conditioning, Refrigeration & Heating industry. Over 20,000 must be trained each year to fill good jobs in this fast-growing

field. You can learn to install and repair these units at home in your spare time. New CTI course features 25 kits and easy picture lessons. Many students earn as they learn. Many start a business.

You Build A Complete Refrigeration System!

In addition to easy lessons and work projects, you get (and keep) mechanic's tools and parts to build your own freezer or refrigerator. You get experience as you train.



APPROVED FOR GI TRAINING

If you served since January 31, 1955 or are in service, check GI line in coupon

MAIL THIS COUPON FOR FREE BOOKLET COMMERCIAL TRADES INSTITUTE

1400 GREENLEAF Dept. PM-567, CHICAGO, ILLINOIS 60626

COMMERCIAL TRADES INSTITUTE

1400 Greenleaf Avenue • Chicago, Illinois 60626 • Dept. PM-567

Please rush me your FREE 28 page illustrated opportunity book, "Be a Success in Air Conditioning, Refrigeration and Heating."

Name _____ Age _____

Address _____ Zip Code _____

City _____ County _____ State _____

Check for facts on GI Bill

Accredited Member National Home Study Council

AIR CONDITION YOUR CAR WITH THE NEW



factory air
ENJOY COOL COMFORT AND SAVE \$200 WITH THE FINEST

FROM **COMFY-KIT** BUILT-IN BY YOU IN 5 TO 6 HOURS ONLY **\$199**

The NEW Factory Air by Comfy-Kit is a new concept in automobile air conditioning — the result of three years of engineering. It is more efficient because it requires less HP, and effects mileage less than one mile per gallon. Its beautiful metallic louvers are designed to direct volumes of cool air anywhere you want it. The left and right air outlets can be installed vertically, horizontally within the dash or just underneath, depending on dash

design. You can actually save \$200 over original equipment air conditioning and have the pride of doing it yourself. Order now on our Lay-A-Way plan — \$50.00 with order and a minimum of \$25.00 per month. We will ship COD for balance anytime you wish. Send \$1.00 for a complete, easy step-by-step instruction manual, applicable on purchase price.

free literature

Here's what Phil McCafferty said about Comfy-Kit in Popular Science: "How does it work? In a word, splendidly. I found that COMFY-KIT would usually chill my car 30 to 35 degrees below outside temperatures."

order now

THE COMFY-KIT SUPER-AIR



ONLY \$153*

save \$75

with the Comfy-Kit Super-Air. Install-it-yourself. Complete kit and easy to follow instruction manual — plus tools if you need them — just a couple of evenings or a Saturday morning and you can air condition your present car. Can be transferred from car to car.

THE ORIGINAL COMFY-KIT



ONLY \$143*

save \$85

with the Original Comfy-Kit. Fits all standard U.S. cars. You don't have to be a mechanic to install Comfy-Kits. When ordering Comfy-Kits please state unit model wanted, size of engine, make, model and year of car. Order yours now — enjoy cool comfort this summer. Comfy-Kit is backed by a 12 month, 12,000 mile warranty.

COMFY-KIT®

P.O. Box 8585, Dallas, Texas 75216, Dept. PM

*NOTE: Special mounting brackets for 1966-67 Ford, GMC, and AMC cars with smog devices \$15.00 extra.

train for Drafting Career in one year

Graduates of the *Tri-State Drafting and Design* Program employed by leading companies. Trained in everything from basic technical drawing to technical illustration and writing, they have entree into responsible positions in important industries. *Tri-State* also offers four-year degree programs in five fields of engineering . . . three areas of business administration. Accredited. Professionally-oriented college. *Modest costs.* Enter June, Sept., Jan., March. Write Director of Admissions for Catalog.



TRI-STATE COLLEGE

457 College Avenue, Angola, Indiana 46703

Give your zip code
when answering ads

KLEPPER

First and Finest **Foldaway**

Luxury — Adventure —
Within Every Reach

- Easy to carry (bags fit any car)
- Speedy assembly (no tools, no strain)
- Smallest storage area
- Most economical (low cost, low upkeep)
- Guaranteed sinkproof
- 14 new models
- Free Catalog PM5



KLEPPER, 35 Union Sq. West • N.Y.C. 10003

LIVE SEAHORSES

FREE: All orders receive attractive shells of the World Collection with beautiful coral; food and instructions. Keep these cute pets in a goldfish bowl or aquarium. Father seahorse gives birth to live babies. The whole family will enjoy this educational hobby. Mated pair only \$1.80. Two mated pairs \$2.80. Plus 20¢ postage and handling. **LIVE DELIVERY GUARANTEED.**

FLA. SEAQUARIA CO.
Box 302, Dept. P-1 Shenandoah Sta.,
Miami, Fla. 33145



FIND BURIED TREASURE!

Own your own

TREASURE PROBE

\$18.88 ppd

ALL TRANSISTORIZED
— FULL POWER — GUARANTEED

Now! A 3 Ft. portable Electromagnetic field generator-detector which finds small and large buried or hidden metal objects. Signals their location with a loud, audible tone. Detects gold, silver, bronze, copper, iron and other metals, metallic ore and nuggets of all kinds. Find lost money, rings, jewelry, Indian artifacts, civil war souvenirs. Thousands of valuable collector's items have been recovered by this method. This extremely sensitive precision instrument is a new product of the makers of famous all-transistorized Spacephone Walkie-Talkies. The Treasure Probe is guaranteed to equal any detector selling up to \$150. or your money back. Powered by one 9-volt transistor radio battery (included). Absolutely complete, nothing else to buy.

TO ORDER: Send check, cash or money order. \$5.00 deposit for C.O.D. In Calif. add 4% state tax. 10-day money back guarantee.



Mission house

Box 4187, Dept. D, San Fernando, California 91342

What a torch!

- It burns for hours on butane gas.
- Adjusts from pinpoint to blowtorch flame.
- It's lightweight, compact, easiest to handle.
- It's non-clogging...cleans itself.



It's the Ronson Varaflame Torch

only \$ **4⁹⁵**



FOR LAYING OR PICKING UP
ASPHALT FLOOR TILES.



SWEATS AND THAWS PIPES.



REMOVES PAINT.



SOFTENS PUTTY.



FOR HARD-SOLDERING METALS
SUCH AS THIS METAL CHAIR



FOR BENDING GLASS TUBING AND
OTHER LABORATORY USES



STARTS CHARCOAL FIRES.



MELTS ICE.



ALSO AVAILABLE IN METAL KIT WITH
PROFESSIONAL ACCESSORIES. \$9.95.

RONSON®

Ronson Corp., Woodbridge, N. J.

This great new Ronson Torch is perfect for hundreds of household and hobby uses. It uses the same fuel used to fill famous Ronson Varaflame® lighters... Ronson Multi-Fills, available everywhere! Comes complete with large size Ronson Multi-Fill® fuel injector, and big instruction and idea book.

MAKE IT BIG WITH NTS

PROJECT METHOD

HOME TRAINING

IN INDUSTRY...
IN YOUR OWN BUSINESS...
IN MILITARY OR GOVERNMENT

ELECTRONICS DIVISION

Master Course in Color Television • Color TV Servicing • Electronics-TV-Radio Servicing and Communications • Master Course in Electronics-TV-Radio and Industrial Electronics • FCC License Course • Radio Servicing (AM-FM Transistors) • Television Servicing (including color lessons) • Stereo, Hi-Fi and Sound Systems • Basic Electronics • Electronics Math



NEW 25" Color TV

AIR CONDITIONING, REFRIGERATION DIV.

• Air Conditioning, Refrigeration & Electrical Appliances Master Course
• Air Conditioning-Refrigeration Servicing Course



AUTO-MECHANICS DIVISION

• Automotive-Diesel Master Course
• Automotive Mechanics
• Diesel Mechanics
• Engine Tune-up and Electricity



HOME APPLIANCES DIVISION

• Home Appliance Master Technician's Course
• Home Appliances Servicing
• Handyman Appliance Repair



NATIONAL TECHNICAL SCHOOLS

WORLD-WIDE TRAINING SINCE 1905

4000 South Figueroa Street Los Angeles, Calif. 90037

APPROVED FOR VETERANS

HIGH SCHOOL AT HOME



National offers accredited high school programs. Take only subjects you need. Study at your own pace. Everything included at one low tuition.

CLASSROOM TRAINING AT LOS ANGELES

NTS occupies a city block with over a million dollars in training facilities. Check special box for details.

FREE BOOK & SAMPLE LESSON

NATIONAL TECHNICAL SCHOOLS

WORLD-WIDE TRAINING SINCE 1905

4000 So. Figueroa St., Los Angeles, Calif. 90037

Please rush FREE OPPORTUNITY BOOK & SAMPLE LESSON for division checked below. Check one only.

- ELECTRONICS DIVISION
 AIR CONDITIONING, REFRIGERATION DIV.
 AUTO-MECHANICS DIVISION
 HOME APPLIANCES DIVISION
 High School at Home (Dept. 201-57)

Name _____ Age _____

Address _____

City _____ State _____ Zip _____

- Check for veteran training under new G. I. Bill.
 Check if interested ONLY in classroom training at Los Angeles

RADIAL ARM SAW KIT... for under \$100



Buy direct from factory, assemble yourself. You get everything including 1/2 hp G.E. motor, all nuts & bolts, easy to follow assembly instructions. Guaranteed for life pat. pend. radial arm track, twice the usual bearings for extra rigidity, greater precision. Rips 24", crosscuts 12"; belt brake. \$99 delivered. Money back guarantee by one of the world's largest mfrs. bench type power tools. Write for brochure. Terms if desired or check or M. O. to American Machine & Tool Co., Dept. PM-57 Royersford, Pa. 19468.

MINI-DOZER

Does All This & Much More!

- SNOWMOBILE
- BULLDOZER
- LAWMOWER

Complete line of Attachments

CATALOG 506 - PLANS & PARTS PRICE LIST \$5.00

C. F. STRUCK CORP. CEDARBURG 1 WISC.



\$70 AIR-GUN only \$29.95

Complete with chisel this 3 lb. Air-Gun rips into metal, chips concrete, drives pins, etc. Delivers 5500 2" strokes a minute. Operates on 3 to 5 hp compressor. Made especially for govt. and manufacturer made too many. At only \$29.95 ppd. while they last, a \$70 value.



Meredith Separator Co.

Dept. PM5, 310 W. 9th St. KANSAS CITY, MO. 64105

BILL TROUBLES ?

NOBODY REFUSED UP TO \$15,000.00

Bad Credit ■ No Problem ■ Not a Loan Co.

- Send your name and address for FREE application to nearest office for faster service
- ATLANTIC ASSOCIATES, Dept. 54
- 146 Westminster St., Providence, R. I.
- 3312 N. Central Ave., Phoenix, Arizona

LAFAYETTE RADIO ELECTRONICS

FREE!



1967 Catalog 670 Over 500 Pages

Featuring Everything in Electronics for
 • HOME • INDUSTRY
 • LABORATORY
 from the "World's Hi-Fi & Electronics Center"

Mail the Coupon for your FREE 1967 Lafayette Catalog

LAFAYETTE Radio ELECTRONICS
 Dept. LE-7, P.O. Box 10
 Syosset, L.I., N.Y. 11791

Send me the FREE 1967 LAFAYETTE Catalog 670 LE-7

Name _____
 Address _____
 City _____
 State _____ Zip _____

253 ways to win yourself a RAISE IN PAY

Dozens of new careers are open to you with I.C.S. training. More than 250 job-related courses. Oldest, largest correspondence institution. 7,500,000 students since 1890. Learn facts, theories, practical applications. Instructors guide you,

answer your questions. Easy-to-read, illustrated texts, written by authorities, are yours to keep. Famed I.C.S. diploma to graduates. Convenient payment plan. Take charge of your future now. Send our coupon for three FREE booklets.

ACCOUNTING

Accounting for Business
Accounting (Canadian) Programmers
Auditing Business Law
Cost Accounting
C.P.A. Review
Estate & Trust Accounting
Executive Accounting
Federal Tax
General Accounting
Industrial Accounting
Junior Accounting
Legal Accounting
Office Accounting
Personal Income Tax Procedure
Practical Accounting
Public Accounting
Small Business Accounting
Starting & Managing a Small Bookkeeping Ser.

ARCHITECTURE AND BUILDING

Arch. Drawing & Designing
Architecture
Building Contractor
Building Estimator
Building Inspector
Building Maintenance
Carpenter-Building
Carpentry & Millwork
House Planning & Interior Design
Mason Painting Contr.
Reading Arch. Blueprints
Review in Arch. Design & Practice
Review of Mech. Systems in Buildings

ART

Amateur Artist
Commercial Art
Commercial Cartooning
Illustrating with Options:
—Magazine
—Advertising Layout
—Illustration
Interior Decorating
Oil Painting for Pleasure
Show Card & Sign Prod.
Show Card Writing
Sign Painting & Designing
Sketching & Painting

AUTOMOTIVE

Automatic Transmission Specialist
Automobile Body
Rebuilding & Refinishing
Automobile Electrical Tech.
Automobile Engine Tune-Up

Automobile Technician
Automotive Mechanic
Diesel-Gas Motor Vehicle Engines

BUSINESS

Advertising
Basic Inventory Control
Business Administration
Canadian Business Courses
COBAL Programming
Condensed Bus. Practice
Direct Mail & Mail Order Advertising
Industrial Psychology
Magazine & Newspaper Advertising
Managing a Small Store
Marketing
Marketing Management
Marketing Research
Modern Exec. Management
Office Automation
Office Management
Production Management
Programming for Digital Computers
Programming the IBM 1401 Computer
Programming the IBM SYSTEM/360 Computer
Purchasing Agent
Retail & Local Advertising
Retail Bus. Management
Retail Merchandising
Retail Selling
Systems and Procedures Analysis

CHEMICAL

Analytical Chemistry
Chemical Engineering
Chemical Engineering Unit Operations
Chemical Laboratory Tech.
Chemical Process Operator
Elements of Nuclear Energy
General Chemistry
Instrumental Laboratory Analysis

CIVIL ENGINEERING

Civil Engineering
Construction Eng'r'g Technology
Highway Engineering Tech.
Principles of Surveying
Reading Highway Bl'pts
Reading Structural Blueprints
Sanitary Engineering Tech.
Sewage Plant Operator
Structural Eng'r'g Tech.

Surveying and Mapping
Water Works Operator

COLLEGE-LEVEL

Calculus Economics History

DRAFTING

Aircraft Drafting
Architectural Drafting
Structural Drafting
Drafting Technology
Electrical Drafting
Electrical Eng'r'g Drafting
Electronic Drafting
Introductory Mech. Draft.
Mechanical Drafting
Pressure-Vessel and Tank Print Reading
Sheet Metal Layout for Air Conditioning
Structural Drafting
ELECTRICAL
Electric Motor Repairman
Electrical Appliance Ser.
Electrical Contractor
Electrical Engineering (Power option or Electronic option)

Electrical Engineering Tech.

Electrical Instrument Tech.

Industrial Electrical Tech.

Power Line Design and Construction

Power Plant Operator (Hydro or Steam option)

Practical Electrician

Practical Lineman

Reading Elec. Blueprints

ENGINEERING (Professional Refresher Courses)

Chemical Civil Electrical

Engineer-in-Training

Industrial Mechanical

ENGLISH AND WRITING

Better Business Writing

Free Lance Writing for Fun & Profit

Introductory Technical Writing

Modern Letter Writing

Practical English

Short Story Writing

HIGH SCHOOL

High School Business

High School (Canadian)

High School College Prep. (Arts)

High School College Prep. (Engineering & Science)

High School General

High School Mathematics

High School Secretarial

High School Vocational

LANGUAGES

(Edited by Berlitz)

French German

Italian Spanish

LEADERSHIP

Basic Supervision

Industrial Foremanship

Industrial Supervision

Modern Woman as a Supervisor

Personality Development

Personnel-Labor Relations

Supervision

MATHEMATICS

Advanced Mathematics

Mathematics and Mechanics for Engineering

Mathematics and Physics for Technicians

Mathematics and Physics for Engineering

Modern Elementary Stat.

MECHANICAL

Aircraft & Power

Plant Mechanics

Fortran Programming for Engineers

Hydraulic & Pneu. Power

Industrial Engineering

Industrial Management for Engineers

Industrial Eng'r'g Tech.

Industrial Instrumentation

Machine Design

Mechanical Engineering

Quality Control

Safety Eng'r'g Tech'g'y

Tool Design Value Analysis

Vibration Analysis and Control

PETROLEUM

Natural Gas Production & Transmission

Oil Field Technology

Petroleum Production

Petroleum Prod. Eng'r'g

Petroleum Refinery Oper.

Pipeline Engineering Tech.

PLASTICS

Design of Plastic Products

Plastics Technician

PLUMBING, HEATING, AIR CONDITIONING

Air Conditioning

Air Conditioning Maint.

Domestic Heating with Oil & Gas

Domestic Refrig. Heat'g

Heating & Air Conditioning

with Drawing

Industrial Air Conditioning

Industrial Heating

Pipe Fitting Plumbing

Plumbing & Heating

Plumbing & Heating Est.

Practical Plumbing

Refrigeration

Refrigeration & Air Cond.

PULP AND PAPER

Paper Machine Operator

Paper Making, Pulp Making

Pulp & Paper Engineering

Pulp & Paper Making

SALESMANSHIP

Creative Salesmanship

Real Estate Salesmanship

Sales Management

Salesmanship

SECRETARIAL

Clerk-Typist Commercial

Engineering Secretary

Legal Secretary

Medical Secretary

Professional Secretary

Shorthand Stenographic

Typewriting

SHOP PRACTICE

Drill Operator

Foundry Practice

Industrial Metallurgy

Lathe Operator

Machine Shop Inspection

Machine Shop Practice

Machine Shop Practice & Toolmaking

Metallurgical Eng'r'g

Technology

Milling Machine Operator

Multicraft Maintenance

Mechanic

Practical Millwrighting

Reading Shop Prints

Rigging

Tool Eng'r'g Tech'g'y

Tool Grinder Toolmaking

Turret Lathe Operator

Welding Engineering Tech.

Welding Processes

STEAM AND DIESEL POWER

Boiler Inspector

Industrial Building Eng'r

Power Plant Engineering

Stationary Diesel Engines

Stationary Fireman

Stationary Steam Eng'r'g

TEXTILES

Carding

Carding and Spinning

Dyeing & Finishing

Loom Fixing Spinning

Textile Designing

Textile Mill Supervisor

Textile Technology

Warping and Weaving

TRAFFIC

Motor Traffic Management

Railway Rate Clerk

Traffic Management

TV-RADIO-ELECTRONICS

Color Television Principles & Servicing

Communications Techn'g'y

Electronic Fundamentals

Electronic Fundamentals (Programmed)

Electronic Fundamentals with Electronic Equipment Training

Electronic Instrumentation & Servo Fundamentals

Electronic Principles for Automation

Electronics and Applied Calculus

Electronics Technician

First Class Radiotelephone License

Fundamentals of Electronic Computers

General Electronics

General Electronics with Electronic Equip. Trng.

Hi-Fi Stereo and Sound Systems Servicing

Industrial Electronics

Industrial Electronics Eng.

Industrial Electronics Engineering Technician

Numerical Control

Electronics & Maint.

Practical Radio-TV Eng'r'g

Practical Telephony

Principles of Radio-Electronic Telemetry

Principles of Semiconductor-Transistor Circuits

Radio Servicing with Equipment Training

Radio & TV Servicing with Equipment Training

Second Class Radiotelephone License

Sound Systems Specialist

Telephony, Electronics and Radio Communications

TV Receiver Servicing

TV Technician

Clip coupon—and take your first big step to real success! I.C.S., Scranton, Penna. 18515 Accredited Member, National Home Study Council

INTERNATIONAL CORRESPONDENCE SCHOOLS ICS

Dept. 05031D, Scranton, Pa. 18515

(In Hawaii: P.O. Box 418, Honolulu. In Canada: I.C.S. Canadian, Ltd. In other countries: I.C.S. World, Ltd.)

Without cost or obligation, rush me "HOW to SUCCEED," the opportunity booklet about the field I have indicated below, and a sample lesson.

New! Special Package for Women!

Special Training Programs for Industry

Convenient Payment Plan

Name of the course in which you are interested _____

Name _____
(Please indicate Mr. Miss Mrs.)

Age _____ Address _____

City _____ State _____ Zip Code _____ Working Hours _____ A.M. to _____ P.M.

Occupation _____ Employed by _____

Approved for veterans under new G.I. Bill.
Special rates to members of U.S. Armed Forces.

WHAT'S NEW OUTDOORS

BY DAN FALES

FROZEN FOODS THAT DON'T MELT are the newest item on the outdoor market. Freeze-dry foods are the answer to the old problem—how to have good camp meals with little or no refrigerator space.

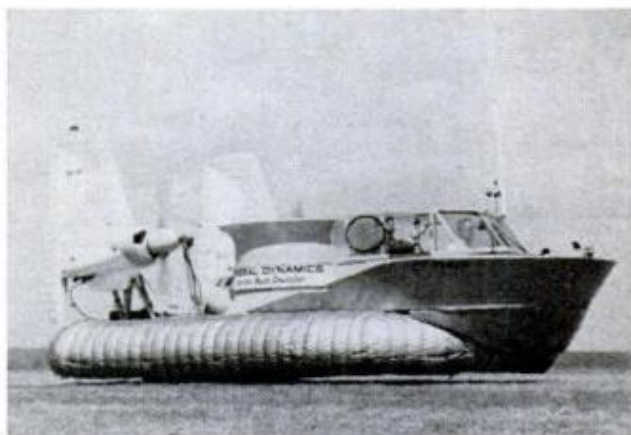
Tom Stimson, *PM's* West Coast editor, tried some. He says that there're three advantages to freeze-dry foods: 1. You don't need a refrigerator or ice box; 2. They're light in weight; 3. They're quick and easy to prepare—soak and cook.

Freeze-drying is an old process of freezing food, then dehydrating it in a vacuum. The nutrients remain. The weight is cut to four ounces for each pound. You can store the food anywhere for any length of time as long as the airtight packages are not opened. Armour, Swift, Wilson, Lipton and General Foods all produce freeze-dry foods.



The 2½ pounds of food pictured is enough for 13 people. "Tastes good, too," Tom says.

SPEEDING OVER THE SEA on seven inches of air sends chills up your spine. I know because I spent 30 minutes riding in *Skip-I*, General Dynamics' air-cushion vehicle. In the morning, I had gone under the sea on GD's newest research sub, *Star III* (see story on page 110). Now in the afternoon I was riding over the sea,



and land, too, in another remarkable GD invention. *Skip-I* is a high-speed amphibious vehicle, 22 feet long, 13 feet wide. It's propelled by twin 115-hp air-cooled engines and floated on air developed by a 180-hp engine that turns a 64-inch fan about 2800 rpm. With stones, grass or water flying from under her skirt, *Skip-I* will do 60 mph on a hard, flat surface or calm water.

After we'd charged around on land for 10 minutes, *Skip's* pilot bummed us down a rocky bank and out across the brine. Water operation is no different from land except for the windshield wipers—they're on. Air, rushing out from beneath *Skip*, raises a cloud of spray. Most goes behind, but some is forced out the rounded bow, streaking the windshield.

With almost dreamlike motion, *Skip* will bounce over obstacles several feet high. She doesn't really skip, as the name implies. *Skip* comes from SKimmer Investigation Platform.

Leading with her nose, she will climb hills or embankments as long as the gradient is no more than one foot elevation in six feet of distance. The ride is always soft—very soft. But with all engines wound up, the noise is deafening.

Like helicopters, the air-cushion vehicle will find its place in military and commercial transportation. GD knows this, and before producing them is using *Skip-I* to work out the "bugs" that ACVs are encountering.

HERE'S A TIP that might come in handy. Jim Raymond, an old fishing salt, says that one of the better instruments for filleting fish is a razor blade in a handled holder. Jim says you never need worry about the blade becoming dull even when there's a mess of fish to clean. ★★★

FREE Key Machine

Kind master locksmiths use. Sells for \$125, but yours FREE with Belsaw Locksmithing Course.



You Can Learn To Be A LOCKSMITH in your spare time

Approved for Veterans

There's a big demand for skilled locksmiths. You can earn big money either full or part-time in your own home. BELSAW INSTITUTE training, recommended by professional locksmiths, teaches you to make keys, open and repair locks on homes, cars and buildings. Easy, illustrated lessons complete with tools and supplies. Tells you how to build a secure cash profit business. Send for Free Book—No agent will call.

BELSAW INSTITUTE, 1073 Field Bldg., Kansas City, Mo. 64111

DRESSY AND RUGGED

Made by WEYENBERG, famous for fit and quality

Wellington

Chukka



Top grain leather—smooth inside, rough outside. Good-year welt construction.

Men's full & half sizes 7-14 C & D. \$19.95 ppd.

Top quality, steel shank, cush-n-crepe sole. Brush to clean.

Men's full & half sizes 7-12 D & E. \$13.95 ppd.



Write for Free Brochure

OUTFITTERS duNORD Box 925 P, Minneapolis, Minn. 55440



Repair any watch

... SWISS OR AMERICAN

Unique, modern Sweazey System starts you making repairs right away. Develops skill step by step at home in spare time. Tuition \$5 monthly. Diploma awarded. Free sample lesson. No obligation.

CHICAGO SCHOOL OF WATCHMAKING
Dept. 157, Fox River Grove, Ill. 60021

car
using
oil?



add **Casite**

MAIL TODAY FOR FREE BOOKLET...

Showing the most beautiful school in the country... elaborately equipped with the most modern, scientific testing equipment known.

Day and evening classes. Good, full & part time jobs and housing provided.



1645 S. Grand, Dept. P.M., St. Louis, Mo. 63104

Name _____ Age _____

Street _____

Town _____ Zip _____ State _____

Telephone _____

WORLD FAMOUS

BAILEY TECH SCHOOL



GIANT KILLER

Enjoy the delicious flavor of Green Giant brand products, then save the cans for target shooting with America's newest, most exciting fun gun... Crosman's Powermaster 760 BB repeater rifle! A "giant killer" with power to spare! Unique, easy, short-stroke pump action! Two quick pumps for accurate indoor shooting; a few more easy pumps pack a sizzling muzzle velocity of over 500 ft. per second! Holds 180 Crosman Super BBs! Also shoots .177 cal. Super Pells,[®] single shot! Positive cross bolt safety! Visual loading magazine! Lifetime solid steel barrel, genuine hard wood stock, gold-tone trigger, adjustable sights! See this great new gun today at your Crosman dealer! About \$19.95.

Send for free book: "More Shooting Fun" describing all Crosman guns.
Address Dept. PM057

Crosman/Going Great Guns
Crosman Arms Co., Inc., Fairport, N. Y.

Be a LOCKSMITH



JOEL BAIGLE says, "Earned \$1138.75 while training. Now have excellent locksmith job—and enjoy every minute of the work." *Fort Kent, Me.*



ROBERT N. MILLER says, "I earned \$2,000 while training. I now own a mobile shop and enjoy a successful full-time business." *Oakland, N.J.*



JOE E. WAREM says, "Paid entire tuition and made \$800 besides in spare-time, even before completing training." *Overland Park, Kan.*

306

Pieces of Professional Equipment. **LOCKS, PICKS & TOOLS** supplied for use with course.



TRAIN AT HOME—EARN WHILE YOU LEARN

Add to YOUR INCOME FAST—even double it with easy sparetime earnings. Cash in on the nation-wide shortage of trained locksmiths. Quickly step into a big pay job, or start a high-profit shop of your own!

EARN EXTRA MONEY RIGHT AWAY!

You can quickly qualify as a skilled locksmith. Age, education, minor physical handicaps don't matter in this ever-growing trade. So easy to learn it's like a fascinating new hobby!

Study at home as little as one hour a week. All special professional tools, supplies, including files, calipers, tweezers, cylinders, door handles, assemblies, gages, pins, springs, extractors, picks, locks and keys—supplied FREE. Gain practical experience by doing real jobs on car locks, house locks, padlocks, safe locks, etc.

Send for FREE BOOK. "Your Opportunities in Locksmithing" and FREE SAMPLE LESSON PAGES. No cost, no obligation, no salesman will call.

Only school of its kind: Licensed by State of New Jersey. Accredited Member National Home Study Council, State Approved Diploma.

APPROVED FOR VETERANS

LOCKSMITHING INSTITUTE, Dept. 1110-057,
(A Division of Technical Home Study Schools)—Little Falls, New Jersey 07424

Est. 1948

MAIL THE COUPON AT ONCE

LOCKSMITHING INSTITUTE, Dept. 1110-057,
Little Falls, New Jersey, 07424

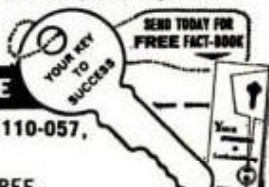
Please send without obligation the FREE illustrated book, "Your Opportunities in Locksmithing" and Sample Lesson pages. I understand no salesman will call.

Check here if eligible for veteran benefits.

Name _____

Address _____

City _____ State _____ Zip _____



BIGGER BETTER 8th EDITION SMALL ENGINES SERVICE MANUAL



It's ready... 8th edition Small Engines

Service Manual. More than 300 pages of authentic easy-to-follow information on repair and upkeep of small engines. 1302 models of popular domestic and foreign makes. Many new models. Practical information. Written by expert mechanics in down-to-earth language and with lots of helpful illustrations.

MAKE \$\$\$
in Your Spare Time

EVERYTHING MECHANICS NEED!

for minor tune-up to major overhaul... Read how, see how from 780 photos and drawings. Big field and big part-time and full-time profits repairing Mowers, Garden Tillers, Cycles, Scooters, etc... Order yours NOW and start a busy business... only \$4.95 postpaid.

4.95
post paid

SMALL ENGINES SERVICE MANUAL, Dept. 267
1014 Wyandotte Kansas City, Mo. 64105



Solves Repair Problems

Durham's fills cracks and holes in plaster, wood and tile. Won't shrink or fall out. Economical, easy to use. Big 4-lb. can, only 1.60 at lumber, paint, and hardware dealers, or shipped direct postpaid in U. S. for \$2.00. Money-back guarantee. Order now. Donald Durham Co., Box 804-T, Des Moines, Iowa.

At Last a New Amazingly Simple

GAS TURBINE JET ENGINE



Build from easy to follow plans. Length 15", Dia. 8 1/2", Wt. 15 lbs. Fuel: Gasoline or Kero.

"Screamin' Demon" develops 20 H.P. Ideal project for serious-minded hobbyists, students; scientific and industrial arts classes. Make on 9" metal cutting lathe with milling attachment. For use on small racing boats, midget cars, etc. Full size assembly drawings with critical dimensions, bill of materials and photos. Price \$5.00. No C.O.D.

SAVOY SCIENTIFIC, BOX 1398, SANTA MONICA, CALIF. 90406

I-N-V-E-N-T-O-R-S WE NEED INVENTIONS

Sell your invention for cash—need money for Patent?—Are technical problems holding you back? Universal Inventions has helped inventors all over the world—just like yourself—why not you? Inventions provide the magic spring-board to sudden riches. REMEMBER, we either sell your invention or pay you a cash bonus. Write for details.

UNIVERSAL INVENTIONS, Dept. 13, Marion, Ohio

MAKE UP TO \$12 AN HOUR AT HOME

Let Me Prove It To You FREE!

I'll show you how Plastic Sealing and Laminating at home, spare time, can give you as much as \$12 each hour you operate. Table-top machine sets up anywhere. Easy. Fun. No experience needed. We furnish everything. We'll even help finance you. No house-to-house selling. Orders come by mail. Write for facts FREE. No salesman will call.



WARNER ELECTRIC, 1512 Jarvis, Dept. L-2-ET, Chgo. Ill. 60626

BE YOUR OWN BOSS!

INCREASE YOUR INCOME MAKING RUBBER STAMPS PART OR FULL TIME!

Big profits... little investment... small working area. Deal direct with manufacturer providing lowest prices on professional presses & supplies, plus valuable aid. For FREE prices and full facts write



CUSTOM MFRS.

402 E. Elm, Springfield, Mo. 65801

3 WAYS to a profitable business of your own

— and only —

VON SCHRADER HAS ALL 3

Von Schrader is the oldest and largest company making Detergers of this type. For over 30 years our FREE ENTERPRISE PLAN has been fashioned with your future in mind. Start with the Deterger that most appeals to you. We have thousands of Associates who have built successful businesses with just one Deterger. Naturally, bigger and more profitable businesses can be built when you are able to offer two or all three cleaning services.

For example, let's say you start with the

VON SCHRADER WALL DETERGER (LOWEST PRICE OF ALL THREE)

1 • Associate G. H. Jones made \$1200.00 on one job. Associate R. G. Fullmer says contracts this year will gross about \$18,000.00. And no wonder...this machine washes walls 6 times faster than by hand...with no mess...no drop cloths needed. Washing is so easy...no tiresome scrubbing...special glider wipes walls clean with little effort. You can start part-time and by working week-ends add hundreds of dollars to your income while still employed.

Then you can double your profit by adding the

VON SCHRADER UPHOLSTERY DETERGER

2 • Associate Charles Lemmin averaged \$100.00 a day during his first year. Associate Peter Young took in \$960.00 last week. You clean upholstered furniture on customers' premises—homes, hotels, motels, etc....even auto upholstery. No hauling...operate from your home. Watch business grow as customers tell their friends.

And, finally, you can more than triple your profits by adding the

VON SCHRADER RUG DETERGER

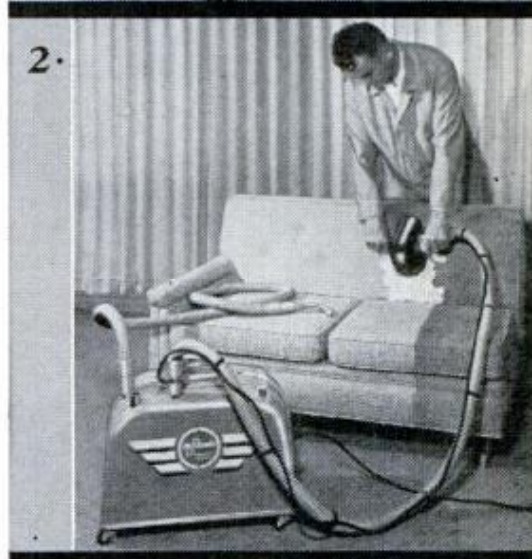
because each service helps to sell the other two

3 • Associate C. E. Nevin reports he averaged \$1000.00 a month for 12 months. An Associate father-son team grossed \$33,000.00 their first year. Von Schrader's FREE ENTERPRISE PLAN is not a lease arrangement. You sign no contract. You own the equipment. You pay no fees, dues or royalties to anyone. Every dollar you take in is yours to keep.

Full Operating Instructions come with each Deterger... you need no special skill or training. And our Business Manual tells everything you need to know about getting business, suggested sales letters, tips on keeping books and tax records, suggested ads and radio announcements, etc. Our assistance is always at your service. Training and consulting with experts is also available...and without charge.

Don't Delay...it costs nothing to get the details. Return the coupon TODAY for informative FREE booklet. Be sure to check the Deterger you are most interested in starting with.

VON SCHRADER MFG. CO.



SEND FOR THE FACTS TODAY

VON SCHRADER MFG. CO.
510 "A" Place, Racine, Wisconsin

Please rush information about your
 WALL DETERGER, RUG, UPHOLSTERY
and how I can start my own profitable business.

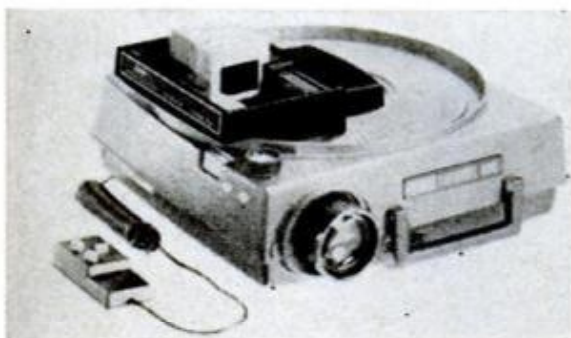
Name _____

Address _____

City _____ State _____ Zip _____



SMALLER STILL: Kodak's new compact 8-mm camera



ACCESSORY STACK LOADER for Carousel projectors



POLAROID LANDMARK: First color model under \$50



JUST SQUEEZE—that's how you focus this new lens

PICTURE THIS

BY SHELDON M. GALLAGER

THEY'VE DONE IT AGAIN. Just when you think that the popular little 8-mm movie camera has gotten about as small as it can get, along comes a smaller one. Kodak's newest line of Instamatics can slip in a pocket, are only 2½ inches thick and less than five inches long. Four models range from under \$30 to about \$80. All are electrically driven and take Super 8 cartridges. All but the lowest-priced have automatic exposure control.

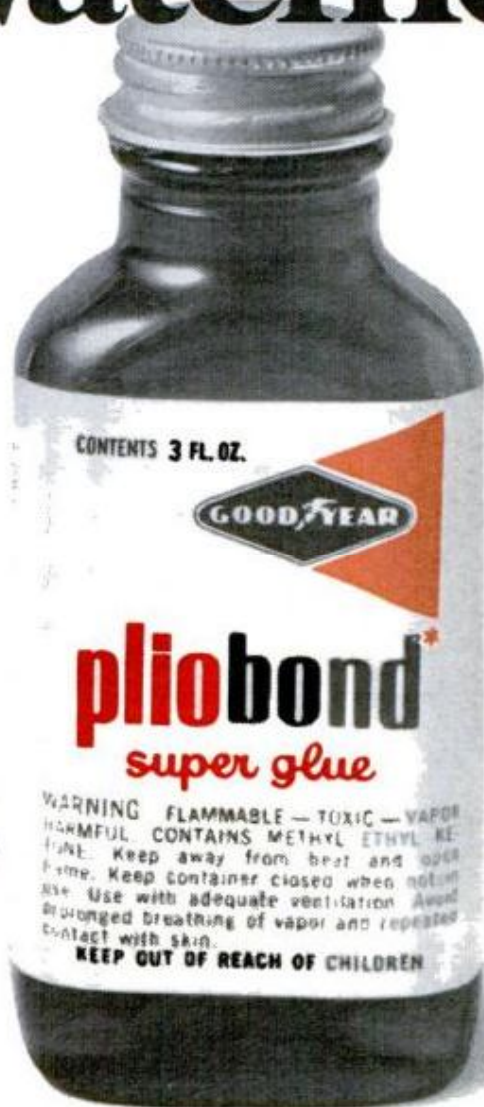
CAROUSEL OWNERS TAKE NOTE: Now you can get a stack loader that fits on the projector in place of the circular tray. It holds 40 slides, makes it easy to quick-preview a new batch or edit a sequence without disturbing your main trays. The Kodak accessory is about \$13.

WHO'D HAVE THOUGHT a few years ago that there'd be a color Polaroid Land camera for less than \$50? That's right—the latest model announced goes for just \$49.95. The new Color Pack Model 210 has a few less frills, but is essentially the same automatic design as its costlier cousins. Four other models are \$74.95 to \$159.95.

YOU SQUEEZE TO FOCUS the unusual new lens at bottom left. The 135-mm telephoto has a bar on top that racks the lens in and out at fingertip touch. The idea: Fast, smooth focusing for rapid-fire shooting. A Xenar f/4.5, the Novoflex lens fits most 35-mm SLRs, is distributed by Burleigh Brooks, Inc., 420 Grand Ave., Englewood, N. J. Price is \$138.

PLANNING TO VISIT EXPO 67 this summer? If so, here are a couple of tips for photo enthusiasts. If you're taking a foreign-made camera, be sure to register it with U.S. Customs before leaving the country to avoid having to pay import duty on it when you return. American-made cameras are not, of course, affected. Stop in at the Kodak pavilion and pick up a free picture-taking guide to the fair. It contains helpful pointers on photographing various scenic attractions. Exposed film can be left for processing at concessions throughout the fair.

Win a Workie-Watchie



Never again need you choose between working around the house and watching a ball game.

Send us the most original use-of-the-month for Pliobond® adhesive and we'll send you this 9" Sony TV.

PLIOBOND mends, seals, insulates, waterproofs. Bonds wood to metal to glass to cloth to plaster to rubber, etc. Resists impact, oxygen, water, chemicals. Grows stronger with age.

Take it from there. Show us the most original Pliobond use and win something to watch while it dries.

1) Describe in 50 words, or less, an interesting and unique use for Pliobond adhesive. Use entry coupon from local store, or plain paper no larger than 8½" x 11".

2) Send as many entries as you like to Goodyear Pliobond Contest, Box 9115, Akron, Ohio 44305. Send a label or other evidence of purchase with each entry.

3) Individual contests run in May, June, July, August, September and October, 1967. Winners will receive a Sony 9" portable TV set. These awards limited

to one for each contest. Entries must be postmarked during the contest month in which you enter. All entries become the property of The Goodyear Tire & Rubber Company. None will be returned.

4) Entries will be judged by The Goodyear Tire & Rubber Company, and decisions of Goodyear will be final relating to questions about contest winners.

5) The contest is open to everyone in the United States and possessions or Canada except employees of Goodyear, the distributors and dealers of Pliobond adhesive and their immediate families. Contest is subject to Federal, State and local regulations.

6) All winners notified no later than November 30, 1967. A list of winners will be available if requested, and self-addressed, stamped envelope is enclosed.

GOOD YEAR
CHEMICALS

SOLUTIONS FOR MECHANICAL HEADACHES

AUTOMOBILE CLINIC

BY MORT SCHULTZ

Wild beast

I've been plagued by oil leaking from the fuel pump of my 1961, six-cylinder Ford Fairlane 500. The oil appears to be coming through the two breather holes in the pump. It happened on the original part and now on a replacement pump I installed about 6000 miles ago. All I hear from my mechanic is, "It's the nature of the beast—live with it." Is it?—Joseph L. Marymont, Teaneck, N. J.

Logically, if oil is coming from the pump, the diaphragm in the pump is probably ruptured. A further logical conclusion is that if diaphragms keep busting, they're probably doing so because the pump's lift off the cam is too high. So why not have a mechanic build the pump out away from the engine with gaskets to reduce the lift, and stop ruptured diaphragms and stop oil from leaking? If this solution affects fuel delivery, however, better get a new pump.

Where'd it go?

Figure this one—I can't. I adjusted the carburetor and set the rpm of my stalling 1965 Dodge (383-cu.-in. engine). Then, to test it, I shoved the accelerator all the way to the floor, rolling about 300 feet and coming to a sudden stop. The engine stalled and wouldn't start. It sounded as if all the pistons had disappeared. Ran a compression test on number one cylinder and came up with a reading of only 35 pounds. After about five minutes, the engine started, compression returned to 135 and things have been okay since. Question: Where did the compression go?—William H. Bolling Sr., Baltimore, Md.

Oh, boy. My theory is that your sudden hard goosing of the engine caused the hydraulic valve lifters to build up unmercifully, keeping all valves opened and, consequently, resulting in a tremendous loss of compression. I'm sure if you had taken a reading at the other cylinders, you would have discovered the same low compression.

So, who's infallible?

Well, Mort, you can't win them all, but don't feel bad—I'm using the sharp needle and not the square one. The problem, as you'll remember, involved my 1962 Chev-

rolet Greenbrier. From the day I bought it new, it would start good, run a mile, start to buck and sputter for the next mile or so, and then smooth out and run good again. You and I spoke of adjusting chokes, checking timing, syncing the carbs and overhauling the left carburetor which was blackened up.

Well, Mort, none of this helped much. But last week I just happened to lean on the left carburetor and the plastic housing on the vacuum break control opened up. Guess what I found? The thing was cracked in one of the molding seams and was sucking air, leaning out the fuel mixture. The car runs like the proverbial top now, but thanks for your help anyway.—Bert Russell, Quincy, Mass.

Dear Bert:
Ouch!

In a flap

When the "book" way of starting my 1966 Toronado didn't work, I tried pumping the gas pedal, which didn't help either. The car is just tough starting in the morning. The service manager at the Olds agency said he checked everything. Now he tells me, "It's the nature of the beast." (Editor's note: The way some mechanics talk, you would think there were more animals on America's highways than in the Congo.) Any ideas?—G. B. Tindall, Long Beach, Calif.

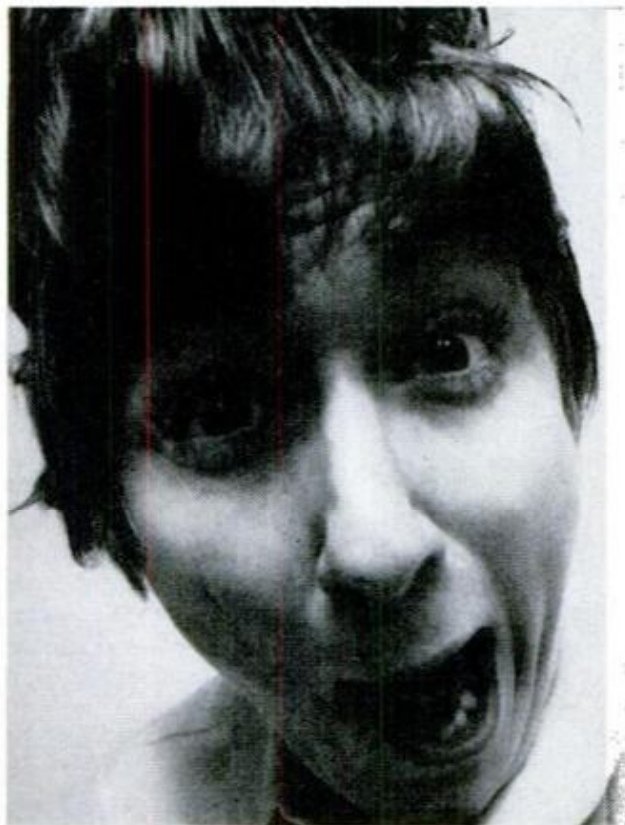
Oldsmobile tells us that special servicing instructions have been issued by the home office to stop this nonsense. Advise your service manager to dust off his files and get on the ball.

The merry wanderer

Since the day I bought it, my 1964 Mercury Montclair has had a tendency to wander. The dealer checked front end alignment and wheel balance. New tires haven't helped—neither has a stabilizer bar. Do you know what the trouble is?—Chris Hoff, Bloomingdale, Ill.

Not really, but I'll take an educated guess. Some nine months after this car was produced (all other model Mercurys, Comets and Lincoln Continentals, too),
(Please turn to page 28)

"Are you going to paint it this weekend, or aren't you?"



There she goes again.

And what are you going to do this time? Hide in the cellar? Again?

You don't have to, you know.

You can take care of all that overdue painting. And still have time to catch the ball game.

All it takes is some Krylon® Spray Paint.

There's none of the pain of finding a brush, paint, rags, thinners, stirrers.

None at all.

All you do is take the Krylon and dust it on. On wood. On metal. Indoors. Outdoors.

It's as simple as that.

And since Krylon comes in 45 colors, you can paint anything, in just about any color The Management wants.

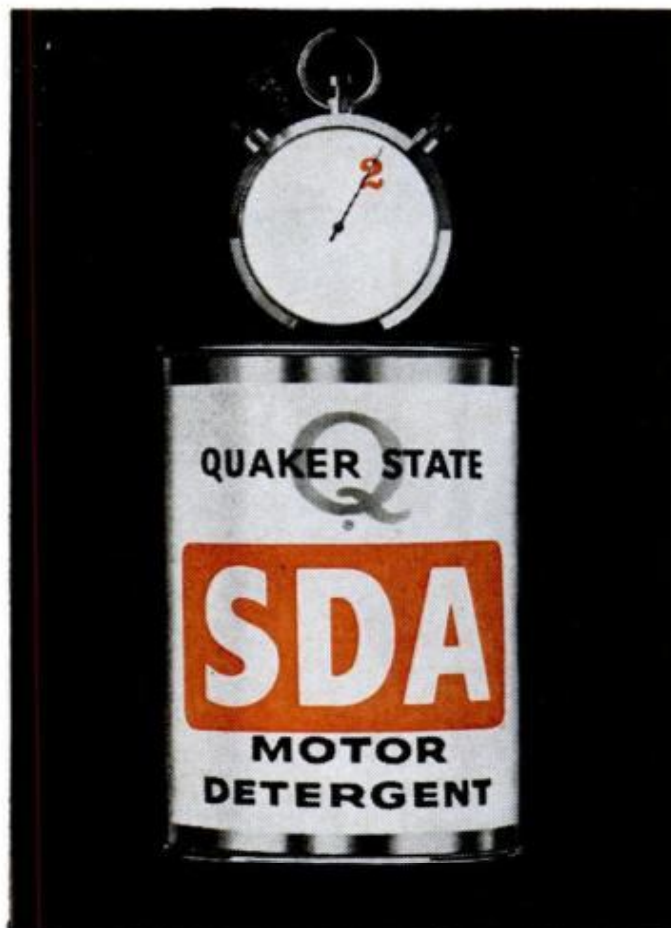
Best of all, since Krylon goes on in seconds (and dries like baked enamel in minutes), you can get all those jobs done in the time it takes to clean a brush.

Ah, Krylon. Ah, peace of mind.



Peace
of mind
for \$1.79





Engine Sluggish? Get a 2-minute tune-up with Quaker State SDA.

One can of Quaker State's SDA (Special Detergent Additive) restores pep and power to a sluggish engine. SDA prolongs engine life by removing sludge and varnish deposits and preventing rust and corrosion. SDA combats damaging engine wear caused by "stop-and-go" driving.

Ask your Quaker State dealer for a "2-minute tune-up" with SDA.

SDA is made by the makers of



QUAKER STATE OIL REFINING CORPORATION		P M
P.O. Box 989 Oil City, Pennsylvania 16301		
Please send more details about SDA.		
Name.....		
Address.....		
City.....State.....Zip.....		

AUTOMOBILE CLINIC

(Continued from page 26)

the front-wheel alignment specifications were changed by the factory. If your dealer didn't spot the change in the service bulletin, he could be adjusting to the old specs. Have him check service bulletin No. 47, 1964 specs (6/19/64). Also remind him to check the steering gear adjustment.

Fly in the ointment

I own a 1962 Corvair. As you know, these cars use a three-piece spring-steel flywheel bonded with rivets. After some driving, these rivets work loose, resulting in acute vibration and much noise. Do you know of a more permanent way of bonding?—Bill Evans, Terre Haute, Ind.

All you can do is replace the flywheel with a new one. There's only one style of flywheel made for this car, and you've got it.

Daffy Dauphine

I have a 1961 Renault Dauphine. When I put it into reverse and release the clutch, it jerks so violently that it often kicks itself out of gear. Reverse gear has no teeth missing or chipped and all seems well with clutch and transmission. Am I overlooking anything?—Bert Loan, Ashland, Ky.

Assuming that clutch and transmission are okay, there are two other possible causes. I'd check engine and transmission mounts and make sure they're tight. If they are, go to the stop rods on the rear axle assembly and check for looseness.

Service Tips

- **The Chrysler-Plymouth people** have cleared up a lot of Auto Clinic mail for me with service bulletin 67-15 which pertains to 1965 through 1967 Chryslers, Imperials and Plymouths with 383 and 440-cu.-in. engines and airconditioning. Seems that some of you have been having overheating problems because of fan-belt slippage and roll-off. So, what did Chrysler do? Produce a new Dacron cord belt which has great stability. If your belt doesn't fit, see your dealer for a change. The new belt carries part No. 2658793. Be sure that the idler bracket is tightened to the "new belt" spec of 65-ft.-lbs. torque.

- **Some 1965 Oldsmobiles** from the early production run have fuel gauges that read empty all the time. The trouble is a flat wire connector in the trunk compartment connected

(Please turn to page 30)

What did Lee have in mind when they gave permanent Lee-Prēst to Mr. Ryan?

She'll never have to iron shirts and pants again. Not with Lee-Prēst Chetopa Twills. The rough, tough polyester and cotton workwear. The workwear with the permanent press that's baked in. They always look great. No matter what the job. And Lee offers you more sizes and more stay-on-the-job features than any other workwear. Lee-Prēst Chetopa Twills. We guarantee they'll do the job. And if you don't think so we'll take 'em back. No questions asked.



Mrs. Ryan.



Lee-PRĚST® CHETOPA TWILLS **KORATRON**
Guaranteed the hardest-working workwear

H.D. Lee Company, Inc., Dept. A, P.O. Box 440, Shawnee Mission, Kansas 66201. World's Largest Manufacturer of Union-Made Workwear. ALSO AVAILABLE IN CANADA.

MAY 1967

29

Материал, защищенный авторским правом

**FINGER
SAVER!**

HOLD-E-ZEE®

Automatic Grip

SCREWDRIVERS

Patented finger-type gripper holds screws securely for starting and setting them up in hard-to-get-at places. LOK-BLOK insert securely imbedded in an easy-grip handle holds blade shank in vice-like grip; prevents twisting. Why settle for less when HOLD-E-ZEE drivers cost no more!



Models for all types of screws.

Gripper snaps back and recedes into handle when not in use.



Available at dealers everywhere write for literature

UPSON BROS. INC.

Rochester, N. Y. 14614



upson
hand tools

AUTOMOBILE CLINIC

(Continued from page 28)

180° off, burning out the tank unit. There's no need to run around empty-handed anymore. Have the flat wire connector reversed. The dash gauge will now read past the full mark, but to do a 100 percent correction, the tank unit must be replaced.

• 1966 Rambler three-seat station-wagon owners have been getting diluted gas—but not from their service station. Seems the location of the gas tank filler opening in the crown of the right rear fender makes it susceptible to water entering the tank. For the cure, order up service bulletin 7, group 4.000 (7/27/66), from your Rambler dealer.

• Is your 1967 Cadillac Eldorado losing coolant? If so, you probably have a car prior to No. 108946, which had no radiator antifoam additive installed at the factory. If the loss continues, the temperature could go higher than normal. Have the dealer add a can of cooling system inhibitor and sealer (part No. 1050533).

• Volkswagen owners have had lots of consternation about valve adjustment specs. In some cases, the figures in service and owners' manuals no longer hold water. So, here's the correct info—right from the larynx of the Beetle itself:

VW VALVE ADJUSTMENT

Engine	Intake	Exhaust
All 36-hp engines	.004"	.004"
All 40-hp engines through No. 9205699	.008"	.012"
All 40-hp engines from No. 9205700	.004"	.004"
All 50-hp engines through No. 710799	.008"	.012"
All 50-hp engines from No. 710800	.004"	.004"
All single-carb. VW 1500s through No. 672748	.008"	.012"
All single-carb. VW 1500s from No. 672749	.004"	.004"
All dual-carb. VW 1500s through No. 672697	.008"	.012"
All dual-carb. VW 1500s from No. 672698	.004"	.004"
All 1966 and 1967 engines	.004"	.004"

AUDEL SKILL-BUILDING GUIDES

NEW AUTO GUIDE!

FIX ANY CAR FAST! Step-by-step 1966 Repair Guide shows you how to troubleshoot and repair every part and system in any make or model car. Features

unique symptoms-and-causes charts. Covers absolutely everything from axles to valves, including engine tune-up. Hundreds of illustrations. 736 pages. To order, check No. 1 below. Only.....\$6.95

USE THIS HANDY ORDER FORM

- No. 1 **AUTO GUIDE**. 736 pages..... \$ 6.95
- No. 8 **Carpenters & Builders Guide**. 4 Vols. 1616 pgs... 16.95
- No. 15A **New Electric Library**. 10 Vols. 6016 pages..... 25.00
- No. 2 **Home Appliance Service Guide**. 608 pages..... 6.95
- No. 14A **Home Refrigeration & Air Conditioning**. 576 pgs. 6.95
- No. 26 **Masons & Builders Guide**. 4 Vols. 1478 pages... 10.50
- No. 6 **Plumbers & Steamfitters Guide**. 4 Vols. 2272 pgs. 10.50
- No. 12N **Machinists & Toolmakers Guide**. 3 Vols. 1312 p. 13.50
- No. 10 **Welders Guide**. 624 pages..... 4.95
- No. 4 **Handy Book of Practical Electricity**. 1088 pgs. 5.95

FREE 10-DAY TRIAL • SEND NO MONEY

THEODORE AUDEL & CO. Since 1879
4300 W. 62nd St., Indianapolis, Ind. 46206 P-57

Please mail me for 10 days FREE EXAMINATION the books checked above. I agree to mail \$3 in 10 days for each book or set ordered, and to mail \$3 a month for each book or set until I've paid the purchase price, plus shipping costs. If I'm not completely satisfied with my Audel Guides I may return them.

**ORDER
TODAY!**

Name _____

Address _____

City _____ State _____ Zip _____

SAVE SHIPPING COSTS. Check here if you enclose complete payment (plus sales tax, if any) with order. We pay postage. Same return privilege.

Each month Auto Clinic answers questions on car repair. For a personal reply, send 50 cents in coin to cover mailing and handling. Write Auto Clinic, Popular Mechanics, 575 Lexington Ave., New York, N.Y. 10022. One question per letter, please.

MAKE
BIG PROFITS
ENGRAVING
DOOR PLATES
DESK PLATES
BADGES, ETC.

Fast-growing, high-profit field. Unlimited prospects all around you. Full or part-time business you can do at home. No experience necessary. Low-cost kit starts making money for you right away. Engrave plastic (samples on left) or soft metals. For complete information write Dept. PM 567

Scott Machine Dev. Corp., 215 Prospect Ave., Walton, N.Y. 13856.

LAW FREE BOOK THE LAW TRAINED MAN

Write today for a **FREE** copy of illustrated law book, "THE LAW TRAINED MAN," which shows how to earn the professional Bachelor of Laws (L.L.B.) degree through home study of the famous Blackstone Law Course. All necessary books and lessons provided. Moderate cost; convenient monthly terms. Write for **FREE** law training book today.

Blackstone School of Law, 307 N. Michigan Ave. Founded 1890 Dept. 55, Chicago, Illinois 60601



Transistor Radio with Battery \$1.96

Calendar Watch \$2.44



Derringer Pistol \$5.74

HOME-IMPORT BUSINESS—Make Big Profits

New Drop Ship Plan offers you first day profits! Deal direct with overseas sources at prices shown. Dazzling bargains with no investment. Full or sparetime. Write for **FREE** BOOK today to . . .

MELLINGER, 1554 S. Sepulveda, Dept. A255, Los Angeles 25

ONLY SURE, FAST WAY HULL AUTO COMPASS

Highway route signs often have a missing ingredient — geographic direction. Only sure, fast way to tell right from opposite is with accurate, original Hull Compass. At dealers or write for literature.

Hull — The Compass That Works
HULL MFG. CO., Box 246-D-5, Warren, O. 44482



New Portable LIGHT PLANTS

110-120 V. A. C. 1500 watts, 60 cycles. Weight 24 lbs. Size 10" x 5". Fanbelt driven from car, pickup or gas engine of 2 1/2 or 3 h.p. Operates 1/2" Drills, Saws, T.V. Brand new. Money back guarantee. Regular \$89.50 now \$49.50. With switch, pulley and voltmeter. Send check or money order.

VIRDEN PERMABIL CO.

Box 7066 (P.M.) Amarillo, Texas 79109

GET INTO ELECTRONICS

V.T.I. training leads to success as technicians, field engineers, specialists in communications, guided missiles, computers, radar, automation. Basic & advanced courses. Electronic Engineering Technology and Electronic Technology curricula both available. Assoc. degree in 29 mos. B.S. obtainable. G.I. approved. Start Sept., Feb. Dorms. campus. High School Graduate or equivalent. Catalog.

VALPARAISO TECHNICAL INSTITUTE
DEPARTMENT D. VALPARAISO, INDIANA



Do You Stammer?

Get your free copy of the new revised edition of the book, "Stammering, Its Cause and Correction," which describes the Bogue Unit Method for the scientific correction of stammering and stuttering. Also ask for free Speech Chart. Address:

Clara T. Royer, Dir., The Bogue Institute for Stammerers
Department M-1, 309 North Illinois Street, 2nd floor
Indianapolis, Indiana 46204

GET THIS FREE BOOK!



Loosen paint brush bristles with an old fork to speed up cleaner penetration.

KWIKEEZE Brush Cleaner WATER RINSING



A water rinsing brush cleaner that removes oil or emulsion paints, varnish, lacquer, shellac and enamel from hard or wet paint brushes. Does not harm natural or nylon bristles.

"Where paint is sold."



SAVOGRAN
NORWOOD, MASSACHUSETTS

The Devil has quite a temper!



We're proud of the temper in Red Devil's high carbon steel blades . . . just one of the quality features in our full line of putty knives, wall scrapers, wood scrapers and other home patch-up tools. Buy the best! Buy Red Devil!

Red Devil inc

UNION, N. J., U.S.A.

MAKE MONEY BY MAIL—BE OUR DISTRIBUTOR FOR HOME DESIGN CATALOGS & ARCHITECTURAL PLANS PAYS BEGINNERS \$125.00 PER WEEK—AVERAGE, IN SPARE TIME ALSO OPPORTUNITY TO EARN A FREE LEISURE HOME

Join the leading Leisure Home Company in the country. Become an Exclusive "Mail-Order" Distributor for our Award Winning Home Design Catalogs and Architectural Building Plans in your area—CASH IN on the Booming Billion Dollar Leisure Home Market. If you've wanted to BE YOUR OWN BOSS . . . have a fast growing extra income . . . and own part of a Nationally Advertised business, NOW YOU CAN . . . WE EVEN FINANCE YOUR START IN BUSINESS. Fill orders at home in Spare Time or Full Time, absolutely NO SELLING, NO CANVASSING, NO EQUIPMENT TO BUY, etc. We supply everything, including all Home Design Catalogs, Architectural Plans, Promotional Material, Advertising Copy, etc. And complete merchandising instructions on how to get mail orders pouring in daily with cash in every envelope. Everything you need to operate your own Business, strictly through "Mail-Order" with no personal selling. You don't need experience. Our established Distributors average \$240.00 per week. This is a business of your own, Without Risk, backed by a National Company. A nationwide, proven operation that is the newest and most successful of all small businesses. A limited number of Distributorships still available, there is NO DISTRIBUTOR'S FEE, NO FEES OF ANY KIND. Cash in on this big profit business—NOW. Today is the time to reserve your Distributorship Area . . . while it is still available! Send your name now . . . we'll mail you our Home Design Catalog ABSOLUTELY FREE and 20 page illustrated booklet explaining this business in step-by-step detail. NO COST—NO OBLIGATION—No Salesman will call on you. Send to:

U. S. RUSTIC CEDAR HOMES, INC.—MAIL ORDER DISTRIBUTOR DIV.
3450 WILSHIRE BLVD.; LOS ANGELES, CALIF. 90005



Typical Home Designs from our Catalog . . . Finest Leisure Homes in America! Direct Wholesale Prices—'A' Frames \$1269, Chalets \$1388, Lakeside and Desert Homes \$1355. NO MONEY DOWN! Send today for your FREE Home Design Catalog.

WOOD VENEERS • TOOLS
Shop Equipment • Supplies
POWER TOOLS
at Lowest Discount Prices!

SAVE MONEY on finest domestic and imported hardwoods . . . all dimensions. Over 1500 items for the home craftsman and woodworking hobbyist. Lamp parts, upholstery supplies, tile, power tools at discounts. **NEW CATALOG READY** 132 pages. Full Color. Send name, address and 35¢ to cover handling, and postage. Write . . .

CRAFTSMAN Wood Service Co. Dept. A-57
2729 S. Mary, Chicago, Ill. 60608

DO IT YOURSELF ALUMINUM SCREEN ROOM
including ROOF, \$355
DOOR & shipping

8' X 11'

Send only \$35 and pay \$320 on delivery

FREE CATALOGUE & MEASURING INSTRUCTIONS
CARPETS - TUB ENCLOSURES - JALOUSIES - PORCH ENCLOSURES and many other Home Remodeling items
WRITE COMMACK HOUSE P.O. BX. 88 COMMACK, N.Y. 11725

START A MONEY-MAKING BUSINESS FOR LESS THAN \$50!



You can have your own lifetime business right at home . . . work in spare time . . . and make up to \$200 a month CASH! My FREE PLAN gives you all the facts: How to start, how to grow. You don't need previous experience. You don't have to sell. I'll even finance you. People bring you the work and pay cash. Over 90¢ of every dollar you collect is clear cash profit. And you work when you want to. Let me prove you can't find a more certain, lower cost, higher paying business of your own.

Just Mail Coupon—No Salesman Will Call

BELSAW SHARP-ALL CO., Stan Field, Pres.
7173 Field Bldg., Kansas City, Mo. 64111

Name _____

Address _____

City _____ State _____ Zip _____

FREE BOOK

SQUEAKY DRAWERS LOVE

DIXON

slip-stik

Another Golden Oval Lubricant

EARN UP TO \$50 A WEEK IN YOUR SPARE TIME AS A TYPEWRITER REPAIRMAN

Great demand for trained men. Over 25 million typewriters need service and repairs! Cash in on this 300 million dollar market. Now you can get industry-approved training at home. Easy to learn. Qualify quickly in your spare time for a high paying job or your own business of your own. Earn while you learn. Real typewriters, sub-assemblies, visual aids, and professional tools provided at no extra cost. Easy to learn, simple, clear illustrated lessons. Expert teachers personally guide you all the way. Fully licensed, accredited, and approved school. State authorized diploma. Mail Coupon Today. Typewriter Repair School, 3110-057, Little Falls, N.J. 07424.

TYPEWRITER REPAIR SCHOOL
Dept. 3110-057
Little Falls, New Jersey 07424

BOOK FREE

Send FREE BOOKLET describing unlimited opportunities for Typewriter Repairmen. No obligation. No salesman will call. Check here for Veteran Information.

Name.....

Address.....

City.....State.....Zip.....

Материал защищенный авторским правом

What kind
of man uses
Vaseline Hair Tonic?



He's just brought his date home when...

trouble.

Surrounded



"Look at pretty boy."

Uh oh! A lead pipe

A crescent foot block.

He's got it!



Fair warning.

Some men make their own paths.

The man who knows how to take care of himself
uses Vaseline Hair Tonic.



CLEAN AND CLEAR

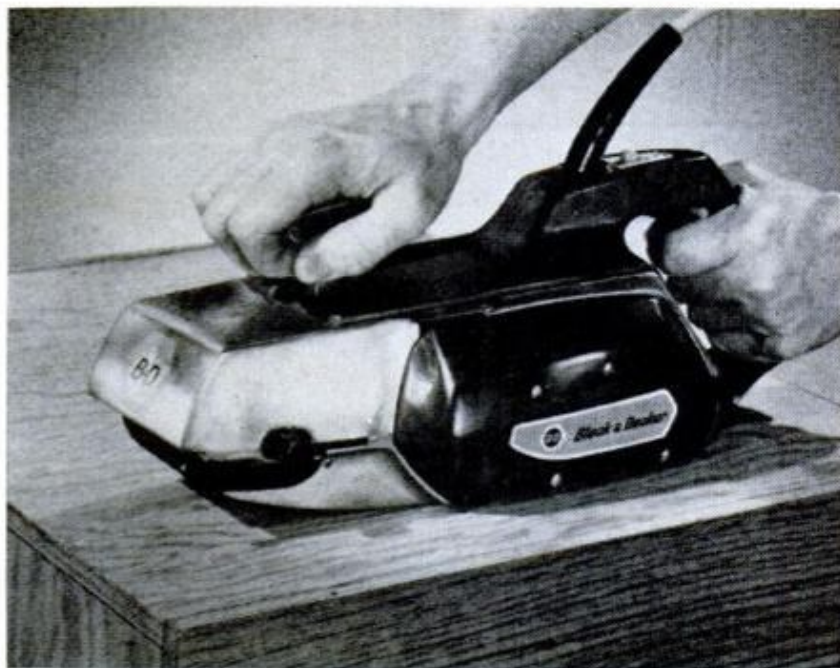


Ваша реклама - это наш заработок

Two new tools you should know about

Balanced sander

Black & Decker's new belt sander has improved balance because the belt now "wraps around" the motor. The purpose of mounting the motor between the pulleys is to lower the center of gravity and reduce the problems of tilting and gouging. Unit accepts standard 3x24-in. belts as well as a "Lusterlon" belt for high-polish finishes on metal, wood and plastic. The two-speed Model U-224 shown costs \$59.99. The one-speed Model U-144 retails for \$49.99. Both models feature a flush side to permit close sanding.



WITH MOTOR NESTED INSIDE BELT TRAVEL, low-down, unconventional sander is a lot easier to control than sanders with motor on top

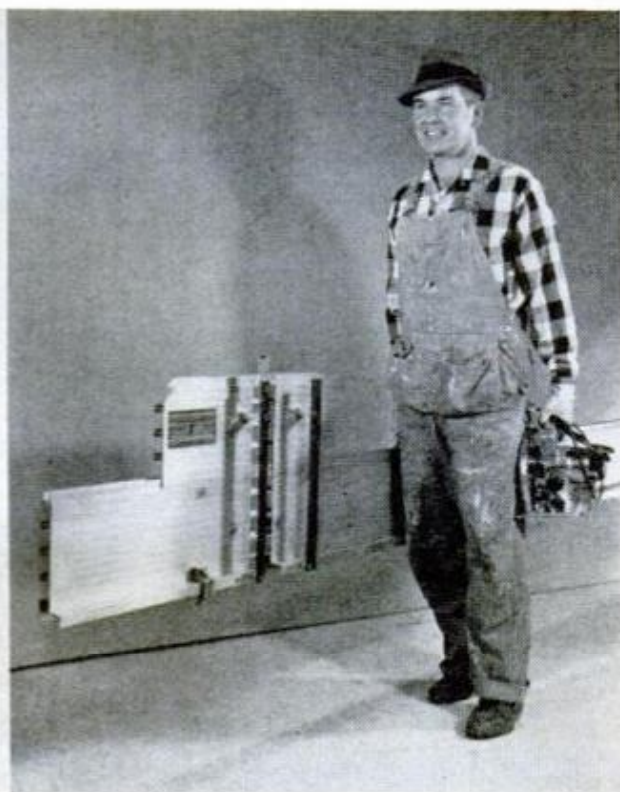
Carpenter's workbench you can tote to the job

Though it extends to a sturdy 9 or 12-ft. length, this portable workbench weighs only 38 pounds. An extra-width, all-aluminum saw-table section accepts most makes of circular saws with a full shoe for rough and trim carpentry on stock

up to 2x12s. An adjustable block simplifies multiple cuttings of identical lengths, and special stops can be raised for miter cuts. Porta-Table Corp., 4026 N. Pulaski Rd., Chicago 60641, offers it for \$169.50 with miterbox, \$139.50 without.



SUPPORTED BY a couple of sawhorses, the workbench is handy as can be for producing perfect-fitting butt joints when you're applying beveled siding



LIGHT ENOUGH for carrying with one hand, the table can be picked up like a plank for carting from job to job. Ribbed casting makes table rigid



WE CAN'T SOFTEN THE BUMPS...

but Goodyear gives you The Workhorse—
tough-job tire for pickup and delivery work.

When you do pickup and delivery driving, there's one problem you keep running across.

Bumps.

That's where the Workhorse tire comes on strong. The triple-tempered nylon cord carcass shrugs off bruises and scrapes.

This tire is built for the stop-and-go grind of pickup and delivery.

In addition to triple-tempered nylon, the Workhorse has Tufsyn, toughest rubber Goodyear ever used in tires. Has 14% deeper tread. Thicker undertread, too. Up to 17%

more rubber between the cord and the road. The Workhorse delivers as much as 25% more mileage than tires used now in most pickup and delivery work.

The Workhorse has stronger sidewalls for extra load-carrying strength. Helps you haul more. In fewer trips.

Workhorse prices start at about \$15.00.* When you need tires for your truck—tell them to mount the Workhorse. At your Goodyear Dealer's or Goodyear Service Store. Goodyear, Akron, Ohio 44316.



The Workhorse tire gives you a choice of two tread designs. Rib-type for over-the-road use. Extra-traction design for on and off-the-road use.

GOODYEAR

Tufsyn, Workhorse—T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

*{Size 6.00 X 16, 6 PR. Rib-type, black sidewall. Plus \$2.38 federal excise tax and recappable tire. Prices in effect at all Goodyear Stores. See your Goodyear Dealer for his competitive prices.}

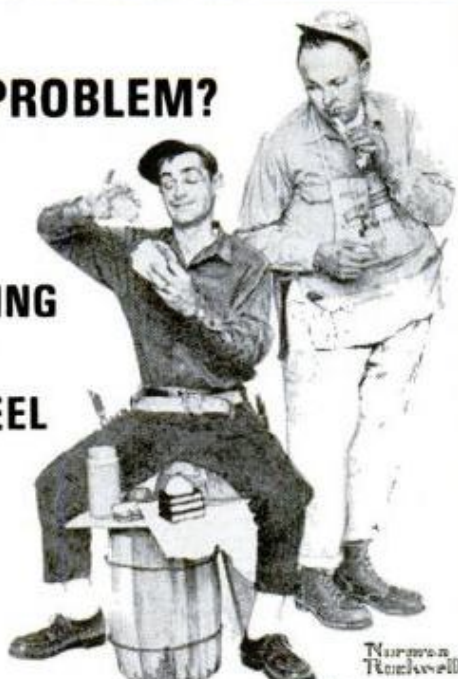
MAY 1967

35

Материал, защищенный авторским правом

SIZE PROBLEM?

**WEAR
RED WING
SHOES
AND FEEL
FIT!**



Norman
Rockwell

**RED WING
SHOES**



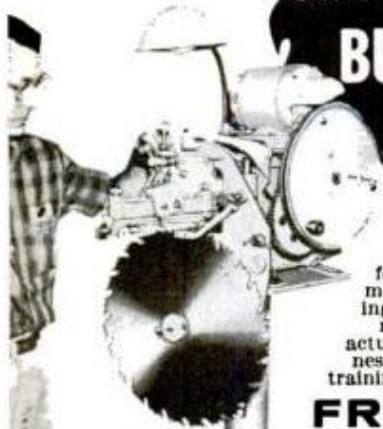
#101-Sizes 6-16, AA-EEEE
Price: \$17.95

Write for dealer name--Dept. PM

RED WING SHOE COMPANY, Red Wing, Minn. 55066
Shoemaker for America at Work

**A Money Making
Opportunity
For You
Handymen**

**OWN
PROFITABLE
Saw Sharpening
BUSINESS**



If you're handy with tools, here's a practical way to increase your income and build security for your family. Earn extra money every week sharpening saws with a Foley Automatic Saw Filer. You can actually build your own business with it—without special training or previous experience.

FREE BOOK

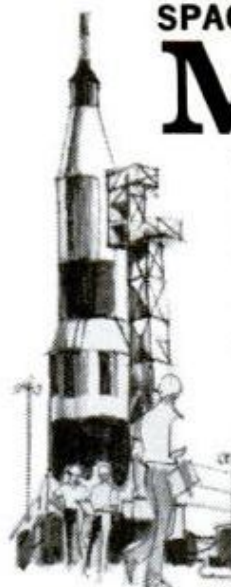
"Money Making Facts" explains how you can get business from home owners, farmers, carpenters, schools, factories, etc., how to build your business and expand—every step of the easy way. Don't wait. Mail coupon now for this exciting book and easy pay plan. No salesman will call. Mail Coupon Today for Free Book.



Foley Manufacturing Co.
516-7 Foley Bldg., Minneapolis, Minn. 55418

Name _____
Address _____
City _____ State _____ Zip Code _____

PREPARE FOR YOUR SPACE AGE CAREER AT M^SO^E



The Milwaukee School of Engineering offers residence study leading to Associate in Applied Science degrees in a wide range of Engineering Technologies and Bachelor of Science degrees in Electrical and Mechanical Engineering.

Programs approved for Veteran Training. Send for Your Career Booklet today.

MILWAUKEE SCHOOL OF ENGINEERING
Dept. PM-567
1025 N. Milwaukee Street, Milwaukee, Wisconsin 53201

VARIABLE SPEED TRIGGER PORTABLE ELECTRIC DRILLS



\$565

**SOLID STATE DESIGN SWITCH
CONVERTS SINGLE SPEED
1/4" AND 3/8" DRILLS TO
VARIABLE SPEED TRIGGER**

Kit includes new variable speed squeeze trigger switch; all necessary parts; and complete instructions. Two types fit most drills made in last 10 years. Supply drill manufacturer and drill model number. \$5.65 postage paid. No C.O.D. please. Write for literature.

Motors-Controls Co. Box 91A Mequon, Wisconsin 53092

ACCORDIONS • Big Discounts

**Buy
Direct
Importer-
to-You**

**5-DAY
HOME TRIAL**



NEW ELECTRONIC MODELS

SAVE 1/2 42 "New Sound" Electronic models, Amplifiers too! All Famous Makes. Try before you buy—5-Day Trial. Easy Terms, Trade-ins. Free Accessories. Money Back Guarantee. Free Color Catalogs, Handy Selection Guide, Discount Prices. Write

Accordion Corporation of America
5535 W. Belmont, Dept. R-57, Chicago, Ill. 60641

FREE!

Trial Lesson in DRAFTING

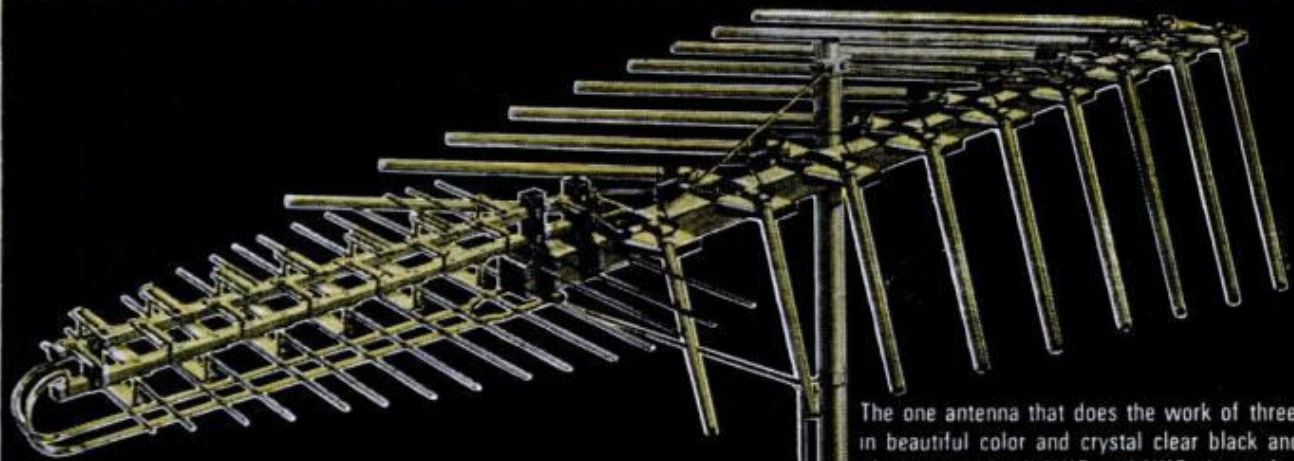
There's good money in Drafting—and you can learn at home in spare time! No special talent needed. Get complete step-by-step lessons in mail. A few spare hours each week and you'll soon be a trained draftsman. Send name, address for FREE Trial Lesson and details now. Approved for veterans.

CHICAGO TECHNICAL COLLEGE
E-205 Tech Bldg. 2000 S. Michigan
Chicago, Illinois 60616

**NEW G.I. BILL!
VETS CHECK HERE:**

Name _____ Age _____
Address _____
City _____ State _____ Zip _____

POPULAR MECHANICS



FINCO ALL-BAND UHF-VHF-FM ANTENNA
75 OHM Model CX-UVF-24 \$72.10 List

FINCO ALL-BAND UHF-VHF-FM ANTENNA
300 OHM Model UVF-24 \$59.95 List

The one antenna that does the work of three! Pulls in beautiful color and crystal clear black and white pictures on both UHF and VHF channels... plus the finest stereophonic and monophonic FM sound reproduction.

300-ohm models for normal reception areas from \$18.50 to \$59.95
75-ohm models for poor reception areas from \$42.65 to \$72.10

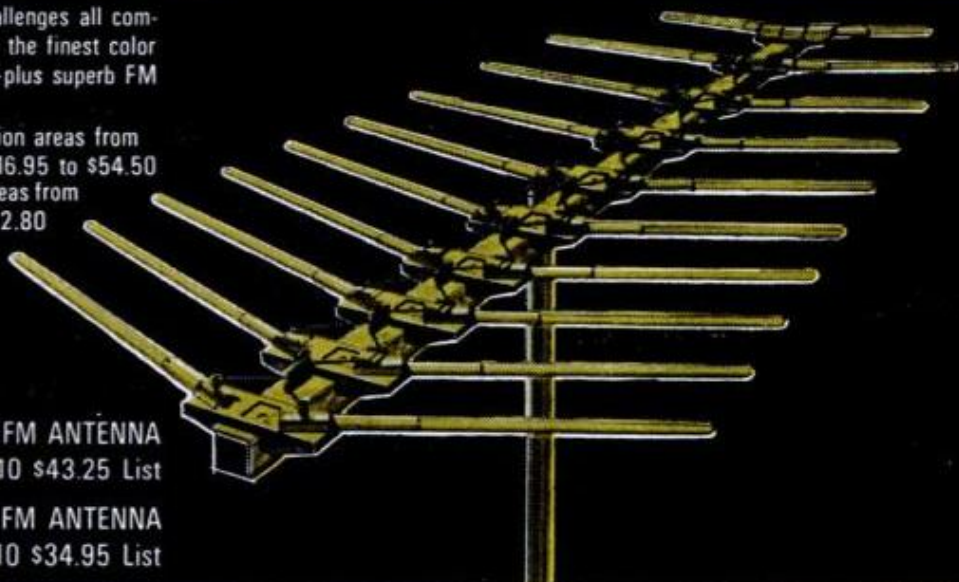
FINCO

introduces / 75-ohm COLOR VE-LOG ANTENNAS
FOR UHF-VHF-FM RECEPTION

Finco's Swept-Element Antenna challenges all competition. Its unique design assures the finest color and black and white TV reception—plus superb FM and FM Stereo tone quality.

300-ohm models for normal reception areas from \$16.95 to \$54.50

75-ohm models for poor reception areas from \$18.55 to \$62.80



FINCO SWEPT-ELEMENT VHF-FM ANTENNA
75 OHM Model CXVL-10 \$43.25 List

FINCO SWEPT-ELEMENT VHF-FM ANTENNA
300 OHM Model VL-10 \$34.95 List

FREE! ALL FINCO CX-VL, CX-UVF AND UVF ANTENNAS COME WITH A FREE INDOOR SET-MOUNTED TRANSFORMER, VHF-UHF TRANSFORMER SPLITTER OR VHF-UHF SPLITTER.



THE FINNEY
COMPANY
34 West Interstate Street
Dept. PM, Bedford, Ohio

Send for free brochure

Name _____

Address _____

City _____ State _____ Zip _____

TUNE-UP

with



IGNITION
TUNE-UP KITS

COILS



VOLTAGE REGULATORS



SWITCHES

Ampco heavy-duty, premium quality ignition parts are designed for the discriminating installer. You'll appreciate the easier starting, better gas mileage and peak performance you'll get with Ampco's heavy-duty matched ventilated contact sets, condensers and rotors — plus heavy-duty coils, voltage regulators and switches.

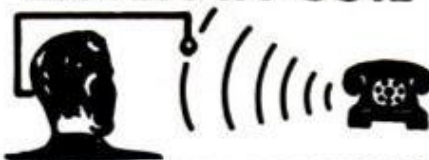
Start today with Ampco — available at leading automotive establishments.

ASK FOR AMPCO



AMPCO PRODUCTS
Fond du Lac, Wisconsin

AMAZING NEW "LISTEN-IN-COIL"



PICKS UP ANY TELEPHONE CONVERSATION!

NO CONNECTION TO TELEPHONE NECESSARY! You hear the entire two way conversation from a distance . . . undetected! Limited supply remaining at only \$1.98. **SUPER-SENSITIVE** model \$2.98. Satisfaction Guaranteed! Catalog of LISTENING DEVICES 35c. **FREE** with order! Save COD fee and send Check, Cash or M.O. to: Consolidated Acoustics, DEPT. 104, 1306 Washington, Hoboken, New Jersey.

NOW YOU CAN START YOUR OWN

TAX & BOOKKEEPING SERVICE

PAYS BIG! FREE BOOK tells you how! Urgent, ever-increasing demand for qualified tax consultant-bookkeepers. **MEN, WOMEN**, all ages, prepare tax returns for individuals, do book-keeping at home for small businessmen, full or part time. Earn substantial fees in busy tax season; enjoy monthly fees of \$10-\$40 per client keeping books year round. We train you at home, help you start.



Write Today for **FREE Book**. No agent will call. **SOUTHWESTERN ACADEMY**, Dept. M57, Dallas, Texas 75220



FACTORY DIRECT!

MINI-BIKE KIT! \$109⁹⁵

Build your own mini-bike in about 2 hours! No welding! Speeds to 30 mph. You get:

- 2 1/2 hp 4 cycle engine
- Precision welded frame
- Complete instructions

RUSH 25c for brochure to:

BIRD engineering, Box 427, Dept. PM5 Omaha, Nebr. 68101



**EARN
HIGH
WAGES**
as a **HEAVY
EQUIPMENT
OPERATOR**

Train your way to high pay in the booming construction industry! Learn the skills you need to qualify . . . **NOT** by correspondence, but by actual field training on machines like the ones used by the industry. Huge training grounds in North Carolina, a million dollars worth of school-owned diesel-engined machines, experienced instructors, full 220-hour and 440-hour courses. National, the original school of heavy equipment operation, is the recognized leader. Member American Road Builders Assn., Services and Supply Division. Associate Member A.G.C. Full-time Job Advisory and Counseling Director on staff. VA approved. For men ages 17 to 56. Train Now-Pay Later plan . . . other payment plans also available. Write **TODAY** for **FREE** catalog and **FREE** copy of school newspaper reporting news of National School graduates.

**NATIONAL SCHOOL
OF HEAVY EQUIPMENT OPERATION**, Dept. D-3
P.O. Box 1686 Moores Chapel Road, Charlotte, N. C. 28201
Please send me **FREE** illustrated school catalog and complete information. I understand there's no obligation.

Name _____ Age _____

Address _____ Phone: _____

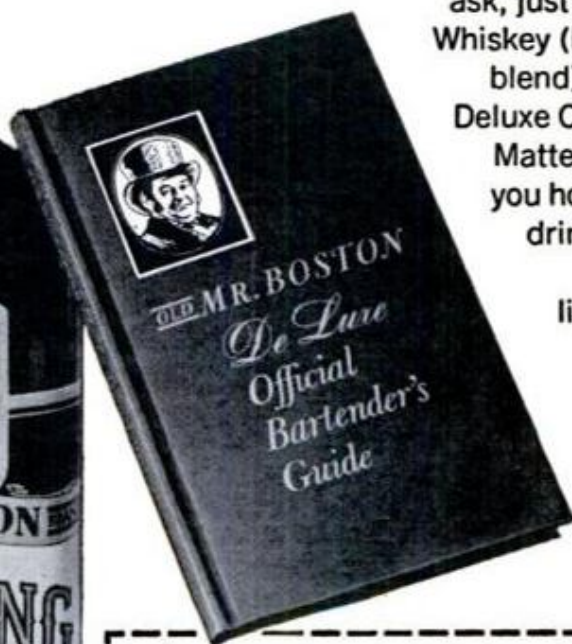
City _____ State _____ Zip Code _____

Okay, handyman.



*How do you make a Ward Eight?
Frisco Sour? Cowboy Cocktail?*

Don't let 'em stump you. Next time they ask, just get out the Rocking Chair Whiskey (Mr. Boston's smooth mild blend) and your Old Mr. Boston Deluxe Official Bartender's Guide. Matter of fact, the Guide shows you how to build over 750 great drinks — which is just about all there are! See your liquor store for the famous Rocking Chair Whiskey. But it takes this coupon, plus 25¢, to get the Bartender's Guide. They're pretty handy items . . . for a handyman like you.



MR. BOSTON DISTILLER, INC.
1010 Massachusetts Ave.
Boston, Mass. 02118 Dept. P.M.

Sirs: I want to be a handyman at the bar. Here's 25¢ for the richly illustrated, hardbound, 149-page Old Mr. Boston Deluxe Official Bartender's Guide.

Name _____

Street _____

City _____ State _____ Zip _____

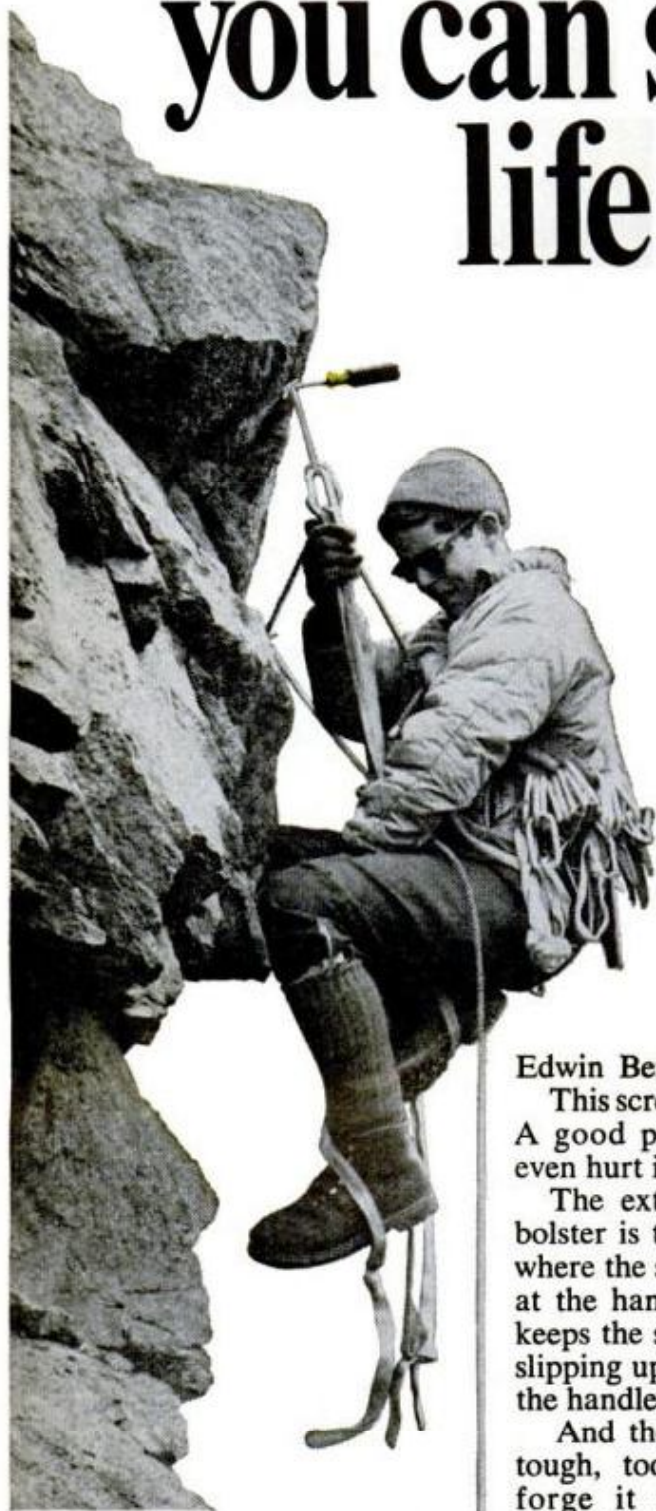
ROCKING CHAIR WHISKEY A BLEND 80 PROOF, 72½% GRAIN NEUTRAL SPIRITS, MR. BOSTON DISTILLER, INC., BOSTON, MASS.

MAY 1967

39

Материал, защищенный авторским правом

Stanley makes a screwdriver so tough, you can stake your life on it.



January 19, 1967: Edwin Bernbaum, a member of the expedition that first conquered the Northwest Ridge of Alaska's Mt. St. Elias, stakes his life here on a Stanley Jobmaster No. 66-668 screwdriver driven into the rock.

Where shaft meets handle, an extra heavy-duty bolster.

Edwin Bernbaum was safe.

This screwdriver is tough. A good pounding won't even hurt it.

The extra heavy-duty bolster is tough. That's where the shaft widens at the handle, and it keeps the shaft from slipping up through the handle.

And the tip is tough, too. We forge it from special-formula

alloy steel that's been heat-treated to really stand up. Then we plate it with chrome to prevent rusting.

Pick our screwdriver up. The full-size rubber grip handle will feel just right in your hand.

Who says they don't make tools like they used to anymore? Stanley makes tools like they used to anymore.

Stanley Tools, Division of The Stanley Works, New Britain, Connecticut.

STANLEY

Drivin' with Dan

What brakes are best for a family car—drum or disc? Is General Motors returning to racing? Do top Formula 1 drivers really give up drinking and smoking? Dan Gurney answers these and other provocative questions



THREE FOR THREE was Dan recently at Brands Hatch, England, Auto Race of Champions. Piloting a new F1 Eagle, he won two 10-lap heats, and the 40-lap main event. Dan's 101.58 mph now holds the Brands Hatch record

Q. I just bought a new Chevy 283 CID V8 with standard shift and would like to know how to use the tachometer to save gas. Can you explain?—Henry Patrick, Houston.

A. A tachometer tells you engine speed in terms of revolutions per minute (rpm) at one given moment. If you could establish the most efficient rpm from the fuel economy standpoint (Chevrolet engineering might provide this information), the tachometer would assist you in maintaining the best rpm. Remember, however, the throttle opening has a lot to do with gas economy—keep it closed and you don't use much gas. A vacuum gauge and a light foot will probably help you more here than a tachometer.

Q. I heard recently (and have gotten into several arguments) that General Motors is returning to racing. I'd like your opinion on this, and how you think the Chevrolet 396 CID and 427 CID would perform against the higher-rated Ford and Chrysler engines.—Charles H. Braun, Pittsburgh.

A. First, I don't have any "inside" information. I doubt that we'll see General Motors returning officially. On the other hand, it has never backed out completely because I feel sure it realizes this would cost GM dearly in the form of lost sales to Ford and

Chrysler. In many respects it's a bit of a sticky situation. I'm sure GM dealers are crying for more racing. Both Ford and Chrysler have learned a lot about racing by active participation. If General Motors came back it would be weakest in the durability area, which can be insured only by racing evaluation. (If it breaks, re-design it.)

Another problem for GM would be organizing smooth-working teams of men to compete with the outfits representing the competition, who have been at it for years. There is more to racing than car, engine and driver. Still, GM has done it before and I have no doubt it can do it again. In fact, I hope it does.

Q. I will be brief. I have a 1963 Chevy wagon. It has a 283 CID standard transmission and overdrive. This overdrive will engage in all forward gears or it can be completely disengaged. Would you consider this car to have six different forward drive ratios?—Bruce Williams, Lockbourne AFB, Ohio.

A. I will be even briefer . . . yes!

Q. What brakes do you recommend for a typical family car—all-around drums, power drums, or front discs (if available)? Do you consider power discs better than heavy drums?—Kevin Walsh, Brookyn.

A. It isn't quite as easy as that. I don't think it is wise to categorize brake systems and then say one system is best. There are big differences in these systems from one car to another, although they are supposed to be identical. The kind of lining on the brakes makes quite a difference. A power-assist front disc, rear-drum system seems good to me. Even the people who manufacture brakes aren't as yet able to answer your question. In the process of trying, however, brakes

(Please turn to page 42)

DRIVIN' WITH DAN

(Continued from page 41)

of all kinds are improving each year. Most racing cars are all discs, stock car racers being the outstanding exception. If stock cars did more road racing, you would soon see them equipped with discs similar to those on the Ford GT Mark II prototypes.

Q. *I've read that the top Formula 1 drivers neither smoke nor drink. What is your opinion? Does either really permanently impair a driver's reflexes, timing and judgment?—David E. Klutsenbaker, San Francisco.*

A. Most drivers do not smoke, but many excellent drivers do. I have smoked, but I quit, mostly because I suspected it might impair my competence an infinitesimal amount—say, maybe, one inch per cigaret per 68 mph speed on an average summer day. Who knows? It is probably safe to say that 99 percent of the drivers drink to some extent (or hope to—they usually have a swig of champagne in the winners circle, you know), but usually in moderation. I do not think it impairs their reflexes, timing or judgment permanently—or at least not during the first 100 years of life.

Q. *I am thinking of buying an Austin Healey Sprite and I would like your opinion on this car. Also, where can I get the Sports Car Club of America rulebook concerning Classes G and F for the Sprite and rules for Formula Vee?—J. E. Greene, Horsham, Pa.*

A. I'm afraid I can't give you an opinion on the Sprite because I haven't driven one. But it's a cute little car that looks like it would be fun and it fits into a popular class for a light pocketbook in SCCA racing. Write your SCCA regional headquarters, or national headquarters at Westport, Conn.

Q. *I have a 1966 Mustang with a standard 289 CID engine. My friends tell me I can put a 390 or 427 in it, but I don't see how there would be room. Can you tell me how to do it?—Steve Sheffield, Martinsville, Va.*

A. Stick with a 289 in a 1966 Mustang. It's a great engine with plenty of performance in it if you want to work on it. Installing a 390 or 427 would probably require some cutting and welding. Why not open the hood on a 1967 model with one of those engines to measure the difference?

Q. *Is Mario Andretti overly rough on the cars he drives? I know he had to be in a lot of races to become USAC champion, but in the big races I see on TV, he rarely finishes. Why?—Robert Frattini, Broomall, Pa.*

A. When you get down to it, you must be rough on a car when you race it. Overly rough, no. I would say that Mario isn't overly rough on cars as evidenced, as you say, by the fact he is USAC champion and a consistent winner. Just keep watching that TV set.

Q. *Are the engines used at Indy, Sebring and Le Mans started by sparkplugs or by compression?—Lee Thedens, Rock Rapids, Iowa.*

A. They start them with a starter and sparkplugs in much the same way as an ordinary car. The Indy cars do not carry the starter with them, however, but they leave it in the pits.

Q. *I have heard that the Chapman Lotus-Ford is very powerful on the turns at Indy. Is this extra power a threat to your American Eagles? If so, what do you do to make up for the extra power of the Lotus?—Ken Kleinschmidt, Tampa, Fla.*

A. I think we can handle them this year. In our last tests at Indy we beat the Lotus speeds with our improved Eagle.

Q. *I know you were experimenting with a turbine-powered race car. How long do you think it will take before cars with this type of power become serious contenders at Indy?—Harry Spangle, Bethesda, Md.*

A. I feel it will be a long time. Turbines are very good under constant speed conditions, but not very good where you must speed up and slow down repeatedly with instantaneous response—such as when racing in "traffic" on a race course. Also, I believe there is still plenty of room for development of the piston engine as we know it today.

Q. *Jim Hurtubise is said to be building a roadster for this year's Indy races. Isn't this type of car obsolete for that race?—Jerry Buffalino, Rochester, N. Y.*

A. Not necessarily. We shall see this month. The old roadsters are obsolete, but a new roadster may not be like the old ones at all. The old rear-engined cars also have had it, by the way. ★ ★ ★

**Even though 345 horses make you feel like flying,
you don't need to feed them the most expensive motor oil.**



Just the best.

Your T-bird Landau can almost give you wings. The kind of car you care for as carefully as you do your chute. Especially the engine. But here again, the best care doesn't always cost the most. Using tests established by auto makers, we constantly check Gulfpride® Single-G oil for its ability to protect against wear, scuffing, rusting, deposit formation and clogging. Gulfpride far surpasses the requirements of car makers in these tests. Recent tests show Gulfpride Single-G performance equals or exceeds that of four leading competitive premium motor oils. (And one of them costs 25¢ a quart more than Gulfpride.) Get the best protection for your engine. Get Gulfpride wherever you see the Sign of the Gulf Orange Disc.

Gulf Oil Corporation



When you row over to where the guy just caught a big one, see if he isn't using some of this tackle.

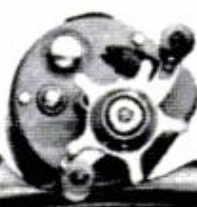


No. 551. Also available No. 550 (Compact) and No. 600 (Salt Water).

There's a pretty good chance he is, especially if the fish happens to be a record catch. In *Field and Stream's* 55-year-old contest, almost twice as many winners used Pflueger reels than any other kind.

Which says a lot about our reels. And the fishermen who use them. If you consider yourself a pretty good fisherman, too, we think we have some tackle that's as good as you are. Our new Pflueger Supreme line of matched and balanced reels, rods, and lines.

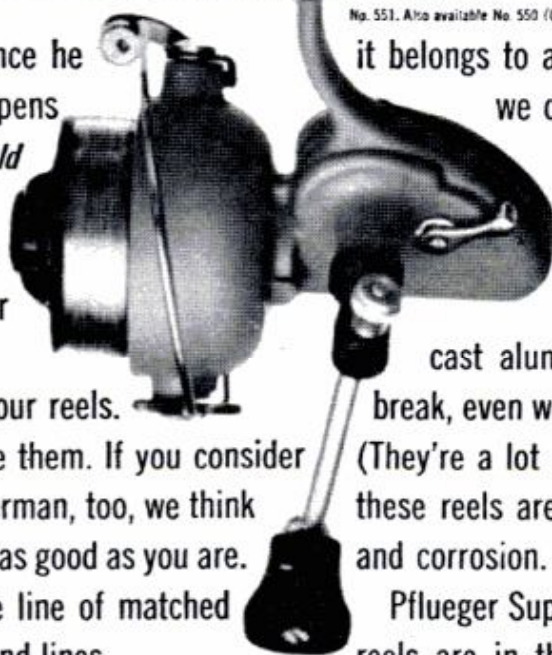
You may have heard of the Pflueger Casting reel.



No. 1576 (Standard Spool). No. 1577 (Narrow Spool) also available.

some competition: Supreme Push Button reels and Supreme Spinning reels.

Take the three Supreme Spinning reels. They all have ball-bearing-mounted gear trains. In fact, the gear train on our smallest spinning reel looks like



it belongs to a much larger reel. (That's the way we do things at Pflueger.) Then there's the Multi-disc drag system. It's smooth. And it's tough. And the fish hate it. The middle size and the salt water reel have one-piece cast aluminum spools which won't bind or break, even when you're using monofilament line. (They're a lot like winches.) And, naturally, all of these reels are completely protected against rust and corrosion.

Pflueger Supreme Push Button and Bait Casting reels are in the same class. But we don't have enough room here to tell you about them, and our new matched Supreme tubular fiberglass rods and matching lines. If you can't wait for our next ad, see a sporting goods dealer, or send for our free 36-page catalog.

See why 10% of the fishermen catch 90% of the fish.

No. 526 (Compact). Also available No. 525 (Heavy Duty)



PFLUEGER

Pflueger Corp.
110 N. Union Street
Akron, Ohio 44309
Dept. PM-5
I'm interested. Send me your new catalog.

Name _____
Address _____
City _____ State _____ Zip _____



The crisp keen
taste of the
Northland.
New I&M Menthol Tall.
100 millimeters tall.



Taller than king size.

Материал, защищенный авторским правом

The Bolens Estate Keeper

Take a tip from Arnold Palmer. Test-ride the Bolens Estate Keeper. Find out why no other compact tractor can even come close.

Its swivel-hipped design lets it bend around trees, shrubs . . . turn in only 21 inches! You actually aim the front-mounted mower . . . cut grass smoothly before the wheels can press it down. Edge up to flower beds. Under fences. Because it bends at the waist, the Estate Keeper gives you mowing precision conventional tractors just can't match. Ends most hand trimming, too!

You'll enjoy the rear-engine design more and more as you go along. Lets you drive away from exhaust, noise, heat. Puts power behind the tractor for easiest mowing, hauling, grading, snow casting or plowing. And Bolens exclusive Fast-Switch Power-lock Hitch makes attachment-changing a snap!

Before you buy any standard tractor, see your Bolens Dealer. Take a free test-ride on the one that's way up front—The Estate Keeper!

8-67R1



BOLENS

BOLENS DIVISION, FMC CORPORATION, DEPT. EE-74-B, PORT WASHINGTON, WISCONSIN

“no other compact tractor even comes close..”



COMPACT TRACTORS • RIDING AND WALKING POWER MOWERS • TILLERS • SNOW CASTERS

Make sure your new tent has plenty of big holes in it.



Buy a **Coleman** Sky-Vu

The Sky-Vu's unique controlled air-flow system lets you enjoy the great outdoors indoors. In comfort. No matter what the season.

For instance, on warm days and nights, wide-open, 4-way cross ventilation lets tons of fresh air and breezes come in. And because heat rises, we gave it a way to get out. A real *skylight*. Right in the roof.

Other nice things can come in, too. Like sunshine. Moonlight. Starlight. An almost panoramic view. But not insects. (Besides the fiberglass screen, there's a sewn-in floor, zippered threshold.) And not rain or snow and cold air. The "holes" zip closed quickly from

the inside. Or, in mild cool weather, can be partly closed to suit your comfort. Awnings and canopy permit 3-way ventilation even in the rain!

With Coleman's patented inside "Flex-bar" frame, the Sky-Vu *goes up in minutes...stays up* in gale force winds.

That's why we say the new Coleman Sky-Vu is for America's fun- and comfort-loving families...truly the first *all-weather* tent. If there is a hole in our claim, we (and top professional outdoorsmen) haven't found it. After all, the new Sky-Vu tents are made by **Coleman—greatest name in the great outdoors.**

2-room Sky-Vu, 14' x 10'. 8.1 oz. piled Army Duck. Privacy curtain (above). 11' x 10' Sky-Vu (right).



See your **COLEMAN HOLIDAY TRAVEL AGENT** — the nearby dealer who sells famous Coleman Lanterns, Camp Stoves, Coolers, Jugs, Sleeping Bags. Get **FREE 88-page Outdoor Fun Guide**, or write to us.

HOMEOWNERS' CLINIC

BY W. CLYDE LAMMEY

Gremlins in the plumbing

I have copper plumbing, and when I turn on the hot water there is a curious popping or snapping sound, not rapidly repeated like hammering, but more slowly and at regular intervals. I can't seem to locate it. I've thought it was in the heater, but now I'm not sure. Can you suggest the cause?—E.N., Ark.

Plumbing noises can have more than one cause. At long range it's not always possible to say definitely what, where, or why. But I think immediately of the hot-water line passing through a partition, possibly a joist, or some other part of the structure with which it is in contact. When you open the hot-water faucet, the copper line warms quickly, expands, and the movement results in a rubbing action against whatever the line may be touching. Investigate this possibility. If my guess is correct, bending the tubing slightly to free it should stop the noise.

Also, there's a possibility that an insulating coupling was not installed at the point where the copper tubing joins the steel pipe. Electrolytic action at this point could build up a coating and gradually restrict the flow of water, although you will more likely notice a lowering of the pressure and possibly hear a hissing sound rather than the noise you describe. Still this remains a possible cause and I'd suggest you have it checked if the other trouble mentioned does not apply.

Skylight leaks—or does it?

I've installed combination skylights and vents in my attic and last winter they leaked, wetting the attic floor directly underneath. I've examined them and can find no place where water gets in. Yet it does, somewhere. There are louvers in the gable ends, but apparently these are not large enough, as the attic gets very hot in summer. Have you any suggestions?—H.O., Tenn.

If these skylights are of the "bubble" type and have been properly installed, they shouldn't leak. The wetness you're getting on the attic floor is probably condensate that forms on the underside of the lights and drips onto the floor. The

moisture is condensed from the air in the attic. It does not leak in from outside. I hesitate to suggest closing the skylights with a tight-fitting insert, but this would seem to be the only preventive step. The disadvantage of this is that you may get condensate forming on exposed nails or plumbing vents.

To be effective, the inserts, or covers, must fit tightly to prevent warm air from the attic reaching the inside surface of the bubbles. You might try frames paneled in either glass or sheet plastic; the former sealed with putty, the latter with a mastic. If there is a door to the attic, be sure it is closed tightly in winter and also see that louvers in gable ends are open and that the screening is not clogged with paint, leaves or other debris.

Making varnish vanish

I spilled nearly a pint of dark varnish stain on my basement floor. I mopped it up with paper towels and then scrubbed with a detergent, but much of the stain remains. Can this be removed?—L.N., Ill.

You may be able to get off most, if not all, of the remaining residue with a paint and varnish remover of the nonflammable, wash-off type. Be sure the remover is of the type specified. Brush it on in the normal fashion—a fairly heavy, uniform coating over the whole affected area. Allow it to "work" for 10 minutes or more, then wash it off with a wet cloth. Go over the area several times with the wet cloth to make sure you get up all the remover residue. Then wipe the surface and let it dry. A second application might be necessary.

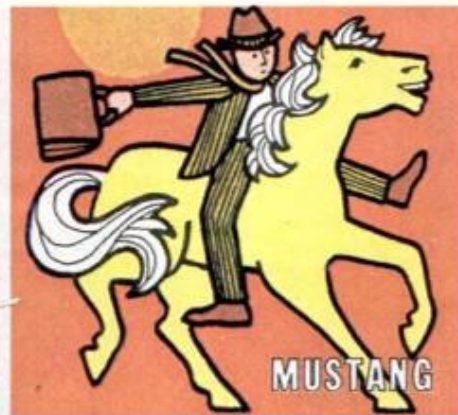
"Waterproofing" a furnace

I get a little seepage into my basement when there are heavy rains, and this heads directly for my furnace, seeps inside and causes rust. Is there any way to seal the water out?—D.T., Ind.

If you can be sure the water seepage is never more than a half inch or so in depth, you might paint, or enamel, a strip around the bottom of the furnace jacket. Or, if there's a metal trim strip at the bottom, coat this. Use masking tape to get a neat job.

While you're painting the jacket, allow the edge of the brush to apply a narrow strip of paint to the floor as well. Then form a fillet of glazier's putty all the way around to close openings between the metal and the floor. If you're careful to seal all openings, this might do it. ★★

Win a Pet



or a car of the same name



BUICK WILDCAT



FORD MUSTANG



PLYMOUTH BARRACUDA



RAMBLER MARLIN



CHEVROLET IMPALA



JAGUAR

wherever they sell Du Pont Golden "7".

6 GRAND PRIZES.

The first sweepstakes winner has his pick of the pets. Any one of the six cars. Second winner picks from the remaining five cars. And so forth . . . down to the sixth winner who gets the car that's left. (Animal lovers may choose a real beast instead of a car.) And all you do to enter is fill in and mail a free entry blank. Get one wherever they sell Golden "7" and other Du Pont Auto Products.

777 OTHER PRIZES.

Besides the six grand prizes, Du Pont will give RCA 25" color TV sets to the next 15 winners. Then, 15 Harley-Davidson motor scooters. 50 Bell & Howell movie cameras and projectors. 100 AMF Renegade bicycles. 597 Thermos picnic chests. 777 winners in all. (Win a Pet sweepstakes closes June 30, 1967. Void where regulated or prohibited by law.)

Better Things for Better Living
through Chemistry



GOLDEN "7".

The motor oil additive that makes cars take off. Like a whisper. (1) Golden "7" boosts compression. (2) Gives you all the horsepower your engine has to give. (3) Helps stop oil burning. (4) Quiets the engine and valves. (5) Protects all working parts. (6) Cuts engine wear. (7) Cuts engine repair bills.



Look for these and other high-performance Du Pont No. "7" car care products.

Now! Do any car repair this quick, easy way

You can "breeze through" engine jobs, tune-ups, front end jobs, brake repairs, steering adjustments, carburetor adjustments, alternate servicing — almost ANY car service or repair job **ON THE VERY FIRST TRY!**



1 FIND THE TROUBLE!
Just turn to "Troubleshooter" section in MOTOR'S Repair Manual. Spots 2300 causes of car troubles — indicates the repair needed. No guess work!



2 FIX THE TROUBLE!
Step-by-step instructions, photos, diagrams show you where to start, what tools to use. Factory experts practically guide your hands through every move. You can't go wrong!

GIANT 1,256-PAGE ILLUSTRATED GUIDE SHOWS YOU

How to Fix Any Part of Any Car

Yes! MOTOR'S giant new Auto Repair Manual is the answer to practically all your car repair problems. Almost every car repair on every popular-make car built since 1959 is explained and illustrated in fool-proof detail. You will develop new speed and confidence on any repair job you tackle.

Try it FREE for 10 Days

Words can't possibly describe the vast contents . . . the thousands of photos and diagrams . . . the easy-as-pie instructions . . . the wonderful feeling when you know you've got that car running like new again!

You've got to see it, use it for yourself! That's why we offer to send it to you, at our risk, for FREE ten-day trial. Try it. See how it makes even the toughest jobs seem like child's play. If you're not 100% satisfied, just send it back and you won't owe a penny!

Same FREE Offer on MOTOR'S

New Truck Manual
Brand new! Covers practically EVERY job on EVERY popular make gasoline and Diesel truck made — 1955-1967. FREE 10-Day Trial.

Everything You Need to Know to Fix Cars Like a Crack Mechanic

The instructions and pictures are so complete, so clear, you just can't go wrong. Your hands

are guided by the men who actually build the cars, for this book "boils down" the time-cutting and work-saving methods from 300 Official factory shop manuals.

This NEW, REVISED EDITION gives you just about everything you need to know to service or repair engines, transmissions, brakes, ignition systems, carburetors, automatic level controls, exhaust emission controls, speed controls, air conditioning, concealed headlamps, steering, alternators, etc. etc. — practically every part of the car makes listed below.

1,256 double-size pages include 3,800 drawings and photographs, 457 Quick-Check charts, 55,000 essential specifications — more than 225,000 individual service and repair facts! Includes all the new 1967's.

No wonder you'll see copies of MOTOR'S Manual on almost every garage workbench in the country. No wonder it's used by schools, factories, the U.S. Army & Navy. Over 5,000,000 copies sold.

SEND NO MONEY

Just mail the coupon. Use the Manual for 10 whole days FREE. If it doesn't pay for itself in time and money saved within 10 days, return it and owe nothing. But act now! **MOTOR BOOK DEPT., 250 W. 55th Street, New York, New York 10019.** (Schools, Bookstores: Write for Discounts.)

MOTOR'S AUTO REPAIR MANUAL

Nearly **1 FOOT HIGH**
3,800 Illustrations
1,256 Pages

5,000,000 COPIES SOLD

PRaised BY BEGINNER AND EXPERT MECHANICS ALIKE . . .



"I am a racing 'bug' and expect the most out of my cars. Your Manual has been of excellent help to me." — Duane Davis, Indiana (Racing Advisor)



"I always rely on my Motor Books. They're well illustrated — and complete and simple." — Mr. Erv Jones, Minnesota (Garage Owner)



"Motor's Auto Repair Manual is invaluable to me. I depend on it for all makes and models." — Mr. W. W. Forlines, Virginia (Mechanic)

MAIL COUPON NOW FOR 10-DAY FREE TRIAL
(Attach to Postcard for Faster Action)

MOTOR BOOK DEPT., Desk 715
250 W. 55th St., New York, N. Y. 10019

Rush to me at once **MOTOR'S New AUTO REPAIR MANUAL**. If O.K., I will remit \$2 in 10 days, \$3 monthly for 2 months and a final payment of \$1.95 plus delivery charge and sales tax, if any, one month after that. Otherwise I will return the book postpaid in 10 days.

Print Name.....Age.....

Address.....

City & State.....

ZIP CODE ZONE NO

Also send me for 10-day Free Trial **MOTOR'S TRUCK REPAIR MANUAL**. If O.K., I will remit \$12, plus delivery charge and sales tax, if any, in 10 days. Otherwise I will return book postpaid in 10 days.

Check box and save shipping charge by enclosing WITH coupon payment of \$9.95 for Auto Manual (or \$12 for Truck Manual) plus sales tax, if any. Same return privilege.

COVERS ALL THESE MAKES 1955-1967

Volkswagen	Chrysler	Plymouth	Olds F85
Mustang	Dart	Marlin	Falcon
Barracuda	Continental	Rambler	Fairlane
Jeep	Mercury	Dodge	Laneer
Chevy II	Ford	Oldsmobile	Tempest
Pontiac	Chevle	Ford Bronco	Corvette
Thunderbird	Chevrolet	Buick Special	Valiant
Buick	Camaro	Comet	Merc. Cougar
Imperial	Fury	Corvaire	Scout
Cadillac	Toronado	American	FWD Cadillac

FREE 10-DAY TRIAL

Return and Pay Nothing If Not Satisfied


How To Hold FALSE TEETH More Firmly in Place

Do your false teeth annoy and embarrass by slipping, dropping, or wobbling when you eat, laugh or talk? Just sprinkle a little **FASTEETH** on your plates. This alkaline powder holds false teeth more firmly, more comfortably. No gooey, pasty taste. Doesn't sour. Checks denture odor. Dentures that fit are essential to health. See your dentist regularly. Get **FASTEETH** at all drug counters.



45 seconds ago this drill press was a **UNIMAT** precision lathe!

UNIMAT is a vertical milling machine, surface grinder, polisher too—all in one compact unit. \$139.50! Write for free catalog, or send \$1 for 40 pg. handbook.



American Edelstaal, Inc., Dept. G-E7, 350 Broadway, N.Y.C. 10013

LEARN MEAT CUTTING



Train quickly in 8 short weeks at Toledo for a bright future with security in the vital meat business. Big pay, full-time jobs—**HAVE A PROFITABLE MARKET OF YOUR OWN!** Pay after graduation. Diploma given. Job help. Thousands of successful graduates. Our 44th year! Send NOW for FREE catalog. No obligation. GI approved. **NATIONAL SCHOOL OF MEAT CUTTING, INC., 50-U, Toledo, Ohio 43604**


BILL PROBLEMS?

NOBODY REFUSED up to \$17,500.00
FAST FRIENDLY SERVICE

POOR CREDIT, No Trouble. NOT A LOAN CO.
Send Your Name for FREE APPLICATION
NATIONWIDE ACCEPTANCE • Dept. 98
930 F St., N. W., Washington, D. C. 20017

1001 USES! WELDWOOD® FLEXIBLE WOOD-TRIM®

PROFESSIONAL LOOK TO PLYWOOD PRODUCTS



Beautiful wood veneer, paper-backed, in handy 1" & 2" rolls 8' long, for edging plywood. Also, decorate lamp shades, book ends, do inlay work, etc. Apply with Contact Cement or Presto-Set® White Glue. Oak, birch, African mahogany, walnut, fir, Korina®. At lumber, paint, and hardware dealer's. U.S. Plywood Corp., Dept. PM 5-67, 777 Third Ave., New York, N.Y. 10017.

WANT MORE MONEY? GET INTO PHOTOGRAPHY

Coast-to-coast, high-paying jobs in photography are waiting for people with the "know-how" to fill them. You can quickly, easily qualify at home with the world-famous NYI Learn-by-Doing Method. Write today for free catalog. Also resident training in New York. Our 57th Year.

NEW YORK INSTITUTE OF PHOTOGRAPHY
Dept. 49-5 10 West 33 St., New York 1, N. Y.

75 POWER TELESCOPE \$498

NEW 3 in one telescopes, 3 variable 25X 45X-75X magnification. Brass bound, 25 power for ultra bright images 45 & 75 power for long range. Guaranteed to bring distant stars, moons, objects, sports 75 times closer.



Most powerful scope anywhere at this amazing-low price. 5 sections. Opens 36" closes 1 ft.; contains 4 ground & polished lenses. Can also be used as powerful microscope. American made. Mass production enables us to offer telescope complete including case \$4.98 post paid. Money back guarantee.

CRITERION CO., Dept. PMB-38, 331 Church St., Hartford, Conn. 06101

TO YOUR OWN DOCTOR'S PRESCRIPTION

EYEGLASSES BY MAIL AT GREAT SAVINGS!




Mail orders filled by **\$9.95** licensed optician from
(Including single vision lenses, frame and case).

Doctor's prescription will be filled by a skilled, approved and licensed optician or your own prescription duplicated. Lenses are ground and manufactured to U.S. optical standards. Choose from complete catalog of men's, women's and children's glasses. Bifocals, trifocals, sunglasses or SAFETY HARDENED LENSES at low additional cost. We guarantee accuracy, perfect fit.

SEND FOR YOUR FREE CATALOG TODAY
PRISM OPTICAL INC.
Dept. PM-10 136 Liberty St., New York 6, N. Y.

NEW CATALOG FOR THE WOODWORKER

Just like having a warehouse in your living room!
Complete Catalog for Home Craftsman or Handyman.
Imported Woods, Veneers, Tools, Hardware, Lamp Parts, Legs, Top Quality Kiln Dried Woods, Kits and other hard to find items. All at **BARGAIN PRICES. Only 35¢ ppd.**



KAY-KRAFT MILLS

602 North 1st St., Dept. PM-4,
Vincennes, Indiana 47591

Excitement! Security! Good Pay!

CRIME DETECTION

LEARN AT HOME IN SPARE TIME—START NOW!
Crime everywhere is on the rise! Learn now, in your own home, the profitable profession that enables you to track down criminals and bring them to justice! Hundreds of Identification Bureaus employ I. A. S. graduates... trained in finger printing, police photography, handwriting identification, firearms and investigation. Our 44th year! FREE "Blue Book of Crime"... packed with crime facts and the full story of famous I. A. S. training. State exact age. No salesman will call. Rush Coupon!
A Correspondence School Founded in 1916.



FREE Blue Book of Crime MAIL COUPON.

INSTITUTE OF APPLIED SCIENCE, Dept. 1355
1920 Sunnyside Avenue, Chicago, Illinois 60640
Rush Blue Book of Crime... FREE!

NAME..... Age.....
ADDRESS.....
TOWN..... STATE..... ZIP.....

TELEVISION RADIO COLOR TV

MAIL COUPON FOR FREE BOOK

Coyne Electronics Institute Dept. 57-C3
1501 W. Congress Pkwy., Chicago, Ill. 60607

Send information as checked below

HOME TRAINING in TV • Radio • Color TV • Electronics

RESIDENT SCHOOL COURSES in Electronics, Electricity, Engineering, Radio-TV, Color TV, Refrigeration, and FCC

Name.....
Address.....
City..... State..... Zip.....
Phone..... Age.....

VA Approved—GI Bill

If there are 10 businesses
in your town, you can

MAKE UP TO \$50 EXTRA A WEEK!



Line includes hundreds of items businesses need & use!

BY supplying just 10 businessmen in your town with the office supplies, business forms and printed material they need—and use up—every day, you can make extra money every week in just a few hours of your spare time! National's great line of business necessities and advertising specialties make it easy for you to earn \$50, \$100 a week—and more!

NO EXPERIENCE NEEDED YOU DON'T SPEND 1¢

We send you FREE everything you need to start making TOP COMMISSIONS right away. Send coupon below for FREE Kit that tells you how to start making extra money in spare hours you'll never miss. MAIL COUPON FOR FREE DETAILS. No obligation.

National Press, Inc., North Chicago, Ill. 60064 Dept. 736

Home Office, National Press, Inc.,
Dept. 736, North Chicago, Ill. 60064

Yes, I want your big line of BUSINESS PRINTING, BUSINESS NECESSITIES, and ADVERTISING SPECIALTIES FREE AND POSTPAID so I can earn extra money week after week

Name _____

Address _____

City _____ State _____ Zip _____

LEARN GUNSMITHING

AMERICA'S OLDEST Complete Course. V.A. Approval. 2-year Curriculum. Degree of Associate in Science. LARGE SHOPS, MODERN EQUIPMENT, COMPETENT STAFF. Recommended by leading arms companies. Write Dean of Students—

**TRINIDAD STATE JUNIOR COLLEGE
TRINIDAD, COLORADO**

HOW TO FINISH WOOD



Get this 32-page full color book written by experts. Tells how to obtain professional finish on interior and exterior natural wood. Floors, wall paneling, antiques, boats, many more. Only 25 cents p.p. Send coin today.

McCLOSKEY VARNISH COMPANY
DEPT. PM57, 7600 STATE RD., PHILADELPHIA 36, PA.

Shrinks Hemorrhoids New Way Without Surgery Stops Itch - Relieves Pain

For the first time science has found a new healing substance with the astonishing ability to shrink hemorrhoids and to relieve pain—without surgery.

In case after case, while gently relieving pain, actual reduction (shrinkage) took place.

Most amazing of all—results were so thorough that sufferers made astonishing statements like "Piles have ceased to be a problem!"

The secret is a new healing substance (Bio-Dyne®)—discovery of a world-famous research institute.

This substance is now available in suppository or ointment form under the name Preparation H®. Ask for it at all drug counters.



Be an Architectural DRAFTSMAN

1000s big pay jobs open to trained Draftsmen (see "help wanted" ads in city papers). U. S. Labor Dept. says "42% more Draftsmen needed in next 10 years." Easy step-by-step spare time home-study plan has helped 100s beginners toward \$\$\$\$\$, security, prestige! Why not you? Send for "DRAFTING CAREER KIT" & new 5-Way Drafting Instrument—**ALL FREE!** No salesman will call. G. I. approved. Write & state age.

NORTH AMERICAN SCHOOL OF DRAFTING
4500 Campus Dr., Dept. 4175, Newport, California 92660

BILL PROBLEMS?

WE CAN HELP YOU

**NOBODY REFUSED UP TO \$18,000
Bad Credit No Problem • Not a Loan Co**
Send your name and address for FREE application

NATIONAL ACCEPTANCE, dept. M-8

5133 N. Central Ave., Phoenix, Ariz. 85012
or 119 Ann St., Hartford, Conn. 06103

ENROLL—EARN YOUR DEGREE

of Bachelor of Bible Philosophy (B.Ph.B.), Master of Bible Philosophy (M.Ph.B.), Graduate of Bible Philosophy (G.Ph.B.), Doctor of Metaphysics (Ms.D.), or Doctor of Divinity (D.D.). Chartered by State, Correspondence Courses only. Please write for FREE BOOKLET.

AMERICAN BIBLE INSTITUTE

Dept. PM, 408A W. 75th St., Kansas City, Mo. 64114

**POWERFUL NEW INVENTION, ONLY 2" LONG
SHOOTS THRU 100
PAGES-THIS BOOK!**

'B-B SHOT'

MAKE THIS TEST... Load your 'BB Shot' and fire against this magazine. Notice that it drives BB's through more than 100 pages. Though only 2" long x 1" in diameter, this pocket-size device has amazing power and accuracy. Use it for targets, pests and hunting. Scientifically designed for high power, operating ease and safety.

FREE! Get the 'BB Shot' now—we'll include an extra Velocity Cone and FREE Target, BB's and Automatic BB Dispenser... all for only \$1.98 p.p.d. 3 for \$5.00 p.p.d. Money Back Guarantee. Not sold to N. Y. C. residents or minors

GRAYSON CO. • Dept. C-68, 210 Fifth Ave., N. Y. 10

**MONEY-BACK
GUARANTEE**

Name.....
Address.....
City..... State.....

\$1.98
p.p.d.

CLEAR AN AREA UP TO 3 ACRES OF ALL FLYING INSECTS including HOUSEFLIES AND MOSQUITOES!!

*50,000 UNITS NOW BEING USED Anywhere from Multiple Acre Farms and Ranches to Backyard Patios and Gardens



- Powerful 1/100 H.P. Motor renders approaching insects powerless and pulls them into the trap.
- Sylvania 10" 22 Watt Black Light attracts moths, flies, gnats, mosquitoes and other flying insects.
- All weather unit offers full 360 degree range.
- Operates electrically for pennies per month. • No chemicals • No work
- No spraying or dangerous odor. • Perfect for motels • Shopping Centers
- Restaurants • Drive-ins • Dairy Barns • Service Stations • Farms and Homes

The All New Jet Control Black Light Insect Trap is one of the most powerful of its kind on the market today. Actually catches harmful insects and has proved effective over various areas from back yard patios and gardens to multiple acre farms and ranches. Sylvania 10" 22 Watt Black Light draws from grass, gardens, foliage and shrubbery killing some adult insects before eggs are laid. (At the height of its mating season). Its powerful 1/100 H.P. Motor is twice as powerful as competitive models. (Most others have 1/200 H.P. Motors) and its jet control principle actually, permanently pulls the insects into the bag with such force (Creating a wind tunnel of over 1175 Cubic feet of air per minute suction) that even powerful flies and mosquitoes are powerless against it. Ruggedly constructed of corrosion free baked enamel to insure years of trouble free operation. Shipped complete with hanging bracket, reusable fabric bag and 6 ft. of weatherproof, outdoor cord. U.L. Approved, weighs a solid sturdy 7 lbs., 10" high x 9" diameter. Formerly \$34.95 . . . Now only \$19.95 plus \$2.00 safe handling delivery charge.

**NEW
1967 MODEL
with unique new
insect baiter**

Formerly \$34.95
Now only
\$19.95

Plus \$2.00 P.P. & Hd. & Ins.

(If COD \$5 dep., Fees Extra) **MONEY BACK GUARANTEE**

FREELIN GIFT CORP., Dept. PM567, 244 SOUTH BROADWAY, YONKERS, N.Y. 10705

*50,000 units have been sold by our firm during the past 2 years and we've received numerous letters of praise and testimony regarding the amazing claims of performance of this product, including a feature story in a midwestern newspaper. All are on file for your inspection or write for a reprint of the letters, and the article including a notarized statement regarding the above.

Career in ELECTRONICS?



Career training the new easy way with RCA Institutes, one of America's leading Electronics Schools. Lab work with first lesson. Pay as you go. No installment payments required. Send for free 64-page book.

RCA Institutes, Inc.
A Service of RCA
Dept. PM-57
350 W. 4th St.
N.Y., N.Y. 10014

REAL ESTATE BE A BROKER

PAYS BIG! SEND FOR FREE, BIG, ILLUSTRATED CATALOG NOW! Graduates report making substantial incomes. Start and run your own business quickly. Men, Women, all ages, learn easily. Course covers Sales, Property Management, Appraising, Loans, Mortgages, & related subjects. **STUDY AT HOME** or in classrooms in leading cities. **DIPLOMA AWARDED. Write TODAY for FREE Booklet!** Accredited Member National Home Study Council. (Established 1936)
WEAVER SCHOOL OF REAL ESTATE
3521-P Broadway Kansas City, Mo. 64111

FREE BOOK TELLS HOW

IMPORTED LOCK-BLADE KNIFE



FINE OUTDOOR KNIFE FOR SPORTSMEN AND EMERGENCIES. Opens with flick of finger and locks with a click into position. Blade can't shut when in use. **PUSH BUTTON** release. Handy pocket size, yet rugged. Fine quality polished stainless steel razor-sharp blade. **PIERCES METAL.** Narrow tapered blade with thick rigid backbone for heavy duty trouble-free use. Comfortable handle. Safety guards. Order now. Don't be fooled by cheap imitations. **DELUXE LARGE SIZE 7" BEAUTY Only \$3.98.** **STANDARD AMERICAN, Dept. 5-PMK, 1 Park Ave., N.Y. 10016, N.Y.**

\$1.88
Free Postage

PROFIT IN YOUR SPARE TIME



SMALL ENGINE REPAIR PAYS BIG!
Outboard • Powermower • Chain Saw • Tractor
MAKE EXTRA MONEY — or fix your own engines and SAVE! Illustrated, easy-to-learn Home Study Course qualifies you as expert. Approved for Veterans. Write today!

LINCOLN TECHNICAL INSTITUTE
SUITE 5E, 427 MARKET STREET, NEWARK 5, N.J.

20 COURSE HOME STUDY PROGRAM

KARATE! JUDO BOXING! MUSCLEBUILDING! YOGA! STRONGMAN STUNTS! STRENGTH & ENDURANCE! HANDBALANCING! ETC.



YOU GET ALL THESE COURSES! *20 Illustrated KARATE blows *SAVE foot fighting
*Secret NERVE CENTER and ANATOMY charts
*20 lethal JUDO throws *20 terrific STRONGMAN STUNTS *Complete MUSCLE-BUILDING course *Ancient YOGA secrets *HANDBALANCING stunts *Complete BOXING course. Secrets of ENDURANCE *WRESTLING holds
*WEIGHTLIFTING *TENSION-FLEX COURSE
*HEALTH & FITNESS EXERCISES *KEEP FIT PROGRAM *K-MAN Karate Dummy Chart. No C.O.D.'s. Canadian 75c. YOU GET THE LOT.

ONLY 50c

Free K-Man Practice Dummy showing attack points.

COMPLETE HOME GYM PLANS—Build gym equipment: vault horse, rowing machine, etc. Convert basement, garage to gym. **ONLY 50c** with courses. Total \$1.00 compl.

OXFORD STUDIO, 146 Blake (PM-9), Mattapan, Mass.

INCLUDE NAME, ADDRESS AND ZIP CODE WITH ORDER

50c PROGRAM

\$1.00 with GYM



KING MIDGET FOR 1967. More powerful Kohler engine. Amazing performance. Faster, Smoother, Quieter. Many new features. World's Lowest Priced Car. Drive it for 75c per week. Owner demonstrators wanted. Send 25c for 32 page book, fully illustrated, dealer's price. Or send \$1 (refundable first order) for this plus service and repair manual and 16 5x7 photos of car and factory.
MIDGET MOTORS CORP., ATHENS 1, OHIO

POPULAR MECHANICS SHOPPING GUIDE



USE THOSE BABY FOOD JARS

Sturdy, plastic caps snap into 1/4" pegboard and hold quarter twist food glass jars. Perfect for storing all kinds of small parts and things. Keep your workshop neat. 10 for \$1; 36 for \$3; 72 for \$5; 500 for \$32.50. Handy Dandys only. No jars. Shipping paid anywhere USA. Send payment with order—no C.O.D.

WICKLIFFE INDUSTRIES, INC.

P.O. Box 244, Dept. PM-5, Wickliffe, Ohio 44092

New Catalog Shows You How 6 Machines-in-1 for Low Price of 1

Be independent, enjoy having your own money making business. Make as much as \$6.00 an hour sharpening circular and hand saws, knives, scissors, pinking shears, tools, planer blades, clippers, etc.



MAKE MONEY SHARPENING

Housewives, hobbyists, barber and beauty shops—supermarkets, farmers—everybody needs sharpening service. Start Now for Less than \$50. Thousands of successful Treycos users. Guaranteed quality. Factory-to-you savings. Write me for complete new catalog right now.

BURTON W. MANTH, President

TREYCO PRODUCTS, INC. 381 Niagara St. N. Tonawanda, N.Y. Established 1946



Enjoy All-Year Gardening

No hobby matches year-round greenhouse gardening for leisure, pleasure, whole-family fun. And L&B has dozens of even span and lean-to models to make greenhouse gardens practical for every homesite, every budget. Priced from \$300 to \$2000 (window greenhouses from \$75), they're prefab for easy assembly; all aluminum for enjoyment without upkeep. Write for free 48-pg Greenhouse Catalog #644, Lord & Burnham, Irvington, N. Y. 10533.



FACTS ON LONG-LIFE ENGINE CARE

Send immediately for free 12 page booklet #201. Explains many coveted oil and engine lubrication secrets. Easy to understand with complete details on making these facts work for you. Save \$\$\$ — LEARN HOW to keep your engine oil better than new and always CLEAR & GOLDEN CLEAN without ever draining any oil from your engine or using expensive throw-away filters. Rush request with your printed name, address and zip code to:

ARHU PRODUCTS

Dept. PM-1, Box 1430
Santa Monica, Calif. 90406



FREE!!! POWERFUL MUSCLES FAST!

Fantastic New Discoveries in the science of bodybuilding. Now, in the privacy of your bedroom, our method will add inches of powerful muscles to arms, chest, shoulders & legs. Learn secrets on trimming the waist with ultra-modern methods—fast! Results Guaranteed! Send for free brochure, Universal Bodybuilding, Box 4327-M-3, Northeastern, Dearborn, Mich. 48126.

ENDLESS WATER SUPPLY

Life saving kit provides one pint of water every two hours of sunlight.



Fresh water wherever you go. No longer do you need to trust to luck. Desert Well produces good water at a rate in direct proportion to requirements brought on by weather. A necessity for all outdoorsmen. Survival kit contains a signalling mirror and survival instructions as well. Multi-purpose kit items serve as mess kit, poncho for protection from weather, 'starter' for fire, emergency sling, etc. \$2.98 (Calif. 4% tax).

M. E. SHAW & SONS
P. O. BOX 31428 • L. A., CALIF. 90031

AMERICA'S NO. 1
CLASSIFIED SECTION
CAN BE FOUND
ON PAGE 65
IN THIS ISSUE

AMERICA'S MOST SENSATIONAL CAR OFFER!

1966
FORDS and
DODGES
\$799



A LOT OF CAR FOR LITTLE MONEY! These are the cars favored by thousands of smart buyers... Also 1965 Chevrolet, \$699, 1965 Ford Custom and Dodge Coronet sedans, \$599. Sleek and smart lines... plenty of get up and go. In the economical six cylinder, four door model. Priced hundreds of dollars lower than most dealers. These cars have been carefully maintained by their former owners, N. Y. taxi fleet operators. An excellent buy for pleasure or business driving or for resale at a good profit. Shipping arranged for you anywhere in U.S.A. for \$50, plus gas and oil, or you may come in and pick any one you like. Send for FREE photos and catalog.

ASSOCIATED AUTO WHOLESALE CORP.
40 Newbridge Rd., Dept. 5A Hicksville, N. Y. 11801 (516) GE 3-2460

GOLFERS

100 200 300 400

Drive this Super Ball 400 yards!

Is it a bird? . . . Is it a plane? No—it's Super Ball! The amazing super golf ball you can whack a healthy 400 yards. Find some guys who think you can't hit—make a small wager—then collect! Even a tiny tap sends it soaring toward the 19th hole! Looks, feels, and hefts like a real regulation golf ball but zooms out of this world. 92% rebound; 8% short of perpetual motion; 50,000 lbs. of compressed energy. It's almost alive! Get the last laugh with Super Ball. Set of 3 only \$2.98 ppd.

Prompt shipment. Satisfaction guaranteed. Send check or money order.

PORT SALES DEPT. PX-57, BOX 134
E. NORTHPORT, N. Y. 11731



Scientific method builds Powerful Muscles in 3 minutes a day

An entirely new, tested method of muscle-building that combines isotonic and isometric contraction has been developed by physiologists at the famed Max Planck Institute in West Germany. The unique Tensolator® method was successfully used to train the German Olympic team and other champion athletes all over the world. A quick series of 7-second exercises positively strengthens each set of muscles without tedious, strenuous workouts. 3 to 5 minutes a day is all it takes for maximum results (guaranteed or money back). The Tensolator method builds powerful muscles, broadens shoulders, trims waist, increases lung capacity. FREE lavishly illustrated, step-by-step brochure shows you how Tensolator works for men 20, 40, 50 years old or more. Send 25¢ for postage and handling to Dept. PM-5, Thoyle Corp., 509 Fifth Ave., New York, N.Y. 10017.



NEW TRANSISTOR KIT ORGANS

Save dealer profits and factory labor by assembling a church or theater-type organ. Buy a kit at a time with simplified instructions. Start with one manual and play as you build. If you already own an organ, add Artisan voices or percussions. Fully guaranteed. Model shown in antique ivory—also available in fruitwood and walnut. Write for free brochures to: Artisan Organs, 1372 E. Walnut Street, Pasadena, Calif. 91106.



SHOCK-PROOF MILLERS FALLS

Lifetime Guaranteed Tools
THOUSANDS OF EXCITING TOOL VALUES

Send 25¢ today for our Big 148-Page Tool Catalog which features Millers Falls Hand and Electric tools and Hundreds of other Nationally Advertised Brands of Tools too numerous to mention. We ship coast to coast at prices hard to beat **SILVO HARDWARE CO.**
Dept. PM-5, 107 Walnut St. Phila., Pa. 19106



Secrets of Teaching Yourself MUSIC

Revealed in Your Home This Money-Saving Way

YES! Now you can teach yourself to play Piano, Guitar, ANY instrument in your spare time—even if you've never played a note in your life! Famous proven Course makes it simple as A-B-C. Pictured lessons show you how. No teacher. It's amazingly easy! Surprise your friends by playing favorite music. Write today for FREE 36-page illustrated book **U.S. SCHOOL OF MUSIC, Studio A305, Port Washington, New York 11050.** (Est. 1898. Approved, N.Y. State Educa. Dept.) Tear out as a reminder.

READY ? ALWAYS !



Only \$3.95 P.P.

Metal kitchen or shop tools held magnetically by MAGNAGRIP MARK X. Always handy, orderly, safe. MARK X mounts on any surface easily. Smartly styled in white. Gift boxed.

Only

\$1.98 P.P.

Any soap cake hangs magnetically, air dries, always handy. MAGNAGRIP SOAP HOLDER mounts anywhere.

Complete line folder on request. Money back guarantee. Send check or M.O. to Dept. E.

PHELON MAGNAGRIP COMPANY, INC.
East Longmeadow, Mass. 01028

FREE

... one year of Radio Shack's famous bargain catalogs!

- Special Closeout Buys
- Exclusive House Brands
- Nationally Famous Makes

Tools, testers, tubes, tape, stereo, CB, parts, kits . . . everything electronic for home and shop.

Read the exciting giant-sized catalogs and bargain bulletins of America's biggest nationwide electronics store chain. Get our latest issue.



RADIO SHACK
2727 West 7th St.,
Dept. QU
Fort Worth,
Texas 76107

Name _____

Address _____

City & State _____

Zip _____

Radio Shack Corporation — Subsidiary of Tandy Corp. 140 stores coast to coast

For more information on articles and products, write to the PM Bureau of Information for "Where-to-Find-It" list.



SEND ONLY \$2.00

Money Back Guarantee

HEAVY DUTY-ARC WELDER

Life Time Guarantee

All New 110 Volt Heavy Duty Arc Welder. You cannot buy a better welder anywhere at this low price. **NO EXPERIENCE NECESSARY.** Anyone can braze, solder, cut and weld metal up to 1/4" thick. Generates heat to 10,000 degrees for cutting through steel plate, etc. **NOTHING ELSE TO BUY.** Comes complete with heavy duty power cable, twin carbon torch, helmet, instruction book, rod holder, and a supply of 1/16" and 1/8" welding and brazing rods, carbons, and flux, etc. **MONEY BACK GUARANTEE.** Try it for 10 days. If not completely satisfied, we will immediately refund your money without question. **LIFE TIME GUARANTEE.** Never a repair charge for parts or labor. Do not confuse this new improved welder with other units selling for \$14.95. This is a heavy duty deluxe model selling for \$18.95 and we have over 25,000 satisfied customers throughout the world. **SEND ONLY \$2.00** and when delivered pay postman \$16.95 plus postage, or send \$18.95 and we will ship postpaid. (For an extra supply of rods, carbons, and flux, send an additional \$2.00.)

Order Direct from factory: **NATIONAL ELECTRIC, Dept. PM-5, DELRAY, FLORIDA**

Do engines turn you on?

**THINK WHAT A
600 MPH JET
WILL DO!**



United Air Lines free new booklet, "Move Ahead in Jet Age Aircraft Maintenance," tells how you can turn your interests into a secure job that pays well. Your experience with car engines may be all you need to start. You'd be working on the world's largest jet fleet. We'll train you. And we promote from within. With United, you'll have free air travel privileges and many other benefits. Openings are in various U.S. cities. **MAIL COUPON FOR FREE BOOKLET**

An Equal Opportunity Employer

UNITED

United Air Lines • Box PM-66140
Dept. PM-705, O'Hare Int'l. Airport, Chicago, Ill. 60666

Please rush my free copy of "Move Ahead in Jet Age Aircraft Maintenance."

Name _____

Address _____

City _____

State _____ Zip _____

"\$33,000 LAST YEAR" OPERATING AUTO RADIATOR SHOP

—Mercier Bros., Lowell, Mass.

START SHOP OR ADD TO BUSINESS. Market growing. More cars each year. Packaged radiator shop incl.: equipment, training, 98-page manual, initial supplies. Proven merchandising attracts business. Pay-as-you-profit plan. Write.

INLAND MFG. CO., Dept. PM-5, 1108 Jackson St., Omaha, Neb. 68102



NEW 1-PIECE SHOP
Tests • Cleans • Repairs

EARN \$200 A WEEK

LEARN A TRADE YOU LIKE

After graduation you start as a mechanic in a good paying job; then advance to head mechanic or service manager. Many earn \$200 a week and up. You learn fast in our shops because you learn with tools on real equipment. Some students earn the greater part of their expenses while going to school.

Check the course in which you are interested.

- DIESEL MECHANICS AUTO MECHANICS
 WELDING BODY FENDER REPAIR

Mail to: **AUTO-DIESEL COLLEGE**

226 7th Avenue, North, Department 86, Nashville, Tennessee
Send me **FREE** catalog about course I have checked, also information about your **FREE** Placement Service.

Name _____

Address _____

City _____ State _____

BY KEVIN V. BROWN **AVIATION** JETSTREAM

JUMBO JETS, due to get off the ground within two or three years, are being built to accommodate anywhere from 300 to 500 passengers, depending on the plane and the press agent making the claim.

Want to guess which plane now holds the record for the most passengers?

The airlines can't tell you, because the record, set May 19, 1949, was made by the U.S. Navy's Martin XPB2M-1 *Mars* when it carried 308—count them—308 sailors from San Francisco to San Diego.

One of our West Coast correspondents checked it out and sent this report:

"The flying boat skimmed off San Francisco Bay with a crew of seven and 301 officers and men of an air group being transferred from the Alameda Naval Air



308 SAILORS pose on wings before record flight

Station to the North Island Naval Air Station at San Diego.

"Cmdr. James Lang put the four-engine seaplane down on San Diego Bay two hours and 54 minutes later after a smooth, 570-mile flight.

"This was in the heyday of the *Mars* flying boats which Martin developed for the Navy during World War II. They reigned for a decade as the biggest airplanes in the world.

"They had a hull 117 feet long and measured 200 feet from wingtip to wingtip, with an interior volume equal to a 15-room house.

"But the *Mars* began heading the way of the dodo bird after the multi-engine jet transports hit the scene. The Navy got rid of its last four in 1956, selling them to Canadian lumbermen who use them as tankers for forest fires.

"As late as last August, one of the *Mars* became the first 'water bomber' of an industrial fire, dumping 6000 gallons of sea water per run on a blazing lumber mill at New Westminster, B.C." **★★★**



SUNLINER

***New: a camper
with a private elevator.***

A few twirls of the winch on Sunliner's exclusive lifter system and up she goes . . . your own private elevator system!

■ This apartment on wheels has all the homey sleeping and eating comforts, too. Deep foam bunks for 4 adults. A complete kitchen—stove, icebox, fresh water tank, sink. And plenty of drawer space and cabinets. ■ For a look at all 9, write for the 1967 Camper Catalog: Starcraft Corporation, Dept. 7PM-5, Goshen, Indiana. Power Boat and Sailboat Catalogs also available.

**Take off in a
STARCRAFT**

Camper, Sailboats, and the largest selection of Power Boats in America!

LET'S TALK PLANE

30 OF THEM TO BE EXACT

All beautifully depicted in two exciting lithographs of paintings done exclusively for Popular Mechanics by famous aircraft artist Ed Valigursky.

Now these beautiful lithographs can be yours.

"U.S. Warplanes in Vietnam" and "U.S. Helicopters in Vietnam" are full color reproductions depicting the various types of aircraft that are now seeing duty in that war-torn country.

Exciting and educational, the set, suitable for framing, is printed on expensive heavy weight stock. Measuring 19 x 25 inches, it can be hung in the library, den, children's room or just anywhere around your home.

Send \$1.95 to: Aircraft Paintings, Popular Mechanics, 575 Lexington Avenue, New York, New York, 10022.



POPULAR MECHANICS—AIRCRAFT PAINTINGS
575 Lexington Avenue, New York, N.Y. 10022

I have enclosed \$_____ for _____
copies of Popular Mechanics Aircraft Paintings.
Name _____
Address _____
City _____ State _____ Zip _____

CLOSE-OUT FAMOUS LURES

SPORTSMEN-FISHERMEN: We promised to notify you of our annual Close-Out Sale... once more giving you the opportunity to buy directly from us, at our Below Wholesale Liquidator Prices.

Again we acquired **THOUSANDS OF LURES!** ... the **VERY BEST!** ... the **VERY NEWEST!** ... the **FINEST QUALITY!** An assortment of well known, Nationally advertised types that sell from 49c to \$1.95 each!

Lou Tager, our "Fishing Expert", personally selected and assorted them into 'SETS' of **30 DIFFERENT LURES** each. A 'Lure-Set' for **ALL TYPES** of Fishing! ... **PLUGS, SPINNERS, DEEP-RUNNERS, SHALLOW-RUNNERS, SPOONS, NATURAL PLASTIC-BAITS,** and many, many more!

These selected 'Sets' would normally sell at a Certified value from **\$25.00 to \$35.00** each!

* SPECIAL CLOSE-OUT PRICE

Here's your chance to stock-up NOW!

30 DIFFERENT LURES ONLY... \$4.95

Less than 17c each, a small fraction of their cost!

BELOW WHOLESALE! SAVE UP TO 80%

DON'T MISS THIS SPECIAL ORDER NOW!

JUMBO BULK-SPOOLS • TRIPLE XXX MONOFILAMENT



* by **DUPONT** *

- XTRA SOFT, will not stiffen in any weather.
- XTRA STRONG, small diameter, low stretch.
- XTRA INVISIBLE, gets more strikes.

TEST	APPROX. YDS.	VALUE
4-lb.	2700	\$41.85
6-lb.	2200	\$40.25
8-lb.	1500	\$29.00
10-lb.	1250	\$26.40
12-lb.	1000	\$25.00
15-lb.	750	\$19.50
20-lb.	600	\$18.00
25-lb.	570	\$16.25
30-lb.	400	\$14.40
40-lb.	350	\$14.00
50-lb.	275	\$11.25

Special Discount

ALL LB.-TEST: SAME PRICE

\$2.95 each

★ **SAVE MORE!**
2 Spools \$4.99

SPORTS LIQUIDATORS, P.O. Box 1338-U, Burbank, Calif. 91505

* **SATISFACTION GUARANTEED!** ... or Full Refund! *

• Add 50c for Postage and Insurance.

SPECIAL... 30 different lure sets... Only \$4.95

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Please send check ... Cash ... or ... Money Order

(Because of the amazingly low price, we cannot accept C.O.D.'s)

- XTRA!... 3 full sets (90 LURES) ... Only \$13.50** plus postage \$1.00
- SPECIAL Triple XXX Bulk Spools. Only \$2.95** • (2) **\$4.99**
- 12 different famous spoons. ... Only \$1.99**
- 12 different famous spinners ... Only \$1.99**
- 12 famous salt water lures. ... Only \$5.95**

Sports LIQUIDATORS
P.O. Box 1338-U, BURBANK, CALIFORNIA 91505

CLASSIFIED ADVERTISEMENTS

Rate: \$1.50 per word payable in advance each insertion. Capitalized words—75¢ per word additional. Minimum insertion ten words. To be inserted under the proper classification, copy must be in our office by the 15th of the second month preceding date of issue. The next available issue to place an advertisement in America's No. 1 Classified Section is July. The closing date is May 15th. Send remittance and order to C. A. Martin, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.



AUTOMOBILES, MIDGET CARS

ISSETTA With tow bar \$29. Minibike \$20. Whizzer Motorbike \$30. Cushman \$15. Kart frame less engine \$7. Gasoline engines \$3 up. (Mailorder only.) Send 25¢ (35¢ for first class mailing) for Directory-Catalogue Number 133, listing these and hundreds of similar bargains, home-builders parts, plans, etc. Midget Motors Directory, Athens, Ohio.

AUTOMOBILE Literature, antique, classic. First Ford V-8 catalog. Hobby Club, free information. Enthusiast, Box 451B, Mt. Clemens, Mich. 48043.

AUTO SUPPLIES AND EQUIPMENT

FREE Information on building or buying Capacitor Discharge Ignition Systems under \$25.00. SYDMUR, Dept. 25 Midwest, Brooklyn, N.Y. 11230.

JEEP Parts catalog: Military and Civilian. For owners, dealers, garages, service stations. Save \$\$\$ Surplus and replacements. American Auto Parts Co., 1830 Locust, Kansas City, Missouri 64108.

ANTIQU Car pistons, gaskets, gears, valves, etc. Catalogue \$1.10. Antiques Auto, Milwaukee, Wisconsin 53204.

TROUBLESHOOT Your own Ignition. SAVE lots of MONEY on expensive TUNE-UPS. Ignition TROUBLESHOOTING is EASY with the \$2,000.00 REWARD "IGNITION MASTER." ANYONE can use it PIN-POINTS ALL ignition failures. C. G. Steffenson, 2548 No. Front St., Phila., Pa. 19133.

REMARKABLE New gauge continuously glows ignition condition. Free details. Q-Arc, Box 47876, Los Angeles, Calif. 90047.

JEEP Owners—V8 conversions. Read Jeep Owners ad, page 12.

PILOT Lights monitor everything. Cool! Write: Mathco, Cincinnati, Ohio 45217.

(SAVE \$150) Ring-Valve Job while driving. \$6.00 postpaid. Unbelievable results! Stops oil burning, smoking! Restores power! Increases gas mileage! Helps quiet noisy engines! Lasts for years! Safe! Money-back guarantee! Motaloy, Grantham, Penna. 17027.

"BLACK Box" starts car from house. Only three wires. Works in car also. Diagrams, instructions: \$1.00 "Enter". Box 192-A, Dunellen, N.J. 08812.

NEW Pick-up, trailer, boat accessories. Free brochure. Turley's, 17161 Grovemont, Santa Ana, California 92705.

BATTERY Additive—extends life, instant starts, U.L. approved, guaranteed. \$3.00 Box 371, Gabriel's, N.Y. 12939.

JEEP Conversion articles. Free information. Novak, Box 1324, Whittier, California 90603.

HORNS: High & low sounds, complete installation plans. \$2.50. Send money order. Gérard Geneau, 4311 Messier St., Montreal 34, Que. Canada.

CROSLEY New, used parts. Service Motors, 616 Burnside, Inwood, L.I., N.Y. 11696.

TAPES For rent 8-track. Auto tapes. Box 19086-P, Indianapolis, Indiana 46219.

CONVERT Any 2 or 3 lamp taillight to T Bird-Type sequential 1-2-3 turn signal. Simple installation. Send \$12.95 and car type. Ragar Laboratories, Box 794, Melville, N.Y. 11746.

BUILD Your own gas saver carburetor. Guaranteed. Runs engine on fumes alone. Details \$1.00 or rush \$5.95 for complete plans. Surf, 113 Walnut, Port Clinton, Ohio 43452.

LIFELITE—Amazing semi-conductor device prevents hazards of headlight burn-out. Simple installation. Any car \$4.98. Ragar Laboratories, Box 794, Melville, N.Y. 11746.

NEW And used parts savings. Complete guaranteed service all model cars and trucks. Largest in West. Jeep and Army parts specialists. Shifting hubs for all front-end drive vehicles. \$27.50 up. Foreign parts. Fast service. Pioneer, 734 W. 13th Avenue, Denver, Colorado 80217.

FOREIGN Car parts, Discounts. Service Motors, 616 Burnside, Inwood, L.I., N.Y. 11696.

AUTO TRAILERS

WILD Life decals, full color, large. Free folder. Dealer inquiries invited. Washington Poster Co. 16824-PMC Pacific Highway So., Seattle, Wash. 98188.

BUILD Aluminum pickup camper over-cab, hi-boy, lo-boy, blueprints, material, list. 3 models included. \$3.50. Bianca Custom Campers, Wolf Lake, Indiana 46796.

MECHANICAL Pickup Camper, it raises and lowers, less wind resistance. Build yourself. Illustrated plans \$3.00. Details 20¢. Fensel Enterprises, 572 Vineyard, San Marcos, Calif. 92069.

PICKUP Camper, trailer or pickup-cover-build yourself, save! Complete plans \$3.95 each. Econoline Camper, foldout trailer, bus conversion drawings, \$2.95 each. Satisfaction guaranteed. Equipment Catalog \$1.00. (refundable on first order). Details 10¢. Viking Camper Supply, 94-F Glenwood, Minneapolis, Minnesota 55403.

BUILD Camping travel trailer pickup coaches. Six different plans manual \$2.00. Satisfaction guaranteed. Circular 30¢. Kamcraft, Box 1153, Milwaukee 1, Wis. 53201.

CAMPER Unit—Compact Buses—Vans. Volkswagens—Econoliner—Dodges. Inexpensive — Build Yourself — Details — Dot Campers, Box 67M, Saugus, California 91350.

TRAILERS: All kinds — boat, box or camping. Also: All parts to build your own. Send 25¢ for catalog. Norjack, 670 S. 108th St., Milwaukee, Wisconsin 53214.

BUILD Your Pickup Camper. Pre-cut kits. Blueprints, Supplies. Literature 10¢. Comstock Trailers, Dept. 664, Parsons, Kansas 67357.

MOTORCYCLES, BICYCLES, MOTORSCOOTERS AND SUPPLIES

BUILD Your own motorbike! Engine kits, \$69.95; Plans—Send \$1. Go-Byk Industries, Rothsay, Minn. 56579.

HARLEY - Davidsons — Used bargains. New, used parts, accessories, all models. Bulletin 35¢. Knuth's (Factory Dealer), 1753 Muskego, Milwaukee, Wis. 53204.

SNOW VEHICLE & GO KART CATALOG. Hop up accessories—speed and performance equipment—manifolds, engine mounts, exhaust systems. Send 25¢ G.E.M. PRODUCTS, 436 Roosevelt Rd., Glen Ellyn, Illinois.

HONDA 50 to 90-S big bore & stroker kits. Columbia Engineering, 2105 E. 37th, Los Angeles, Calif. 90058.

WEBER Power and Speed Cams for all Motorcycles. Send 25¢ for literature, ordering information. Weber Speed Equipment, 310 S. Center Street, Santa Ana 4, California 92703.

TRAILERS. Go - Karts, Mini - Bikes. Wholesale catalog 25¢. Loran Products, Danville, Ill. 61832.

MINI-Bikes, kits, FOX parts, plans. Factory prices! Discounts to 55%. Spring catalog 25¢. MERCURY PM57, 3751 West 63rd, Chicago 60629.

BUILD Your own minibike! No welding required. Plans \$1.00. Westate, Box 537-PM 5, Campbell, California 95008.



AVIATION

HOMEBUILT. Real enclosed helicopter. 24 pages ideas, information. \$2.00. Build "executive" helicopter, drawings, specifications, \$1.50. Helicopter Development, Box PM147, Washington, New Jersey 07882.

BE A Government licensed aviation mechanic. Practical training. Free information. Aero Mechanics School, Municipal Airport, Kansas City, Missouri 64116.

HELICOPTER. Portable, one-man, kits, plans, information 25¢. Compcop, Box 1267A, Redwood City, Calif. 94064.

PILOTS RESCUE GUIDE—\$1.00. James Barra, 419 Shelburne Street, Burlington, Vermont 05401.

BARTLETT FLYING SAUCER. Amazing machine hovers 200 lb. man over land /water, powered by ordinary lawn mower engine. Easy to build. Fun to fly. Complete Plans. Kit Brochure and Photo Review \$3.00. Write: Herb Bartlett, Box 3234, Scottsdale, Arizona 85257.

AIRBOAT—Snowsled—Hovercraft—Autogyro Propellers, Plans, Supplies. G.E.M. drawings, engines, 6-blade fans. Catalog, drawings, photographs. \$1.00. Esco-M, Box 1520, Bradenton, Florida 33505.

MAN CARRYING Hot Air or Hydrogen Balloon! Complete plans (both)—\$5.00! Balloonaustics, 380 Mentor, Pasadena, California 91106.

FREE Catalog 950 aviation/space books. Aero Publishers, 329 PM Aviation Road, Fallbrook, California 92028.



BOATS

FREE Catalogue—dozens of plans for kayaks, canoes, sailing rigs. Bruce Clark, PM; 115 McGavock Pike, Nashville, Tenn. 37214.

FULL Size, cut-to-shape boat patterns, blueprints. Send 60¢ for big new illustrated "Build a Boat" catalog includes fishing boats, garrives, cruisers, catamarans, houseboats—outboards, inboards, sailboats—7½ to 38'. "How to Build a Boat," booklet, \$2.50. Cleveland Boat Blueprint Co., Box 18250, Cleveland, Ohio.

BUILD Your own boat from our large-scale blueprints. Books of plans give how-to-build help. Hundreds of professional designs—motor, sail or auxiliary—for amateur builders. Free catalog. MoToR Boating, 959 Eighth Ave., Dept. RS, New York N.Y. 10019.

KAYAKS—One-man \$19.50; two-man \$24.50; Sailboat \$44.00. Exciting Sitka Kayak Kits known world wide for speed and safety. Assemble in one afternoon. Free pictorial literature. Box 78-P, Brecksville, Ohio 44141.

PLANS, Kits, hulls. 24-page 20th Anniversary catalog. All class racing boats. Flatbottom to Drag Hydros, Midget to 7 Litre, 50¢. Champion Boats, Box 9215A, Long Beach, Calif. 90813.

SPORTSCRAFT Canoes, factory direct. Four canvas hulled models, from \$18.95. Streamlined appearance, unsurpassed performance. Also, canvas, paddle supplies. Free literature! Sportscraft, Box 8393-P, Columbus, Ohio 43201.

PLANS & PATTERNS, FRAME KITS, BOAT KITS, world's largest catalog over 200 proven designs including 40 new complete Boat Kits, fishing boats, cruisers, sailing, ski boats, houseboats, inboard and outboard hydroplanes. Send \$1.00 for large 1967 catalog or \$2.00 for catalog plus boat building handbook to: Clark Craft, 1709-P Niagara Street, Buffalo, New York 14207.

AMATEUR Boat Building Society, 1535-B Farwell, Chicago 60626. Plans, technical question service, books, local building clubs, send 25¢ for copy of monthly magazine and details.

2,000 BOATS You can build, saving 25-50%. Home Boatbuilding Guide, \$2.00, Box 201N, Park Ridge, Illinois 60068.

BUILD 7' X 32" Boat for \$13.00. Plans \$2.00. Boatz, 17 Sylvan Avenue, Asheville, North Carolina 28801.

LARGEST Selection, plans, patterns, kits. Catalogs: Sailboat 40¢. Powerboat large \$1.00, condensed 50¢, sportsmens 25¢. Marine craft, Box 161-M, Brighton, Mass. 02135.

BOAT Plans—Full-Size Patterns—Frame Kits specially prepared for amateurs. New 88 page catalog of over 72 designs including Sail, Jets, Inboards & Outboards... Cruisers, houseboats, "hotboats," catamarans... all types from 8' to 36' "plus" boat trailers. New 1967 catalog only 50¢. Glen Designs, 9152 Rosecrans, Bellflower, Calif. 90707.

FIBERGLASS Cloth and resin. World's finest cloth and non-run resin, at direct mill prices. Flotation foam. Complete line of plastics, silicon bronze and brass screws save 60%. No sales tax. Boat Plans. Catalog 25¢. Freight prepaid. Stiles Boat Supply, Box 11P, Linden Ave., Mantua Hts., N.J. 08051.

CANOE Kit. Completely factory finished. No fiberglass work. Eagle River quality, from \$112.00. Free literature. Eagle River Canoes, Box 35, Cleveland, Ohio 44141.

BUILD IT YOURSELF PLANS, PLYWOOD SKIFFS, BOATS, CRUISERS, 8' to 32'. PRICES, \$2.50 to \$25.00. SEND 10¢ FOR FOLDER. Claude Horst, 6515 Earl Ave., N.W., Seattle, Wash. 98107.

FIBERGLASS Canoes. Three exciting models. Easily assembled kits. \$39.95 up (factory direct). Free literature. Riverside Canoes, P.O. Box 5595BO, Riverside, California 92507.

BOAT KITS. Save money—assemble yourself. Factory molded fiberglass or pre-assembled plywood. 12' to 32' Cruisers, Runabouts, Houseboats, Sail Boats. Big line accessories, motors, trailers. Easy terms. Free catalog. Luger, Dept. BC-67, 9200 Bloomington Freeway, Bloomington, Minnesota 55435.

MARINE EQUIPMENT AND SERVICES

"FLEET" Liquid Plastic Boat Finish seals water out! Unsurpassed for rich, gloss finish. Wears longer! 28 colors. Use on wood, metal, fiberglass, canvas. Send for "Free" color card and introductory offer. Stay-Tite Products, Box 20130, Cleveland, Ohio 44120.

NEW, Used, rebuilt marine motors. Marine conversions, fittings. Free catalog Stokes Marine Supply, Dept. 24, Coldwater, Michigan 49036.

FIBERGLASS Boat covering. Wholesale prices. Free literature and sample. Seifer's, Box 1206-X, Green Bay, Wisconsin 54305.

TRAILER - LITES. A system that puts lights on the very rear of your trailered boat—not hidden under the trailer. Never submerged. Fool proof—always dependable. Avoid failure and costly accidents. Write for literature. THE THOMPSON COMPANY, Troy, Ohio.

CONVERT Auto engines to marine. 68 Page Catalog, 50¢. Lehman Manufacturing Company, 800 Elizabeth Avenue, Linden 4, New Jersey 07036.

ATHLETIC AND BODY BUILDING COURSES

FEAR No Bully! Master authentic Chinese kungfu unbeatable techniques! Defeat within seconds any attacker including giant judo-karate experts. Free details by air. Write Asia's greatest master. Leongfu (ML/24) 119 Anderson Road, Ipoh, Malaysia.

KARATE—Complete instructions, illustrated, only \$1.25. Bales Co., Box 5050 Rt. 2-PM, Escondido, Calif. 92025.

"GIANT Arms." Dr. Young's, D.C. revolutionary discovery. \$2. Satisfaction or refund. Gaucho, Box 9309 - S7, Chicago 60690.

POWERFUL Muscles fast! Free brochure! Universal Bodybuilding, Box 4327-C, Northeastern, Dearborn, Michigan 48126.

NEW! "Easi-Push-Up Isometric Bars." Free details. GYM, Box 123-M5, Brooklyn, New York 11222.

LEARN 1,000 Karate techniques, \$1.00. AFM, Box 98, Detroit 48223.

REVOLUTIONARY Tensolator guarantees powerful muscles! Documented, illustrated course! 25¢ Refundable! Dynamic Living, 1024-PM Bendermere, Asbury Park, N.J. 07712.

PARALYZING Karate: Break bricks and boards barehanded! No strength required. Fast, easy methods. Guaranteed! \$2.00. Cam Enterprises, 216-A Jackson, Chicago 60606.

SPORTING GOODS AND EQUIPMENT

HUNDREDS Of Army - Navy surplus items, camping, hunting, fishing equipment, gun accessories, etc. Write for free catalog. P&S Sales, Box 115, Tulsa, Oklahoma.

BIG Money raising crickets and 12 inch African fishworms. Free literature. Carter Ranch, Plains, Georgia 31780.

SILENCERS: Pistol, rifle details, diagrams. Includes new design for 22s. Simple, clear! \$1.00 Crossbow plans, \$1.00 both, \$1.75. Twin, Box 192-A, Dunellen, New Jersey 08812.

NEW—Binoculars, boats, cameras, guns, scopes, mounts, reloading tools and supplies—at best prices. Hoagland Hardware, Hoagland, Indiana 46745.

TROPHIES, Plaques, medals. Free catalog. Merit, 1932 Newcastle, Westchester, Illinois 60153.

UNIQUE Portable shelter. Sewall, Dept. 275, Box 3024, Glendale, California 91201.

FREE . . . Wholesale catalog. Arrow shafts, broadheads, fletchings, fisharrow parts, tools, bows, Finnyports (22G), Toledo, Ohio 43614.



FISHING, TACKLE, LURES

OVER 5,000 HARD-TO-FIND FISHING SPECIALTIES and kits galore. Send for free 170 page catalog. Netcraft Co., Dept. PM, Toledo, Ohio 43613.

MOLDS For fisherman's sinkers, jigs, squids, casting and spinning lures. Free catalog. Sweets Molds, Tonawanda 1, New York 14150.

MOLDS—For casting your own fishing sinkers. Free illustrated booklet. Reading Instrument Co., Box P78, Reading, Pa. 19603.

AUTOMATIC CASTING ROD. Powerful, highly accurate fishing gun shoots lure to precise spot. Send 10¢ for complete information. Ross, Inc., Box 12, Whitesburg, Tenn. 37891.

BUY WHOLESALE: Nylon snelled fishing Hooks assorted sizes, carded, \$2.00 per gross, 12-pcs. assorted Popping Bugs, \$2.00 25-assorted Hand-Tied Flies, \$2.00 20% discount quantity orders. HAYWOOD CO., 1449 Collingwood, Detroit, Mich. 48206.

FREE . . . Wholesale catalog. Beads, Spinners, Lure parts, Sinkers molds, Jigs, Reels, Finnyports (ME), Toledo, Ohio 43614.

SALE 30 Trout flies \$1.—24 Snell Hooks \$1.—Poan, 106 Grand, Staten Island, New York 10301.

FREE! Newest edition famous Corcoran catalog. Largest selection hunting, camping, fishing equipment. All items field tested. Boots, clothing, fishing tackle, tents, gun cases, sleeping bags. Dozens of specialties. Zip code, please. Corcoran, Dept. PM-57-B, Stoughton, Massachusetts 02072.

EARTHWORMS, LIVE BAIT

HYBRID Redworms 1000—\$3.00, 3000—\$5.75, 5000—\$8.00, 10,000—\$14.00. Bedruns 20,000—\$19.00. Postpaid with raising instructions. Brazos Worm Farms, Route 9, Waco, Texas 76705.

EARN Money raising fishworms for us! Exciting details free! Oakhaven—56, Cedar Hill, Texas.

SUCCESS For you! Raise Carter's Pure-bred hybrid red wiggler fishworms, crickets. "Known All Over the World." Write for free literature and our success story in Life Magazine. Pure-Bred Fishworms—3000—\$5.95, 5000—\$8.95, 10,000—\$16.95. Postpaid with Free Raising Instructions. Carter Redworms, Plains, Georgia 31780.

REDWORMS. Bait size 1000—\$3.75; 5000—\$16.00. Mediums, 2500—\$5.00; 5000—\$8.50 10,000—\$16.00. Live delivery. Count guaranteed. Hall's, Hilton, Georgia 31758.

MEN!—Women! Make money raising bait for us at home. Wigglers, Warsaw 45, Indiana 46580.

AFRICAN Nightcrawlers Wholesale, retail. BONANZA WORM RANCH, Loda, Ill. PHONE 217-386-2111 60948.

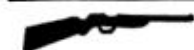
EXCITING Information free. Empire Redworms, Box 75, Maspeth, New York 11378.

RAISE Huskier, better worms with California hybrids. Kerns Bait-M, Box 528, Carmichael, Calif. 95608.

EARN BIG MONEY Growing fishworms, giant African crawlers, crickets, Grey Nightcrawlers. Free Literature. Fain's Hatchery-31, Edison, Georgia 31746.

FROGS, FISH, REPTILES

FROG Raising. Young frogs and giant breeders. Stock your lakes, pond. Nu-Tex Frog Farm, Box 4029, Corpus Christi, Texas 78408.



HUNTING, GUNS, DECOYS

FREE! Newest edition famous Corcoran catalog. Largest selection hunting, camping, fishing equipment. All items field tested. Boots, clothing, fishing tackle, tents, gun cases, sleeping bags. Dozens of specialties. Zip code, please. Corcoran, Dept. PM-57-C, Stoughton, Massachusetts 02072.



DOGS AND KENNELS

SELLING Dogs? Advertise pups, kennels or pet products here. It costs very little to reach more than 1,550,000 Popular Mechanic readers. Write: C. A. Martin, Dept. 14, 575 Lexington Avenue, New York, N.Y. 10022.



GAME BIRDS

YOUR Ad in this space will be read by more than 1,550,000 active mail order buyers. Join the march to greater profits, place your products and services in front of them today with a small low cost classified ad. For further details, write: C. A. Martin, Dept. 15N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

RABBITS—FUR BEARING ANIMALS

RAISE Rabbits successfully by knowing facts. 48 page illustrated book describing 25 breeds. Housing, breeding, feeding, markets, marketing etc. 25 cents. American Rabbit Association, 36 Arba Building, Pittsburgh, Penn. 15217.

RAISE Rabbits for us on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

MINK Raising information free. Lake Superior Mink Farm, Inc., Superior EE1, Wisconsin 54880.

EARN \$10,000 Yearly raising Angora rabbit wool for us. Particulars 25¢ coin. Angora, Malta 12, Montana 59538.

PETS—BIRDS, CATS, HAMSTERS, ETC.

HAWKS, Reptiles, raccoons, skunks, squirrels. Catalogue 25¢. Trails End Zoo, St. Stephens, S.C. 29479.

285 PICTURE Brochure — 35¢ — Everything, you name it. Books 50¢ each: Monkeys, Parrots, Pigeons, Skunks, Chipmunks, Chinchillas, Stromberg's Pets Unlimited, Fort Dodge 25, Iowa 50501.

LIVE Traps: All sizes, mouse to dog. Collapsible or rigid. Carrying cages. Free Literature. National Live Traps, Tomahawk 14, Wisconsin.

LIVE Seahorses, marine specimens, aquarium supplies. Illustrated catalog 15¢. Marine, Box 248-110, Dania, Florida 33004.

HORSES & LIVESTOCK

YOUR Ad in this space will be read by more than 1,550,000 active mail order buyers. Join the march to greater profits, place your products and services in front of them today with a small low cost classified ad. For further details write: C. A. Martin, Dept. 15A, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

CAMPING EQUIPMENT AND TENTS

CAMPING Equipment, tents, sleeping bags. World's greatest selection. Send 25¢ for giant catalogue. Print name, address, zip code, Morsan, 810R Route 17, Paramus, New Jersey 07652.

JUMBO CATALOG—Tents, sleeping bags, camping supplies. G.I. Surplus, outdoor clothing. Free 140 page newest edition now ready. Write I. Goldberg, Dept. P.M., 429 Market Street, Philadelphia, Pa. 19106

CAMPING Trailers, plans & kits. Sleeps 6 or more. Basic kit \$145., tent \$146. Complete plans \$3.00, circulars 10¢. Stratford Trailer, Seymour Ext., Stratford, Conn. 06497.

FREE! Newest edition famous Corcoran catalog. Largest selection hunting, camping, fishing equipment. All items field tested. Boots, clothing, fishing tackle, tents, gun cases, sleeping bags. Dozens of specialties. Zip code, please. Corcoran, Dept. PM-57-A, Stoughton, Massachusetts 02072.

SAVINGS Plus dividends! Campers-fishermen-outdoorsmen cooperative. Free 56-page catalog. Recreational Equipment, Inc., 1525-P 11th, Seattle, Washington 98122.

EMBLEMS, BRASSARDS, PATCHES

CUSTOM Engraved Brass Plaques 1" x 3" self-sticking. Six word maximum \$2.95 postpaid, order direct. Sportronics, 131 Garnet, Ridgecrest, California 93555.

TRAVEL AND RESORTS

TRAVEL—Glamour—Excitement at Reduced Rates. Meet affluent people mutually dedicated to the full life. Glamorous evenings, Fun filled days. Weekends, trips, or short vacations. Swingers Club Introductory Membership offers this, and more. Only \$2.00. Swingers Club, Suite 310-P, Utility Building, Fort Wayne, Indiana 46802.

EXPO 67 International World's Fair will be held in Montreal April 28 to October 28, 1967. See the pavilions of the world, USA, USSR, many others in official color photo album. Don't delay—send name, address and \$2.00 (prepaid) to: Joseph B. Brown & Co., 1176 Sherbrook St. W., Suite 10, Montreal, Quebec, Canada.

BACHELOR Party@—Worldwide cruises and tours for single people. Free 36-page catalog, Dept. PM, Bachelor Party Tours, 444 Madison Avenue, New York 10022.

ELECTRICAL SUPPLIES

LAMP Parts. Catalog, prices, wiring instructions. 50¢. Refunded first order. Gyro 5218P N.W. 35 Ave., Miami 42, Fla. 33133

METERS—Surplus, new, used, panel and portable. Send for list. Hanchett, Box 5577, Riverside, Calif. 92509.

BATTERIES, GENERATORS

BATTERY Recondition Kit, includes Molds, Material, Instructions. Battery Shop, Box 878, Palm Desert, Calif. 92260.

DIESEL And gasoline powered electric generator sets. 5-KW to 60-KW. 110-220 volts, 60 cycle, excellent condition government surplus. K. A. Weimer, 1300 Richard Road, Decatur, Georgia 30032.

ENGINES, MOTORS, DYNAMOS

FREE Catalog, Motor rewinders supplies. Modern, Box 10025, Kansas City, Mo. 64111.

OPERATE Three phase motors from single phase. Plans \$1.00. Donald Howell, Barnesville, Ohio, 43713.

WINDING Data, 275 motors, single and three phase \$1.10. Data Company, 512 Kensington, Kansas City, Mo. 64124.

USE 3-Phase motors on single phase. No ballasts, condensers, rewiring. Send \$2.50 for technical knowhow. Strang Electric, Box 555, Hawthorne, California.

DIESEL Injector parts and fuel pumps wanted. GM51-53-71-110. Bares, 2093 East 19 Street, Cleveland, Ohio 44115.

MACHINERY, TOOLS AND SUPPLIES

STAINLESS STEEL 3ft lengths. Prices per foot—Centerless Ground Rounds $\pm .001$ " $\frac{1}{8}$ " 5¢, $\frac{1}{4}$ " 22¢, $\frac{1}{2}$ " 35¢, $\frac{3}{8}$ " 50¢, $\frac{7}{16}$ " 65¢, $\frac{1}{2}$ " 85¢, $\frac{5}{8}$ " \$1.35, $\frac{3}{4}$ " \$1.80, 1" \$2.70. CD Squares $\frac{1}{4}$ " 25¢, $\frac{3}{8}$ " 60¢, $\frac{1}{2}$ " \$1.00. CD Hexes $\frac{1}{4}$ "—25¢, $\frac{3}{8}$ " 55¢, $\frac{1}{2}$ " \$1.25. Add \$1.00 packaging. Add 10% west of Mississippi. Lee Hooper, 109 Overbrook Rd., Baltimore, Maryland 21212.

BUFFING WHEELS & COMPOUNDS For home shop. Complete kit with instructions only \$3.95 postpaid. Specify shaft diameter. The Black-Cottle Company, Box 121M, Clinton, N.Y. 13323.

FREE! Starrett Tool Catalog. Sheffield Supply Company, 3450 N. Clark Street, Chicago, Illinois 60657.

MICROMETERS — Indicators — chucks — rods. Small Shop Supplies, 1424 Barclay, Springfield, Ohio 45505.

WELDING, SOLDERING, PLATING

ACETYLENE Welding outfits new \$79.50; used \$60.00; Arcwelders \$79.50. Eagle Welding, Dept. PM, 5085 Broadway, Chicago, Illinois 60640.

CHROME Plating equipment, supplies. All other finishes. Home workshop and production sizes. Send \$1.00 (refundable) for formulas, operating data, equipment guide and catalog. HBS Equipment Division L50, 3543 East 16th, Los Angeles, Calif. 90023.

FREE "Make money, have fun, cheap welder." 25¢ handling. Homshop Welder, Florence, Kentucky 41042.

A.C. WELDERS, 150 Amperes, \$49.50. Morris, 1070 Inner, Schenectady, N.Y. 12303.

GOVERNMENT SURPLUS

GOV'T. Surplus. How and where to buy in your area. Send \$1.00. Surplus information. Headquarters Building, P.M., Washington, D.C. 20036

SURPLUS Army, Navy store illustrated catalog. Ruvel & Company's Mail Order Division. Send 25¢ stamp or coin (refundable with first \$5.00 order). Ruvel, 707 Junior Terrace, Dept. 9-J, Chicago, Ill. 60613.

JEEPS Typically from \$53.90 . . . trucks from \$78.40 . . . boats, typewriters, airplanes, sporting equipment, used, 100,000 bargains direct from Government nationwide. Complete sales directory and surplus catalog, \$1.00. Deductible first \$10.00 order. Surplus Service, Box 820-A, Holland, Michigan 49423.

HOBBIES AND COLLECTIONS

POSTCARDS, Navy ships, color assorted 12-\$1.00; 30-\$2.00. Marine Photos, 2924 Emerson, San Diego, Calif. 92106.

50 JUNGLE Butterflies \$2.00. Giant nature hobbies catalog 25¢. Collectors Wonderland, Box 1170, New York 10008.

25 "JUNGLE BUTTERFLIES" 99¢ Post-paid! (Different) The Discount Center, Dept. PM-5H, 9425 Merton Way, Seattle, Washington 98118.



STAMP COLLECTING

FREE Mammoth collection, \$10,000 air-mail, world's smallest stamp. Scott's International, Master Global Albums given only approval buyers. Bargain Stamps, Tustin, California 92680.

FREE! Big Bargain Catalog—New Edition listing thousands of bargains including U.S. & B.N.A. stamps, packets, albums, accessories and supplies. Also, fine stamps from our approval service which you may return without purchases and cancel service at any time. Jamestown Stamp, Dept. E67PM, Jamestown, N.Y. 14701.

FREE Mint Africa set. Approvals. Litho. Box 51, Canoga Park, Calif. 91305.

U.S. Overrun countries complete mint. \$1.00, approvals. Stamper, 2013 San Salvador, Fairfield, California 94533.

FREE 1966 U.S. list, mint #704-15 \$4, #740-9 \$2.10, #859-99 \$6, #909-21 \$1, Simmy & Co., 40 Court St., Boston, Mass. 02108.

TEN Different nudes: 20¢. Approvals. Stamp Farm, 4M1, Oxford, Wis. 53952.

FREE Fabulous airmail collection, actual catalogue value over \$100.00 when you buy our approvals. Fairplay Stamps, 1411 Marlon Way, Santa Ana, California 92706.

FREE! Triangle set, Scout Beauty 25 others, Approvals, Cambridge, Box 411, Cambridge, Ohio 43725.

PENNY! Approvals! Regardless catalogue! Kloster, 4164 52nd St., San Diego 5, Calif. 92105.

500 DIFFERENT Stamps, \$1.00, Smith, 508-A Brooks, College Station, Texas 77840.

FROM War torn Vietnam 50 scarce pictorials \$1.00, Approvals accompany, Meryman Stamps, PO Box 50, Somerville, N.J. 08576.

FREE 100 World wide stamps with request for mint pictorial approvals. Dept. P.M. K & B Stamp Co., Box 70, Brooklyn, N.Y. 11223.

NEW African Stamp Collection—including Burundi, Guinea, Mali, Rwanda, Togo and others. A colorful addition to your collection, 10¢ with approvals. Capital Stamps, Dept. #57B, Ferrysburg, Michigan 49409.

UNITED States commemorative collection containing 33 different—10¢. Approvals. White, 516-A Avenue L, Brooklyn 30, New York.

PIPEX—Tipex-Cipex-Ashville. Four miniature sheets used for \$1.00 if you ask for our bargain priced U.S. approvals. Triboro, 38 Park Row, New York, New York 10038.

BEAUTIFUL Topical collection — includes Olympic sports stamps, wild animals, bicolor triangles, colorful birds, outer space stamps, Poland kitten stamp, and others, 10¢ with approvals, Sunny Stamps, Dept. #57-A, Fruitport, Michigan 49415.

AMERICANS On foreign stamps—Presidents Kennedy, Roosevelt, Lincoln, U.S. spaceman, Princess Grace & others, 10¢ with approvals Roseland Stamps, Dept. #57, Spring Lake, Michigan 49456.

WOW! 1000 Different world wide—value over \$20.00 only \$1.00 with quality approvals. Universal, Box 6, Kenosha 5, Wisconsin 53141.

INTRODUCING Our better United States approvals we offer 15 United States stamps including Columbian, Bi-Centennials, famous American, airs, others; only 10¢. Ocean Stamps, Box 64-PM, Brooklyn, New York 11229.

50 YEARS Old, fifteen different United States, over fifty years old—10¢ with approvals. Jaxon, Box 145-P, Brooklyn, New York 11230.

SENSATIONAL Free Offer. 20 Outer space stamps, selected approvals. Louis Morrison, 1027 Maryland, Cape May, N.J. 08204.

50 DIFFERENT Old U.S. Revenue stamps 50¢. Winchester stamps, Box 1592, Mansfield, Ohio 44907.

225 STAMPS For only 10¢! This mammoth value includes airmails, pictorials, stamps from strange countries cataloging up to 25¢ each! Also approvals. Mystic Stamp Company Camden 80, New York 13316.

PENNY Stamps! 1000 Mounted in book at 1¢ each, Trust Stamp Company, P.O. B 132-P, Jamaica, N.Y. 11435.

40,000 DIFFERENT. Amazing new plan builds your collection systematically, country by country. As low as 50¢ weekly. Ware, Monroe, Conn. 06468.

FREE Sample. Interesting, illustrated informative National Stamp News, Anderson, South Carolina 29621.

AMAZING OFFER! 200 United States stamps—including commemoratives, airmails, high denominations to \$1.00. Only 10¢ to approval applicants! Illustrated bargain lists free. Mystic Stamp Co., Dept 80, Camden, New York 13316.

"INVERTED Error," Dag Hammerskjold 5¢ with Approvals, Belmont Stamps, Washington, D. C. 20015.

FREE Surprise collection sent with approvals. Gould, 1784 Union, San Francisco 94123.

U.S. Bargain, 50 different 10¢ with beautiful worldwide approvals, Stamps, Kennebunk, Maine 04043.

GERMAN Commemoratives, 10¢ with approvals. Schaefer, Box 1704, Washington, D.C. 20013.

MILLION Foreign stamps! 2¢ each! Send for thrilling, giant approvals! ABC Stamps, Box 6000-MB, San Francisco, Calif. 94101.

FREE 50 Worldwide. Request approvals. University Stamps, P.O. Box 326, Pompano Beach, Florida 33061.

TRIANGLES!! Twelve exotic birds, insects, flowers, animals! 5¢. Approvals Accompany, Hamilton, 7150 Cyril, Chicago OE5, Illinois 60649.

U.S. Approvals Low prices, Eagle, 2221 Romine Ave., Pittsburgh, Pa. 15226.

RUSSIAN Space set 10¢. Russian approvals. Snedco, Box 68-P, Waldwick, N.J.

NEW Issues — Free weekly illustrated list. Brooks, 2601N Avenue "U," Brooklyn, N.Y. 11229.

65 DIFFERENT United States stamps only 10¢. Approvals included. Shelron, Box 187, Hempstead, New York 11551.

64 PAGE U.S. and U.N. catalog 10¢. Stone, 260 Washington, Boston 8, Mass.

ONE Pound value Geo. VI Bermuda, plus 100 worldwide 10¢. approvals, Stevens, Box 105A, Homecrest Sta., Brooklyn, N.Y. 11229.

100 OLD United States between 1861 and 1935, \$1.00. Roush Stamps, 51 Chestnut, Mansfield, Ohio 44903.

U.S. Mint specials! Flag set, complete \$1.00, 1¢, 2¢, 3¢ famous Americans (21 different) \$1.00. Free list, Brooks, 2601 Avenue "U," Brooklyn, N.Y. 11229.

701 U.S.A. — 25¢ (plenty commemoratives). Request approvals. Horace Gatewood, Winston-Salem, N.C. 27102.

FREE Wonderful new United States catalog! Postage and airmails complete. 786 illustrations. Special offers, bargains galore—everything! Send today. H. E. Harris, Dept. FC-1, Boston, Mass. 02117.

COLORFUL Set Free! Worldwide approvals. Gorliz, Drawer 388PM, Park Ridge, Illinois 60068.

U.S. COLLECTORS ONLY! 50¢ buys 150 different, plus fine Edison coil (=656), when requesting our surprisingly better approvals. Service and prices will please. Engle, Box 8, Lowell, Mich. 49331.

ONE-Penny Approvals. All Singles priced at 1¢ each. Absolutely nothing higher. Bargain sets also included. SFC, 868 West Street, Mansfield, Massachusetts 02048.

50 DIFFERENT Russia, 10¢. Approvals, Iannuzzi, Box 76241, Los Angeles, Calif. 90095.

5,000 SUPER Packets, 10¢ Each. Stoll, 3524 Kerry, Louisville, Ky.

1000 \$1.00, United States or foreign, large variety, Missions Distributors, Box 386, St. Petersburg, Florida 33731.

WORLDS Largest stamp 25¢. Gift Set included. Daufeldt, Ataliss, Iowa 52720.

SPACE Collection, Dime with approvals. Tiquet, Box 1496, Denver, Colorado 80201.

FREE 100 Different worldwide approvals included. Hickey Stamps, P. O. Box 1242, New York, N.Y. 10008.

WOW! 110 All Different Germany 10¢ Commemoratives, Airmails, High Values, Big catalog, bargain lists also, fine stamps from our approval service, which you may return without purchases and cancel service at any time. Jamestown Stamp, Dept. A67PM, Jamestown, N.Y. 14701.

SEND 10¢ For Stamp Grab Bag. Over 100 unsorted old and new Asia, Africa, Europe, South Seas, etc. Approvals, illustrated catalog included. Littleton Stamp Co., Littleton GB1, N.H. 03561.

RARE Stamp free. Also new packet Aden to Urundi with Kennedy, triangles, space, sports, ships, dogs, cats, reptiles plus others. All free. Send 10¢ for mailing. Empire Stamp Co., Dept. PM, Toronto, Canada.

ONE Cent a stamp. Write for a jumbo book of foreign stamps at 1¢ each, mounted in Scott order. Bullot Approvals, 6815A Bay Parkway, Bklyn., N.Y. 11204.

500 DIFFERENT. Includes pictorials. Approvals, Knopp, Box 1703, New Port Richey, Fla. 33552.

IRELAND 25 Different 5¢. Approvals, Hijop, Box 505, Norristown, Pa. 19404.

SURPRISE COLLECTION! Exotic mint British Colonials, absolutely free with approvals, VIKING, Great Neck 8, N.Y.

GIANT STAMP Collection including: Astronauts, Satellites, Moonrockets, Boy Scout issue, complete U.N. set, recent Olympic and Sport issues from many countries, etc., PLUS Big Stamp Dictionary and Approvals, Everything, 10¢. STAMPEX, Box 47-RM, White Plains, N.Y.

1500 FOREIGN \$1.00. 5000 \$3.00. 200 giant size only commemoratives and pictorials—foreign or USA—\$1.00; 700 \$3.00; one whole pound, off paper \$25.00. 5000 USA-commemoratives, airs, revenues, 19th Century, high values, presidentials \$3.00. 50 USA revenues \$1.00. No approvals. Postpaid, Meyers, 5321 Fleming, Richmond, California.

1¢, 2¢ APPROVALS. Other bargains. Pam, Box 22092, Memphis, Tenn. 38122.

FREE! 55 Triangles, rockets, others! Colorful, low priced approvals. L. Baird, PM-17, Box 8128, Portland, Oregon 97207.

UNBEATABLE! Stamps from Angola, Dahomey, Greenland, Iceland, Macao, Maldives, Niger, Rwanda, Yemen—Countries missing in most collections—Free to new approval applicants—Moumblow, 19U Cedarhill, East Northport, New York 11731.

ROUND GOLD QATAR Stamps 10¢ with approvals. Belmont Stamps, Washington, D.C. 20015.

BEAUTIFUL Triangle set free! Penny approvals. Ideal Stamps, Springhill, Louisiana 71075.

100 DIFFERENT! Free! 1/4¢ upward British Commonwealth or world approvals. Bush, 1877 Wimborne Road, Bournemouth, England.

RARE Stamp BARGAINS. FREE lists. Name your countries. Takagi, 1658 Chambers, Escondido, Calif. 92025.

121 DIFFERENT Flag stamps free. Approvals. W-B Stamps, Wilkes-Barre, Pa. 18703.

GIGANTIC Triple offer! \$10.00 Stamp Packet! Exact replica world's rarest stamp! Full years membership International Society! All for \$1.00. Cochran, 558PM Oakey Boulevard, Las Vegas, Nevada 89105.

SEVEN Different 3c commemorative plate blocks \$1.00! Approvals. Gordon Davison, Henniker, New Hampshire 03242.

GERMANY Catalogues for 50 used large U.S. Commemoratives. Langheirich, München 23, Germany.

WOW! GIANT STAMP COLLECTION! 427 Fascinating diversified worldwide stamps, 10¢ to approval applicants. Illustrated bargain lists free! Continental, 4-PM Grant, Dundas, Ontario, Canada.

FREE U.S. Price list. Eberling, 105 Franklin Avenue, Staten Island, New York 10301.

BRASIL Commemoratives and airs; 25 Mint or 50 used for one dollar with Brasil Approvals. Elkert, Box 80A, Wetmore, Michigan 49895.

10 U.S. over sixty years old. 10¢. Robert Gallup, Albany, New York 12201.

5000 BIG Grab Bags! Dollar each. 95% large Pictorials. Satisfaction guaranteed. Stamp Service, 149803, Huntsville, Ontario, Canada.

ABSOLUTELY Free 25 different United States Commemoratives when requesting United States Approvals, K & B, Box 70, Brooklyn, N.Y. 11223.

FREE Mint South Sea Island Collection—including Samoa, Papua, New Guinea, Niue, Nauru, Norfolk, and Cook Islands. Just Request Worldwide Approvals, Valley Stamps, Box 372PM, Spring Valley, California 92077.

FREE Mexico Midget stamps when requesting approvals, Hobbies, Route 7 Yost Road, Salisbury, N.C. 28144.

FREE Colorful Collection—including Gemini Triangle, Kennedy Memorial, Beautiful Birds, Kittens, Dogs, Reptiles, Savage Jungle Animals, plus several Olympic Sport Issues. Just Request Our World-wide Approvals. Include 10¢ handling, Valley Stamps, Box 414PM, Spring Valley, California 92077.

450 FINE Mixed U.S. 15¢. Wright, Box 753-M, Hagerstown, Maryland.

PANAMA'S Latest "John Fitzgerald Kennedy"—Winston Churchill Commemoratives—Free! Approvals plus 10¢ Bonus Sets. William Deems, 226a Race, Ravenswood, West Virginia 26164.

BREATHTAKING, 50 Mint Monaco pictorials. \$1.00. Approvals accompany. Stamp Exchange, Box 103, Fairfield, California 94533.

COINS, TOKENS, CURRENCY

LINCOLNS: 22 Different "S" including rare 1955S, \$1.60. 28 different 1909-1939, \$1.60. 10 different "S" Jefferson nickels, \$1.60. All three \$4.50. Harris, 4535-P Stevenscreek, Santa Clara, California 95051.

LARGEST Coin magazine. 200 pages. 50¢. Scrapbook, 7320-J Milwaukee, Chicago 60648.

SILVER Dollars uncirculated, 1878-79-80-81-82 S mint \$3.00 ea. Illustrated Catalogue 50¢. Shultz, Salt Lake City, Utah 84110.

SIXTEEN Page current listings COIN BARGAINS only 25¢. RARCOA, 31-A Clark, Chicago 60602.

FREE Coin supplies! Giant coin list 20¢ (refundable). Economy Sales, Mansfield, Massachusetts 02048.

25 BEAUTIFUL Coins from 25 countries. Mostly uncirculated. Terrific assortment. \$1.00. Hindley, Box 708, Aurora, Illinois 60507.

LIBERTY Nickels—7 different \$2.00—Catalogue—10¢. Hubers, 200 Baker Building, Minneapolis 55402.

30 DIFFERENT Worldwide coins. \$1.00 Newcomers, Box 91, North Quincy, Mass. 02171.

U.S. List plus 54S cent 10¢. Schultheis, (Devonshire) New Hyde Park, New York 11040.

SPECIALS: Scarce date Lincoln cents. All good or better Satisfaction guaranteed. 50¢ each 1916S, 1927S, 1939D, 1955S, 75¢ each 1915, 1915D, 1921S, 1924S, 1932, 1932D, 1933, \$1.00 each 1909VDB, 1913D, 1923S, \$1.50 each 1911D, 1912D, \$3.00 each 1913S, 1922D, 1931D, 1933D, \$4.50 each 1910S, 1915S, 1926S, \$5.00 each 1912S, 1914S, \$10.00 each 1911S, 1924D. Bryson Inc., 612A White, Toledo Ohio 43605.

40 PAGE Illustrated United States and Canadian coin list 25¢. Stoney, 260 Washington, Boston 8, Mass.

LINCOLNS 15 old cents before 1931, \$1.00. 16 "S" mint cents \$1.00. 20 "D" mint cents \$1.00. Tekoa Coin Co., Clinton, Conn. 06413.

TEN Indianheads \$2.90; Five V-Nickels \$1.45; 2¢ Copper \$1.95; Silver Dollar \$1.90; Large Cent \$2.10; 3¢ Nickel \$2.25 (All six \$12.) Fairway Company, 121-M Rye, New York 10580.

INDIANHEAD; V-nickel or Morgan Dime with bargain list 35¢ (All three \$1.) Nelson, 346-M Rye, New York 10580.

LINCOLNS Good and better: Pick ten different \$2.00—1921S, 1955S, 1916D, 1954, 1909, 1911, 1917D, 1918D, 1919D, 1920D, 1920S, 1921, 1925S, 1926D, 1927D, 1928D, 1929D, 1929S, 1930D, 1930S, 1931, 1934D, 1935S, 1936D, 1943D, 1943S. Or take all 26 coins for \$4.50! Martin's, 36M East Broadway, Tucson, Arizona 85701.

JEFFERSON Nickels—Pick 10 different \$2.00. 1938, 1940DS, 1941DS, 1942DS, 1943-PS, 1944PDS, 1945PDS, 1946S, 1947S, 1948S, 1949S, 1950, 1952DS, 1953S, 1954S, 1958, 1959, 1966. Tipsico Coins, 6837 Miami, Tucson, Arizona 85715.

BARGAINS: Brilliant Proof Sets—1956 \$12.95, 1957-1959-1960 each \$7.50; 1958 \$13.95, 1961-1962-1963 each \$5.75; 1964 \$9.75. Bebee's Incorp., 4514 North 30th, Omaha, Nebraska 68111.

EIGHT Different Indianhead Cents \$1.98. Free pricelists. Edel's, Carlyle, Illinois 62231.

BARBER Dime, Quarter and Half, \$2.00. Doktor, 5028 W. Pico, Los Angeles, Calif. 90019.

SILVER DOLLARS, Mexican, 50¢ each, 10 for \$4.00. Roberto, Box 6147, Tucson, Arizona 85716.

SCARCE Lincolns. Very good to fine. Satisfaction guaranteed. 25¢ each: 1925-D, 1926-D, 1928-D, 1928-S, 1931-P, 1934-D, 50¢ each: 1915-P, 1915-D, 1916-D, 1916-S, 1938-D, 1938-S, 1955-S, \$3.50 each: 1926-S, Uncirculated 1909-VDB. Village Coin Shop, Dept. P, Plaistow, N.H. 03865.

FREE, 42" Coin testing guide. Send 10¢ postage. Box 133X, Glastonbury, Conn. 06033.

LINCOLNS: Rare 1943PDS (steel) — 1954-1955S, all 95¢. 15 Different brilliant uncirculated, 95¢. 30 Different uncirculated coins 30 different countries, 95¢. Three groups, \$2.60. Bonanza, Box 4491P, San Jose, California 95126.

INDIANHEAD Pennies, good and better, 50 mixed before 1909 \$11.50. Bardee, Box 1122, Miami, Florida 33101.

NICE Indians-Lincolns 1898-1930 D-S Mints Included, All Different, (20) \$2.00; (40) \$4.00. Gemcoin's, Minneapolis, Minnesota 55426.

FREE Indian penny sent with request for approvals. Tobey, Box 322, 308 Westwood, Los Angeles, California.

SILVER Dollars uncirculated (1879-1888) \$3.00 each. All 10—\$27.50. Arnold's, Box 491, Newport, Arkansas 72112.

MINT Sets, 1966 uncirculated coins, including JFK half, in lifetime holder, each \$2.25. Wilk, 3241 W. Bruce Drive, Dresher, Pa. 19025.

SILVER Dollars, uncirculated rolls of twenty, \$39.50 each. Circulated rolls \$31.50 each. Bill's Coins, 3166 16th St., San Francisco, Calif. 94103.

ANTIQUES, RELICS, INDIAN GOODS AND CURIOS

TONS Of antique gun parts and supplies. All reproduction muzzle loading guns. Send \$1.00 for enlarged illustrated catalog No. 116. Dixie Gun Works, Union City 12, Tennessee.

10 PERFECT Arrowheads \$3.00. George Smith, 9825 Conway Drive, Indianapolis, Indiana 46236.

ARROWHEADS, 10 for \$3.00. List free. Hyde's, Box 1788, Santa Fe, New Mexico 87501.

ANTIQUES! Monthly magazine. Sample 25¢ or free circular. Antiques Journal, Uniontown, Penna. 15401.

FROM Apacheland—Polished Apache Tear Stones, 3 for \$1.00. Apache Gem, Box 2485, Tucson, Arizona 85702.

SELLING 20,000 Ancient arrowheads, spearheads, etc. List free. Lear's Glenwood, Arkansas 71943.

MODELS—SHIPS, TRAINS, PLANES, ETC.

ROCKETS: Real flying models—flights up to 2500 ft. New illustrated catalog 25¢. Single and multistage kits, cones, engines, launchers, trackers, rocket aerial cameras, technical information. Fast service. Estes Industries, Penrose 2, Colorado 81240.

BUILDING Materials, 1/4" & 1/8" scale, windows, doors, siding, roofing, lumber and structural shapes. Send 35¢ for catalog with samples. Small Sales Co., 6025 Martway, Mission, Kansas 66202.

SHIP and yacht model fittings; Pine construction hull kits; blueprints. Send 50¢ for illustrated catalog. A. J. Fisher, Inc., 1002 Etowah Avenue, Royal Oak, Michigan 48067.

SHIP Models. Kits, fittings, plans, books, tools, engines, motors. Big illustrated catalog. 50¢. James Bliss & Co., Dept. SM, Route 128, Dedham, Mass. 02026.

TRAIN Bargains! RACERS! 25¢ brings 48 page catalogue. Thousands of Lionel, Gilbert, Strombecker, Eldon, Aurora, Revell, etc. Trains, all gauges, Racers, all sizes. Hobby Surplus, P.O. Box 1106M, New Britain, Conn. 06050.

HO Automated brakeman controls railroad and jumps on and off. Running Train, \$7.50 Prepaid. Herman, 6604 N. Whipple, Chicago 60645.

RIFLE: WINCHESTER, GARAND M-1, SPRINGFIELD, or M-14. Genuine Black Walnut Stock, calf leather sling, precision-fit metal parts. Exact scale models can be completely field stripped. Made in U.S.A. \$3.98 each Postpaid. MAJIX KITS, P.O. Box 594, Dept. PM, Cardiff, Calif. 92007.

SHIP Model kits and fittings: clippers, frigates, etc. Catalog paint-tool list, book list, 40¢. Model Shipways, Box 65, Bogota, N.J. 07603.

GAMES, TOYS, NOVELTIES

CARTOONS — Johnson, Truman, Lincoln, Washington. Humorous captions. Four 8 1/2 x 11 black and white reproductions, \$1.00. Warpaga, Box 7158, Miami, Florida 33155 Guaranteed.

BIG BARGAINS! Send \$1.00 for a 4 color automated, metal pencil. Request free brochure. Sulmo Enterprises, Post Office Box 275, Hempstead, New York 11551.

\$100—SEND Five dimes for genuine \$100 Las Vegas hotel gambling chip key chain. Hughes, 17 Yale St., Las Vegas, Nevada 89107.

COLORFUL Plastic bank shaped like clock with moveable hands. 4 3/4" high. \$1. Gift Way, Box 453, Pratt, Kansas 67124.

SHARKS TEETH! Petrified! 100000000 Years Old! 2 For \$1.00! Shark, 380 Mentor, Pasadena, California 91106.

ZAQ! Fast moving, mind building, gambling game! All equipment—\$1.00! ZAQ, Pasadena, California 91106.

MAGIC TRICK, PUZZLES, JOKER NOVELTIES

WORLD'S Finest professional magic tricks. Joker's Novelties. Giant illustrated catalog 10¢. Top Hat, Evanston, Illinois.

VENTRILQUISM! Information free! Dummy catalog, 25¢. State age, Maher, Studio E, Box 8536 Kensington Station, Detroit, Michigan 48224.

LATEST World famous giant surprise catalog!! 1000 Professional tricks, magic, jokers!! 164 pages!! 25¢. House of 1000 Mysteries, Dept. PM7C, Ft. Lauderdale, Florida 33308.

NEW EDITION, 1967 Catalog of 500 Tricks, only 10¢. Fastest same-day service to magicians for 40 years. Send 10¢ today. DOUGLAS MAGICLAND, Dept. 21, Dallas, Texas 75221.

COMPLETELY Illustrated catalog, 84 pages, 25¢. Manhattan Magic, Box 334-M, N.Y.C. 10011.

FUN 'n Magic Catalog, 10¢. (1,500,399 tricks, jokes, novelties). Elbee, 7408-P, San Antonio, Texas 78207.

BIG 42 Page catalog of jokes-novelties. Everything a man wants. Send 25¢. Joke Dept. 101, Box 7212, Chicago, Ill. 60680.

BE A Magician! Two booklets explaining sixty-eight tricks plus large professional catalog, \$1.00. Magic, Inc., 5082 Lincoln, Chicago, Illinois 60625.

BOOKS, PERIODICALS, NEWSPAPERS

PROPHET Elijah coming before Christ. Wonderful book free. E. Megiddo Mission. Rochester, New York 14619.

CHALLENGING! Different! Unusual books! Free catalog. Ruby's, D-26, Paradise, Pennsylvania 17562.

BOOKS, Free general catalog, 60 pages. Text, vocational, educational, instructional subjects. Millions of volumes, new and used. Bargain prices. Books bought, Est. 1902. Long's College Book Co., Dept. P.M., Columbus, Ohio 43201.

"UNUSUAL" Books! Catalogue Free! International. (PM), Box 7798, Atlanta, Georgia—30309.

FREE, "The Laws of Prosperity." Prosperity, Box 542, Oakland, California 94604.

INTERESTING Books, Free Catalog. Postal PM, 2217 Lackland, St. Louis, Missouri 63114.

FREE Timely magazine every month for life. Source \$1.00. Phillips, 1010 Omar Rd., West Palm Beach, Fla. 33405.

BOOK And product search. A Hickman, Box 5996, Reno, Nevada 89503.

OUT-Of-print books at lowest prices! You name it, we find it! Fast service. No obligation. International Bookfinders, Box 3003-PM, Beverly Hills, Calif. 90212.

FREE Catalog. Self-help books. Write Wilshire, 8721 Sunset, Los Angeles 90069.

1,000,000 BOOKS! Bargains! Free catalog! Bookanza, 6990 Aberdeen, Upper Darby, Penna. 19082.

FREE List. Books on all subjects. Masons, Box 7524-PM, Detroit, Michigan 48209.

FREE Catalog. Self-help books. Write International Enterprises, 440 S. Oxford, Los Angeles 18-B.

SPECIAL OFFER while supply lasts on single volumes of POPULAR MECHANICS HOME HANDYMAN ENCYCLOPEDIA; Volumes 1-12 and 14-16 available only. Send \$1.25 per volume plus 25¢ for postage & handling. Please specify volume wanted. POPULAR MECHANICS SERVICE BUREAU, Dept. OF, 575 LEXINGTON AVE., NEW YORK, N.Y. 10022.

PLAYS, STORIES, MANUSCRIPTS

WANT Your book published? Learn how we publish, advertise, promote, distribute. Many successes. Free booklet PM, Vantage, 120 West 31, New York City.

BUSINESS OPPORTUNITIES

WANT To make big money at home? \$10.00 profit in an hour possible with invisible mending. Make tears, holes disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details free. Fabricon, 1585 Howard, Chicago, Ill. 60626.

LIQUID Molding rubber also liquid plastic. Free information. Chaney's, 5415-A San Jose Blvd., Jacksonville, Fla. 32207.

VENDING Machines. No selling. Operate a route of coin machines and earn amazing profits. 32-page catalogue free. Parkway Machine Corporation, 715 PMB Ens-r Street, Baltimore, Maryland 21202.

ADDRESSERS And mailers needed. Send stamp for information. Lindbloom, 1508 West Erie, Chicago 60622.

SECRETS! Secrets! Mail order success revealed by internationally famous expert who discovered how to make home business fortunes. Beginners: Get free copy "How to Make Money in Mail Order." Discloses free advertising, profitable products, everything! No obligation. Write Mailco, 1554 Sepulveda, Dept. A705, Los Angeles 90025.

OPERATE Restaurant or diner. Free booklet reveals profitable plan. Write Restaurant Business School, Dept. EC-57, 1920 Sunnyside, Chicago, Illinois 60640.

IMPORT Export opportunity, profitable world-wide, mail-order business from home, without capital, or travel abroad. We ship proven plan, for no risk examination. Experience unnecessary. Free details. Mellinger, Dept. A705, Los Angeles 90025.

CLIP Newspaper items, \$1.60-\$5.00 each. Details free. Walter, Box 1360-PA, Erie, Pa. 16512.

FREE "Franchise Profit Letter" tells how unique NFR service is helping thousands seeking profitable businesses. Write today. National Franchise Reports, W-528, 333 North Michigan, Chicago 60601.

OPERATE Home mailorder business. Vosecek Printing, 4444A1 Ute, San Diego, Calif. 92117.

PIANO Tuning learned quickly at home. Tremendous field! Musical knowledge unnecessary. GI Approved, Information free. Empire School of Piano Tuning, Box 327, Shenandoah Station, Miami, Florida 33145.

HUGE Profits! Mail order importing. Free information. ITIS-PM-5, Box 454, Hollywood, Calif. 90028.

BOOKKEEPERS Earn \$1000.00 month. Operate simplified Bookkeeping tax service. Universal, Box 664-M, Springfield, Missouri.

DOLLS! DOLLS! You learn to make, repair, dress and sell dolls. Study at home. Fascinating hobby, profitable business. Certificate awarded. FREE booklet. Doll Hospital School, Dept. D-241, 2251 Barry Avenue, Los Angeles, California 90064.

\$200.00 DAILY In your mailbox! Your opportunity to do what mailorder experts do. Free details. Associates, Box 136-A, Holland, Michigan 49423.

BUILD Custom cases at home for profit. Get orders by mail. We supply materials, instructions, everything. Free home business details. Customcase, 805CPK Sunset, Los Angeles 90012.

400,000 BARGAINS Below wholesale! Many free. Liquidations . . . closets . . . job lots . . . single samples. Free details. Bargainhunters Opportunities, Box 730A, Holland, Michigan 49423.

START Your own business on credit. Your own boss. Hundreds of dealers making \$100 to \$300 and more weekly. We supply stocks, equipment on credit. 300 home necessities. Sales experience unnecessary. Pleasant, profitable business backed by world-wide industry. Write Rawleigh, Dept. E-U-PPM, Freeport, Ill.

VENDING Machine big catalog. Rake, 523 A Spring Garden, Philadelphia, Pa. 19123.

SELL Advertising book matches. Write us today; we put you in business by return mail, handling complete line ad book matches in demand by every business right in your town! No investment; everything furnished free! Top commissions daily! Superior Match, Dept. MX-567, 7530 S. Greenwood, Chicago 19, Ill. 60619.

COPUBLISH "Mail Sale Advertiser," leading mailorder paper. Copy and details 25¢. Vanroy Shirk, Lebanon, Pa. 17042.

BAKE New greaseless doughnuts in kitchen. Stores buy output. Start spare time. Profit 29¢ dozen. Small appliance. Free recipes. Montgomery Ray, Waseca, Minnesota 56093.

RAISE Rabbits for us on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

READ Progressive Mailtrade, the magazine that tells how to make money by mail. Quarter brings sample and special offer. Mailtrade, P.O. Box 357, Sheboygan, Wis. 53082.

\$400.00 MONTHLY Raising giant fishworms. Soilless method. Charlie Morgan, Bushnell, Florida 33513.

PACKAGE At home for profit! We supply everything. No "selling." Free home business details. H.P.C.-807HPK, Sunset, Los Angeles 90012.

EARN Money raising fishworms for us! Write: Oakhaven-38, Cedar Hill, Texas.

LEARN Landscaping and the growing of plants. Start a profitable business part or full time. Free information without obligation. Lifetime Career Schools, Dept. A-115, 2251 Barry Avenue, Los Angeles, California 90064.

FREE Report: "609 Unusual, Successful Businesses!" Box 51-PO, Des Plaines, Illinois 60017.

DIFFERENT! Outstanding Profits, high quality mailorder businesses. Complete set-up service; not just instructions. Hermes Co., 152 West 42, New York City 10036.

IMPORT-Export business made easy. Complete setup. Not just instructions. Hermes, 152 West 42, New York City 10036.

FREE Catalogs. Repair air conditioning refrigeration. Tools, supplies, full instructions. Doolco, 2016 Canton; Dallas, Texas 75201.

PROFITABLE Catalog mailorder business! Vikari's, 835-PM, First Avenue, Salt Lake City, Utah 84103.

BIG Money raising fishworms and crickets. Free literature. Carter Farms, Plains, Georgia 31780.

SAWDUST. Tin-cans, newspapers. 200 uses. Instructions \$1.00. Charles Company, 42-GPF, Norwood, Ohio.

RADIO Mail order, \$50,000 in one month possible. No cost percentage plan. Walthay Box 53M-5, Los Angeles 90032.

FREE BOOK "990 Successful, little-known businesses." Work home! Plymouth-172Y, Brooklyn, New York 11218.

I MADE \$40,000.00 Year by Mailorder! Helped others make money! Start with \$10.00—Free proof! Torrey, Box 318-Y, Ypsilanti, Michigan 48197.

\$60.00 DAY. Manufacturing concrete posts. Carlayne, 1803 Fremont, Rapid City, South Dakota 57702.

BURGLAR Alarm Profits! Free manual. Alarms, Box 99, Uleta, Florida 33164.

WORLD'S Largest wholesale supply. Buy from 8753 American, European, Japanese wholesalers. Hongkong clothes, 123 dropship catalogues, Rockbottom prices, Automobiles. Free details. International Buyers, 216-MM West Jackson, Chicago, Illinois 60606.

MORTGAGE Brokerage. Profitable! Free facts. CMC, Box 99, Uleta, Florida 33164.

100,000 PRODUCTS Wholesale! Terrific bargains! Wholesalers, 1265-MY, Broadway, New York, N.Y. 10001.

MAKE \$32.00 From 49¢ piece vinyl. PM-1834 Edgeland, Louisville, Ky. 40204

PLASTERCRAFT Molds, liquid rubber, plasters, floccs, candle supplies. Catalog and manual free. Blue Rapids Supply, Blue Rapids, Kansas.

SELL Books by mail. 400% profit. Royal, Box 450-X, Cleveland, Ohio 44127.

\$70.00 WEEKLY—home, spare time. Simplified mail bookkeeping. Immediate income easy. Auditax, 34741A, Los Angeles 90034.

"MAIL-Order plan of the month." New service for those wanting their own Mail-Order Business. Free details. Volz-UN, Ypsilanti, Michigan 48197.

MAKE \$46 from square foot plywood: jigsaw or bandsaw necessary. Free details. Woodar, Bridgewater, Mass. 02324.

MAILORDER—Cash business. No merchandise investment. 65 products, drop-shipped. National Mdsrs., 3408 1/2 Motor, Los Angeles 90034.

981 AMAZINGLY. Profitable, opportunities. Write: Ridsen, 6005 Rohns, Detroit, Mich. 48213 PM.

"MAILORDER Bookkeeping Cards." Samples absolutely free. Neil H. Tasker, Shamokin, Pennsylvania 17872.

MAIL Order opportunities galore! Popular advertiser magazine! Sample 10¢. Labon, Box 54386-PM, Los Angeles, Calif. 90054.

\$100.00 WEEKLY Spare time home mailorder business. How to start without capital. Spradling's, 9422A Ardmore, St. Louis, Missouri 63137.

GIANT Mail, Folio, magazines, opportunities, Merchandise 35¢. Daufeldt, Atalissa, Iowa 52720.

"HOW To Bring the Mailorder Dollars Tumbling In"—Livingston's, Box 5332, North Charleston, South Carolina 29406.

EXTRA Income. Home, spare time book-keeping service. Moneal Systems, PM47, Box 3997, Anaheim, Calif. 92803.

MAILORDER CATALOGS—No inventory Full profits. Send 25¢ for 32 pager featuring 150 unusual, fast-moving products and complete details. GAYLORDS, Dept. C, North Adams, Mass. 01247.

CARTOONING AND COMMERCIAL ART. Easy home-study drawing course. Art background not necessary. Excellent creative money making opportunities part or full time. We show you how. Low monthly tuition. Free booklet. Continental Schools, Dept. 7A-24, 1330 W. Olympic Blvd., Los Angeles, Calif. 90015.

LEARN TECHNICAL WRITING—at home. High paying prestige careers not requiring college. Growing demand, all industries for tech writers now. Low monthly tuition. Easy to understand. FREE career book, sample lesson. APPROVED FOR VETERANS American Technical Writing Schools, Dept. PMC-57, 5512 Hollywood Blvd., Hollywood, Calif. 90028.

\$15.00 HOURLY PROFIT-OWN Business with one serviceman. Quickly learned. Easy to do. Operate from home. Few hundred dollars builds your own nationally advertised business while continuing present job. Investigate immediately. . . . before your territory is taken. Free booklet explains everything. Send Today. Then decide. Duraclean, C7-164A, Duraclean building, Deerfield, Illinois.

MODERN METHODS Win 50% commission with personalized jewelry. \$2.00 for instructions and samples. Instant Sales Division, (NSC-G209) Charlotte Merchandise Mart, Charlotte, N. C. 28205.

BIG profits—Operating your own plastic laminating business with low cost equipment and supplies, money making methods included. Money back guarantee. Jiffy—Box 23485P, Los Angeles, Calif. 90023.

LIQUID Molding rubber also liquid plastic. Free information. Chaney's, 5415-A San Jose Blvd., Jacksonville, Fla. 32207.

INSTALL BURGLAR Alarm Systems. Big profit home business. Beginners start spare time, without mechanical experience or costly equipment. Free starter plan. NASCO, Dept. A705, 11071 Massachusetts, Los Angeles 90025.

ELECTRICAL Repair—Washers, dryers, motors, stoves, clocks, toasters. Free details. I.T.I., Dept. 65069, 815 E. Rosecrans, Los Angeles 90059.

FANTASTIC Profits manufacturing auto polish. Start at home, then expand. Free plan. Inca, 2401 Crocker, Houston, Texas 77006.

BE YOUR OWN BOSS Own your own business . . . all you can make is money. Cash in on the Credit Card Boom with an exclusive franchise. This is a highly remunerative business. Renewals and bonuses insure permanent security. For information on how to do it, send \$1.00 to The President, Universal Credit Acceptance Corp., Box 1165, San Mateo, California 94403.

FREE! 38 Page magazine. Lists hundreds of Money-Making Opportunities. Glass, Wampum, Pennsylvania 16157.

BEAUTIFUL Oil Paintings. Sell from your home. Carren Gallery, 1841 E. 84th Ave., Denver, Colorado 80229.

WE Need Ginseng Growers! \$3,000 - \$20,000 annually. We buy your crop. \$2.00 brings seed sample and information. Glass's Ginseng Exchange, Box 1969, Springfield, Mass. 01101.

SELL Books by mail. 400% Profit. Emerson, 113-PM5, Middle, Santa Barbara, California 93103.

FREE Information. Operate profitable mail order business. Donovan's, Dept. 97, 537 Cranbrooke, Toronto, 12, Canada.

CONCRETE FACTS: Highly profitable home business. Experience unnecessary. Unlimited unique pottery designs easily made without moulds. Birdbaths, fountains, wishing-wells, benches, etc. Chemical coloring formulas, marblingglazing. FREE illustrated brochure. Hollywood Cementcraft, 602 Athens Street, Altadena, California 91001.

NOW! Start your own Home Import Business with this exciting Free Offer. Write Franll Distributors, 512 O'Kelly Drive, Ingleside, Illinois 60041.

STREAMLINED Home Study Mailorder Course. 24 complete lessons. \$2.00. Literature free. Hodder Associates, Dept. A-30, 14537 Birwood, Detroit, Mich. 48238.

BECOME Tax consultant. Our students earn \$1,000—\$3,000 every tax season preparing returns evenings. Accredited. State approved. National Tax, Monsey 2BA, New York 10952.

\$200.00 WEEKLY Spare time with home manufacturing. Start with \$10.00! Free Details! Wallin, Box 189, Edmonds, Washington 98020.

BUSINESSES FOR SALE. Nationwide listings. Write: Box 2091, Prescott, Arizona 86301.

NEW SENSATIONAL COMBINATION DIRECTORY And how to booklet. Tells How, Where, Saves Time—Saves Money. \$2.00 guaranteed. Smyre's, Box 953M, Newark, N.J. 07101.

SELL Information by mail. 2400% gross profit! Instruction manual, \$2.00. Satisfaction guaranteed! Sax's, Milan, Ohio 44846.

AMAZING New way to own your own business. Send for Free copy. Modern Franchising Magazine, 1085-PM Walnut St., Des Plaines, Ill.

FREE! Sparetime moneymaking Opportunities Catalog. DonKar, 1914A, La Cana, Hacienda Heights, California 91745.

LEARN SPEEDOMETER Repair. Make good money. Instrument School, Box 5319, Tulsa 4, Okla.

PROFITABLE IMPORTING! Training—Sources—Cooperative Buying—Sales Tips. Join. Importers International Association, Dept. A, Box 6642, Kansas City, Kansas 66106.

FABULOUS Profits, expanding market. Raise hybrid fishing worms. Kerns Worms, Box 528, Carmichael, Calif. 95608.

NEW Mailorder technique insures success, profits. Free details. Hendrix, Box 28A, Long Beach, Miss. 39560.

FRANCHISE—Naugahyde and Vinyl Repairs, small investment. Write AMH Co., Box 5386A, Santa Ana, Calif. 92704.

EXCLUSIVE—Sporting outlets will sell your product. Just sit home. Need no equipment. \$2.00. Viking, 636 Jefferson, Minneapolis, Minnesota 55413.

HOMEWORKERS Wanted! New Directory of information on 150 companies seeking part-time workers. Save time and money finding right opportunity. \$2.00. Quest Enterprises, Box 6029, San Jose, California 95150. SATISFACTION GUARANTEED.

MONEY MAKING OPPORTUNITY UNLIMITED! Free information—no obligation. Consolidated American Corporation, Box 6959A, Nashville, Tennessee 37215.

BIG Profit! Learn salvage yard business. Box 806, Mason City, Iowa 50401.

RAISE To \$50,000 finance capital. Giant directory. Venture & risk money. Easy sources. Free details. Counselor-17, Harlingen, Texas.

10 DOLLARS First hour or money refunded. Free details. Southern Sales-PM, P.O. Box 7854, Station C, Atlanta, Ga. 30309.

MAKE Money from old tires. Operators clearing \$600 weekly. Equipment costs \$1000. Get facts. S&S Patents, Inc., 2911 N. Damon, Chicago 60618.

MONEYMAKING OPPORTUNITIES

CLIP Newspaper items. \$1.00-\$5.00 each. Details free. Walter, Box 1360-P, Erie, Pa. 16512.

HOW To Make money writing short paragraphs. Information free. Barrett, Dept. C-27-R1, 6216 N. Clark, Chicago 60626.

FREE. 206 Easy ways to make money taking orders for exciting new products—spare time. Send name, age, for 5 months free subscription. Opportunity Magazine, 850 N. Dearborn, Dept. 17-EM, Chicago 60610.

AMAZING Successes through franchises! Become exclusive franchise holder in your territory. Information rushed. National Franchise Reports, WP-528, 333 North Michigan, Chicago 60601.

EARN \$500.00 Monthly clipping ads at home. No investment—experience. Free information, send stamp. American, Box 56, Muncie, Kansas 66057.

RAISE Rabbits and fishworms on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

MAKE \$100.00 Fast, assembling belts for profit. Redikut's, Loganville 40, Wisconsin.

\$200.00 FROM Sheet 1/4" plywood (scrap). Details 25¢. Novelty, 610 So. 24th, Elwood, Indiana 46036.

MINK Raising information free. Lake Superior Mink Farm Inc., Superior, EEL, Wisconsin 54880.

BIG Money raising fishworms and crickets. Free literature. Carter Hatchery, Plains, Georgia 31780.

WHOLESALE Magazine subscriptions. Highest commissions. Bonus! Box 151 RA, Woodmere, N.Y. 11598.

CIGARETTES — Make 20 filtertip or plain, king or regular, for 10¢. Facts free. Moberly, Box 953, Owensboro, Kentucky 42301.

"FOREIGN Forum Magazine"—international new products, money making, information for importers, mailorder dealers, beginners. Details free. Franll Company, 512-PM O'Kelly Drive, Ingleside, Illinois 60041.

BIG Money from paper scraps. Jackson, Box 7149, Oakland, California 94061.

\$1000.00 MONTHLY Collecting delinquent accounts by mail. Continental Associates, 1004 Grand, Des Moines, Iowa 50309.

MANUFACTURER Offers quality line of automotive chemicals. High profits, repeat sales, choice territories open. Write for catalogue and details. CLEANBRIGHT, Dept. 205, 2202 Folin St., Bronx, New York 10457.

NEWSPAPER CLIPPINGS worth \$5.00. Regco Inc., 216 Opelousas, Donaldsonville, Louisiana 70346.

FREE! MONEYMASTER. America's newspaper of "Second Income Ideas." Box 63C, Novato, Calif. 94947.

\$15.00 HOURLY PROFIT-OWN Business with one serviceman. Quickly learned. Easy to do. Operate from home. Few hundred dollars builds your own nationally advertised business while continuing present job. Investigate immediately. . . . before your territory is taken. Free booklet explains everything. Send Today. Then decide. Duraclean, C7-164B, Duraclean Building, Deerfield, Illinois.

SWEEPSTAKES Contests. How to win. Write for free particulars. General Contests, 1609-18 East Fifth, Duluth, Minn. 55812.

JEWELRYCRAFT for Fun or Profit! Kits and Supplies. Catalog, 25¢. Modern Craft, 12790 U.S. 19, Clearwater, Florida 33516.

INSTANT Money! Plastics are the wave of the future. Big Profits now! At Home! Spare Time! Materials costing 11¢ bring \$2.58 profits immediately! Free information! Rush name on postcard to: Warner, 1512 Jarvis, Dept. CL-2-DT, Chicago 60626.

MONEY! 7 Complete tested mailorder programs. Money in every mail can be yours. Send \$2 to OPPORTUNITY, Dept. 5M, 440 Arapahoe, Boulder, Colorado 80302.

EARN Extra Cash! Sell our beautiful, lifetime, golden metal, Social Security plates. No investment! Send for free sample and sales kit. No obligation. Russell, 207-PM Madison, Pulaski, Tennessee 38478.

MAKE Money creating mailing lists at home. Information free. Consumer Mailings, Dept. 115, Old Greenwich, Connecticut 06870.

DOLLAR Maker (Tips) Dollar Saving. Send 5¢ stamp for information. A. L. Drayton, P. O. 107, Brooklyn, N.Y. 11208.

START Big-Pay Business at home in spare time. No experience needed to operate little table-top machine for bronzing baby shoes. Make \$7.32 profit on every pair. Full particulars free. Send postcard to: Mason, 1512 Jarvis, Room CM-2-DT, Chicago 60626.

RAISE Nightcrawlers, redworms, soil-less method. Three Oaks Ranch, Dresden, Tennessee 38225.

OVER \$16.50 an hour. Spare time at home! Rubber Stamp industry needs small manufacturers. We furnish all equipment and know-how! Particulars Free! Write: Roberts, Room CR-2-DT, 1512 Jarvis, Chicago 60626.

EARN \$240.00 a month at home, spare time, doing only two \$5.00 invisible mending jobs a day. Big money paid for service that makes cuts, tears disappear from fabrics. Steady demand. Details free. Fabricon, 1532 Howard, Chicago, Ill. 60626.

VENDING Machines. No selling. Operate a route of coin machines and earn amazing profits. 32-page catalogue free. Parkway Machine Corporation, 715 PMM Ensor Street, Baltimore, Maryland 21202.

SHARP \$\$\$\$ Opportunity! One low-cost machine sharpens—serrates knives, scissors, pinkers shears. Earn \$6-\$9 hourly in spare time. Professional results without experience. Free details. Beaver Grinder, 357 C Nielsen Bldg., Eugene, Oregon.

WATCH REPAIRING. Swiss and American watches. Develop skill step by step in spare time at home. Diploma awarded. Free sample lesson. Chicago School, Dept. YRA, Fox River Grove, Ill. 60021.

HOUSEHOLD And food products route. \$25.00 or more daily profit. Larger repeat orders. Man, woman. Full, part time. McNess, Freeport 26, Illinois 61032.

SPARETIME Moneymaking ideas—Free home profits catalog tells how. J & L Laboratories, Box 81, Dayton, Ohio 45406.

SEND \$1.00 For the book "HOW TO GET RICH ON YOUR NEXT VACATION." Learn the excellent investment possibilities of recreational lands in the Western Rockies. Address: Alpine Publishers, Dept. C, Box 1044, Kalispell, Montana 59901.

SPRAY Perfume Ounce. Estee Lauder, Shalimar, Arpege, etc. \$10.00 doz. Trowbridge, 35-E7 Woodcrest, Dayton, Ohio 45405.

OPERATE Needed service. Total plan, \$1.00 H. Bower, 510 Boeling Avenue, Reading, Penna. 19601.

DEVELOP Profitable spare-time business building Playhouses for kids. They love 'em, parents buy. Local materials. Three models. Plans, sales methods, \$1.00 cash. United, 3935 Magnolia Ave., St. Louis, Mo. 63110.

YOU'RE THE BOSS. Earn what you desire. Spare time earnings unlimited. Sell the beautiful leather products of "Old Mexico's" finest craftsmen. Send \$3.00 for sample wallet and catalog to Sealane Import, Inc., P.O. Box 1094, Sta. "C," Evansville, Indiana 47713.

BIG Money, how, details \$1.00, refundable. Donaco, 244-A, P.O. Box 1987, Eugene, Oregon 97401.

AD MARKET sells furniture, appliances, realty, autos, anything. You pocket big local profits. \$50. day plan. Details. Ad-Mart-4, Harlingen, Texas.

PROFITABLE "Moonlighting"! Details free. PanAmerican, (PM) Box 11796, Atlanta, Georgia 30305.

LEARN Junk Battery repairing secrets, "Fabulous Profits" at home. Details. Batteryman, Box 878, Palm Desert, California 92260.

FREE Information about making feather flower arrangements that sell on sight. Aleslagle, 1463 Stroop, Kettering, Ohio 45429.

SELL Your photos. Report tells how, where. Color Slide Markets. Only \$1.00. George Bain, Dept. 1, 1234 East Colona Street, Philadelphia, Pennsylvania 19125.

PERMANENT MATCH! Strikes over and over like ordinary match. Available with or without emblems. Sell to all retail establishments wholesale. Sample, .98¢ One dozen \$7.36. .98¢ refunded first dozen order. 50% remittance must accompany order if C.O.D. is desired. Wilson Brothers Co., 1520 Mitchell Blvd., Fort Worth, Texas 76105.

PROFITABLE OCCUPATIONS

HOW To Make Money Writing Short Paragraphs. Information Free. Barrett, Dept. C-27-R2, 6216 N. Clark, Chicago 60626.

EARN \$240.00 A month at home, spare time, doing only two \$5.00 invisible mending jobs a day. Big money paid for service that makes cuts, tears disappear from fabrics. Steady demand. Details free. Fabricon, 1586 Howard, Chicago, Ill. 60626.

SHARPEN Scissors, Pinkers. Inexpensive equipment, tools, supplies. Blackhawk's, Sheldahl, Iowa 50243.

BECOME A mortgage broker, earn \$10,000 to \$50,000 a year. Details free. United, Box 6284-C, Marietta, Georgia 30060.

YOUR Own sign shop—Signs, 1017 W. Mulberry, Springfield, Ohio.

RAISE Rabbits for us on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

AUCTIONEERING — Resident & home study courses. Veteran approved. Auction School, Ft. Smith, Arkansas.

RAISE Pheasants on \$100 week plan. Little capital and space can make you independent. Free details. Great Central System, Columbus 1, Kansas.

CHROME Plating. Instructions, equipment and supplies. Platers' Supply, P.O. Box 565, Lugo Station, Los Angeles, Calif. 90023.

FREE Book "990 Successful, Little Known Businesses." Work Home! Plymouth-17Y, Brooklyn, New York 11218.

BIG Money raising fishworms and crickets. Free literature. Carter Wormery, Plains, Georgia 31780.

FREE Facts and descriptive bulletin. Be an air conditioning, refrigeration, and heating serviceman. High pay. Jobs open everywhere, operate your own service business. No school or correspondence necessary. Write Doolco, Trouble Shooter, 2016 Canton, Dallas, Texas 75201.

BAKE New greaseless doughnuts in kitchen. Sell Stores. Free recipes. Michael Ray, Waseca, Minnesota 56093.

MAKE Money with your camera. Free report. Camera Arts' Exchange, Box 101-M, Hollywood, Calif. 90028.

SETUP And run a mail order business \$1.00. Kel Enterprises, B236, Rockaway, N.J. 07866.

INVESTIGATE Accidents: Average earnings of \$5 to \$8 an hour—full or spare-time. No selling. No previous experience necessary. Learn to earn in your spare time. Write for Free book. No obligation. No salesman will call. Universal Schools, CPM-5, 6801 Hillcrest, Dallas, Texas 75205.

REFRIGERATION. Learn trade from successful serviceman. Top wages. Free details. Woodland Refrigeration, 206 Mari-anville, Chester, Pa. 19013.

220 JOB-TRAINING Courses . . . Free Catalog!!! . . . "Jobsuccess." 500 Sansome (501-PM1), San Francisco 94111.

SCIENTIFIC MASSAGE: BIG EARNINGS uncrowded profession. Learn spare time at home. Diploma awarded. Free catalog. Write: Anderson School, Dept. D-1C Princeton, Illinois 61356.

SALESMEN—DISTRIBUTORS

NEGRO People buy on sight. 100% profit. Nationally advertised cosmetics. Free sample offer. Valmor, Dept. ED, 2411 Prairie, Chicago 60616.

JOIN An established firm. Over 30 years with Calendars and advertising specialties. Bonuses—prizes—free pens. Fleming, 6535-A Cottage Grove, Chicago 60637.

\$200.00 WEEKLY. Every business and professional man has No-pay accounts. Send them to us for collection. We pay you for each name listed. No collecting. Dept. PM-12 General Finance Company, Pickwick Bldg., Kansas City, Mo. 64106.

EARN Big Commission full or part time. Show America's largest line low priced Business Printing and Advertising Specialties. Plus calendars in season. No experience. No investment. No collections or deliveries. On-the-spot commissions. Big Free Sales Kit samples hundreds items used daily by businessmen. Merchandise bonuses for you. Free gifts for customers. Build profitable repeat business. Start now. National Press, Dept. 70C, North Chicago, Ill. 60064.

SELL Advertising book matches. Write us today, we put you in business by return mail; handling complete line ad book matches in demand by every business right in your town! No investment; everything furnished free! Top commissions daily. Superior Match, Dept. M-567, 7530 S. Greenwood, Chicago, Illinois 60619.

\$1,000.00 A MONTH For making dramatic 3-second demonstration of amazing lightweight Presto Fire Extinguisher. Chemical used by Airforce snuffs out fires instantly. Only \$4.95. Terrific commissions. Millions want it. Free Kit. Merlite, 114 East 32nd, Dept. P-67-L, New York 10016.

GOOD Man. Mature. Short trips around county. Part time. Excellent earnings. Write Cyclo, 3816 Dahlia, Dept. 128, Denver, Colo. 80207.

100% PROFIT With "mic oil" for machinist tools, guns, fishing reels, business machines, electric razors. Ron Shields, Dept. PM, 98 Robert Treat Parkway, Milford, Conn. 06460.

NEW Plan! Pays up to \$25.00 an hour! Little as 4 hours weekly. Place Thriftie self-service displays in stores. No cost to merchant. No experience needed. Free details. Lux Company Incorporated, Dept. 738, Elkhart, Indiana 46514.

SATELLITE Hottest Toy Demonstrator in 25 years or more. Distributors wanted. Airtoy, Box 547-M, Altadena, California 91003.

BIG Money maker, emergency burns kit, demonstrate, exclusive. Rescue Associates, Box 2727, Rochester, New York 14626.

SELL Hertel Bibles Part Time. Finest Reference Bible available. Demonstrator and supplies furnished. Excellent commissions. Write International Book, Box 118-PM, Wichita, Kansas—67201.

3 WONDER Money-makers. Auto Transmission Tonic. Softweld Solder. Self-Fluxing Aluminum Solder. Tremendous sellers, steady repeats. Free Selling facts. Guaranteed. Weldtite, 120A North Fourth St., North Wales, Pennsylvania 19454.

SELL Toys—novelties to stores. Details 10¢. National, Dept 101, Box 7212, Chicago, Ill. 60680.

FREE. 206 Easy Ways to make money taking orders for exciting new products—spare time. Send name, age, for 5 months free subscription Opportunity Magazine, 850 N. Dearborn, Dept. 17-ES, Chicago 60610.

AGENTS WANTED

PRINTING. Advertising salesmen — excellent moneymaking sideline selling decalcomania name plates, small quantities. Automobile initials, sign letters. Free samples. Ralco, XL, Boston, Mass. 02119.

YOUR Own business—Used suits \$1.50; overcoats 65¢; mackinaws 35¢; shoes 12½¢; ladies coats 30¢; dresses 15¢. Enormous profits. Catalog free. Nathan Portnoy Associates, 2109-AA Roosevelt Road, Chicago Ill. 60608.

ESTABLISH Your own business. Low prices on used clothing, shoes, household goods. Unlimited profits. Free catalog. Northwestern Distributors, 2129 No. Western Avenue, Chicago, Illinois 60647.

MAKE \$50.00 daily contacting service stations. Two new inventions. Free details. Inka, 2401 Crocker, Houston, Texas 77006.

UNIQUE Lifetime fiberglass cemetery flower planters. Attach to monument sides, off ground. Millions needed. P.M. Rycliff, Box 14, Boston, Mass. 02129.

MAKE \$10 Per hour—sell magic fabric mender. Details 10¢. National, Dept 102, Box 7212, Chicago, Ill. 60680.

FREE. 206 Easy Ways to make money taking orders for exciting new products—spare time. Send name, age, for 5 months free subscription, Opportunity Magazine, 850 N. Dearborn, Dept. 17-EA, Chicago 60610.

EMPLOYMENT INFORMATION

FOREIGN And **USA** job opportunities available now. Construction, all trades. Earnings to \$2,000.00 Monthly. Paid overtime, travel bonuses. Write: Universal Employment, Dept. C-1, Woodbridge, Connecticut 06525.

FOREIGN Employment. Construction, other work projects. Good paying overseas jobs with extras, travel expenses. Write only: Foreign Service Bureau, Dept. PM, Bradenton Beach, Florida 33510.

AUSTRALIA Wants You! Good pay. Adventure, government paid transportation allowance! Send \$1.00 for Australian opportunities Handbook, International Services, Box 12-A5, Greenfield, Indiana 46140.

TREMENDOUS Opportunities U.S.A. Overseas. Choose Jobs-Locations. Transportation. Free details. Occupations, International Airport, Box 100-C2, Jamaica, N.Y. 11430.

AUSTRALIA Wants You! Government assisted passage. Unlimited Opportunities. Latest Government Information \$1.00. Austco, Box 3623-E, Long Beach, California 90803.

BOOMING Australia needs your skills! Government assisted passage. Details, \$1.00. Irv Heyer, 1117A S.W. Columbia, Portland, Ore.

HELP WANTED

OVERSEAS Jobs—Europe, South America, Far East, etc. 2,000 openings in all trades. Construction, Office Work, Sales, Engineers, etc. \$400 to \$2,500 month. Expenses paid. Free information, write Overseas Jobs, International Airport, Box 536-M, Miami, Florida 33148.

FOREIGN EMPLOYMENT—Australia, Europe, South America, Far East, Etc. Openings in all trades and professions—\$400.00 to \$2,500. Monthly. Free information—Write Foreign Employment Mart, P.O. Box 2235, Airport Mail Facility, Miami, Florida 33159.

FARMS—REAL ESTATE

CANADIAN Vacation lands: Full price \$385.00. 40 acres, \$10 month. Suitable cottage sites, hunting, fishing, investment. Free information. Land Corporation, 3768-C Bathurst, Downsview, Ontario, Canada.

CANADIAN Lands, seized and sold for taxes. Our 50th annual series of lists, describe many choice properties, situated from coast to coast, acquired by us through Tax Sale. Priced as low as five dollars per acre, guaranteed perfect title, small monthly payments, no mortgage. Beautifully situated hunting and fishing camps, where there is real sport; summer cottage sites, heavily wooded acreages. Now is the time to invest in Canada's minerals, forests and farms. Write today for free twenty page booklet with full explanation. Tax Sale Service, Room 301D, 85 Bloor St., East, Toronto 5, Canada.

FLORIDA CAMPSITES—Deep in the heart of the great Ocala National Forest—where few individuals have the privilege of owning land. Isolated yet accessible, with electricity. Good fishing, hunting, Warrantly Deed. Pitch tent, park trailer, burl lodge. Free maps and photos. Howard Vernor, DeLand, Florida, 32720. AD66LS149

U.S. And Brazilian Land . . . low as 40¢ acre! Free details! Land Digest, Box 11071-PE, Indianapolis, Indiana 46201.

HOW To Acquire Public Land—some \$1.00 acre. U.S.—Canada. Send \$1.00. Land Service, Box P4496, Washington, D.C. 20017.

\$1 ACRE—Canadian Border—hundreds campsites, islands, farmlands, directly from tax authorities. (Non-profit). Lists, photographs mailed. Register, Room 303, 110 Church Street, Toronto 1, Canada.

ABANDONED Timber Leaslands! Choice 640 acre Sportsmen's paradises still available—\$20.00 plus . . . \$6.50 taxes yearly. Maps, pictures, \$2.00 (refundable). Director, Erindale 4, Ontario, Canada.

BUY Without risk for retirement, vacation, or investment—under America's only "No-Risk Purchase Plan"—in Carolina Coast multi-million dollar, 14,000-acre development, 10 year money-back guarantee. Payments less than \$5.00 monthly Shopping Center, motel, hunting, fishing, golf, country club, right on property. Private ocean beach. Write for free literature. (Not offered to residents of California, Florida, New York.) Boiling Spring Lakes, Southport 1-G, North Carolina 28461.

MONTANA—Riverfront lots for sale on the beautiful Kootenai River. \$10.00 down and \$10.00 per month. Mountain Empire Company, Box 203-P, Libby, Montana 59923.

CANADA'S Finest lands. \$4.00 an acre and up. Acquired through estate liquidations. Suitable for hunting, fishing, camps, cottages, farming, timber, minerals, investment. Small monthly payments. Free descriptive booklet. Canadian Estate Land, 194 Wilson Ave., Suite 101, Toronto, 12, Canada.

FREE!!! New illustrated **SUMMER** catalog! Describes hundreds of farms, ranches, homes, businesses, vacation, retirement and waterfront properties coast to coast! Specify type property and location preferred. Zip code, please. **UNITED FARM AGENCY**, 612-PM West 47th St., Kansas City, Mo. 64112.

NEW! FREE! Big 180 page Summer **CATALOG!** Thousands of properties described, pictured—Land, Farms, Homes, Businesses—Waterfront, Recreation, Retirement. Selected Best thruout the U.S. 67 Years' service, over 300 Offices, 37 states Coast to Coast. Mailed **FREE** from the World's Largest! **STROUT REALTY**, 60-RX, E. 42nd St. N.Y., N.Y. 10017, 7-RX, S. Dearborn St., Chicago, Ill. 60603, 521-RX, E. Green St., Pasadena, Calif. 91101.

FLORIDA Hills homesites wooded \$120. \$10 Monthly. Big developments nearby. Thompson, Lecanto, Florida 32661.

FARMS - RANCHES! All Sizes — All Prices! For **FREE** Lists Write **BANNER** Adv., Box 3333 GS, 19A, Springfield, Mo. 65804 "Real Estate Our Specialty"

AUSTRALIA Needs you: Information on jobs, hours, wages, living conditions, taxes, assisted transportation to Australia. Requirements for acquiring land for ranches, farms, dairys. Price of land, livestock, other information with maps. \$2.00. air mail \$3.00. E&O Pub., Dept. 304, Box 4037, Dallas, Texas 75208.

FLOWERS, PLANTS and NURSERY SUPPLIES

WANT Greatest cash crop working for you? Write Ginseng, Asheville 53, N.C.

NEW **REVOLUTIONARY** **GARDEN HOSE NOZZLE**. At last—a guaranteed leakproof nozzle. Brass, powerful adjustable spray—mist to jet stream. \$2.29 pp. T-BAR, 5259 Cherry Ave., Long Beach, California 90805. **DISTRIBUTORS WANTED.**

HYDROPONIC Gardening—Grow superior vegetables without soil! Formula—Plans \$1.00. Hydroponics, Box 20353, St. Petersburg, Florida 33702.

HOME CRAFTSMEN

SKIL-CRAFTS New 200-page '67-'68 Catalog. Largest selection of Leathercraft, Artist, Hobby and Craft Supplies from one source. Send 50¢ (refunded with first \$5 minimum catalog order). Skil-Crafts, Box 105-P, Joplin, Missouri 64801.

CABINETMAKING MADE EASY and "How to Make Formica Counter Tops," two excellent guides let you build kitchen cabinets and counter tops like professionals. Extraordinary guides bring master craftsmen's shortcut methods. Satisfaction guaranteed. Write: Japs, 126-P Seventh North, Hopkins, Minn. 55343.

101 PATTERNS Of smart gifts, novelties, shelves, action windmills plus "Make Money Jig Sawing," \$1.00. Mastercraft, 55M, 7041 Olcott, Chicago 60631.

FREE!!! Copyrighted, illustrated, document reveals 4 ways mitering picture frame moulding. Distinctive, original designs, moulding available. Inexpensive. Write. Expect the unexpected. Japs, 126-P, Seventh North, Hopkins, Minnesota 55343.

WALNUT And Cherry tapered legs, lumber, gunstock blanks, picture frame moulding. Midland Lumber Company, Box 262, Savannah, Missouri 64485.

STAINED Glass instruction booklet, #1 cathedral glass, 6' lead, \$3.00. Free price list. 10 patterns, \$1.00. Whittemore-Durgin, 145 Water St., Quincy, Mass. 02169.

WALNUT And Cherry tapered legs, lumber, gunstock blanks, picture frame moulding. Midland Lumber Company, Box 262, Savannah, Missouri 64485.

FREE! Big 80 page Leathercraft catalog. 100's of new items! MacPherson Bros., Dept. K, 730 Mission St. San Francisco, Calif. 94103. Please include your Zip Code.

2512 PLANS, Patterns, things to make, do. Fun. Profit. World's greatest selection. Catalog 25¢. Craftplans, 18250-A Harwood, Homewood, Ill. 60430.

FOUNDRYETTE 2400" F., 1½ to 48 lb. capacity. Descriptive circular, send 10¢ for postage. Kansas City Specialties Co., Dept. P-5, 2805 Middleton Beach Road, Middleton, Wisconsin 53562.

AMAZING New product gives the elegance of fine cabinetry to unattractive furniture, doors, etc. Inexpensive and easy to do. Catalog 25¢. Artiron Inc., 4120 Sepulveda Blvd., Culver City, California 90230.

PLANS for pool table with extra two-face top for table tennis and model railroad. Blueprints B1209 and building instructions \$3.50. Popular Mechanics Service Bureau, 575-M Lexington Ave., New York, N.Y. 10022.

UPHOLSTERY

LEARN And earn. New upholster's handbook in hard cover takes you step by step with easy to follow instructions and illustrations. Teaches you a profession in your spare time. Send check or money order for \$3.50 to Aanstac, Inc., Dept. 27, 111 Harrison Ave., Harrison, New Jersey 07029. **FREE** supply catalog with order.

DO-IT-YOURSELF

PAINT Your own wall mural! Inexpensive, easy paint-by-numbers pattern kit includes oils, brushes—everything! 35 Decorator designs. Color catalog 10¢. Muralart, 1401-A2W Birch, Newport, Calif 92660.

AUTOMATIC Washer repair manuals any make, model. 13 Different manuals, \$2.75 each postpaid. Dryer repair manuals for G.E. Kenmore, RCA Whirlpool, \$2.75 each postpaid. Major Appliance, 13108 Caine Ave., Cleveland, Ohio 44105.

BE Two Inches Taller Instantly. Simply slip these invisible pads in your shoes. Success and romance should follow. State man's or woman's shoe size. \$1.98 per pair. Free literature. National Laboratories, Box 1531, St. Petersburg, Florida 33731.

LAWNMOWER Electric starter for rope pulled engines. Avoid overexertion. Build yourself, easy, inexpensive. Plans \$1.00. Lawnmower Division Goodwill Industries, 600 East Beecher St., Adrian, Michigan 49221.

REPAIR Your room air-conditioner. Easily understood manual. Send \$3.00—BILL'S APPLIANCE, Box 878, Opa-Locka, Florida 33054.

GARAGE DOOR OPENER 19.95 Car activated - easy installation - no electricity. Details free. Wellington Products, Box 611-E Times Square Sta, New York 10036.

SWIM Pool Kits. Permanent, In-ground—Simple installation—Financing. Recreation Supply Company, 605 East Kensington, Arlington Heights, Illinois 60004.

THIEFPROOF Your car. Send for "Combo" kit. Complete instructions only \$9.95. Harry Flanagan, 3011 Gardner, Simi, California 93065.

THE AMAZING A-FRAME. How to pre-fabricate and erect many different size cabins. 16'x20' cabin can be built for under \$400.00. Erection and exterior finish in less than a day. Start this simple project at home now. In a few evenings you will be ready to deliver to your lot. Complete plans and instructions \$20.00. Modern Home Planning, 3518 South 92nd Street, Tacoma, Wash. 98409.

SAVE Money on Naugahyde and Vinyl repairs. Send \$1.00 to AMH Co., Box 5386A, Santa Ana, California 92704.

WATER!! Amazing new \$175. machine drills wells to 200' deep. Information \$1.00. Refundable. Deeprock Drilling Company, 111 Trafco, Opelika, Ala. 36801.

FREE Check-list covering more than 300 classifications of projects, plans, instructions, service and repair information detailed in Popular Mechanics famous series of instructional booklets, books, patterns, and blueprints. List covers an extremely wide variety of do-it-yourself data on home remodeling, repair and improvement, hobbies, crafts, boating, games, lawn and garden, and hundreds of others. For your free copy of this helpful list, write: Service Bureau, Popular Mechanics, 575 Lexington Ave., New York, New York 10022.

EXERCISE At home on build-it-yourself physical fitness equipment, including bicycle exerciser, rowing machine, belt massager, and abdominal board. Send \$2.50 for blueprints B1208 and instructions. Popular Mechanics Service Bureau, 575-K Lexington Ave., New York, N.Y. 10023.

ARTS AND CRAFTS

GOLD Charms, rings—It means more when you make it yourself. Materials, information 3.00 prepaid. Refundable first casting order. Sedco, Box 291, King of Prussia, Pennsylvania 19406.

MAKE Figurines, plaques, lawn ornaments, molds, plastercraft kits, liquid rubber. Sample and catalogue 10¢. Wooley Company, Box 29-B, Peoria, Illinois 61601.

2500 DIFFERENT Plastic molds, figurines, crafts. Catalog 25¢. Steece Bros., Box 177-PM, Sioux Falls, So. Dak. 57101.

BINOCULARS, TELESCOPES, MICROSCOPES, MAGNIFIERS

SCIENCE Bargains! Lenses, telescopes, binoculars, microscopes, kits, parts, war surplus. Send \$1.50 for beginner's 10-lens kit with instruction booklet. Order Stock 2-CH. Request free 148 page Catalog CH Edmund Scientific Co., Barrington, New Jersey. 68007.

WORLD Famous "Dynascope" Telescope. Build your own reflector telescope: mirrors, eyepieces, tripods, accessories. Request free brochures. Criterion Manufacturing, Dept. PP 6, Hartford, Connecticut 06101.

BINOCULAR Sale! Free color catalog 100 models \$9.95-\$250.00. Write, United, 9043 So. Western BCAT-6908, Chicago 60620.

BINOCULARS Direct from manufacturer. Finest quality, tremendous savings! Request catalog. Koyu, 3860 Crenshaw Blvd., Los Angeles, Calif. 90008.



CAMERAS AND EQUIPMENT

CAMERAS FOR SALE? Photographic Equipment? Popular Mechanics readers take pictures—lots of them, too. Your ad here will reach more than 1,550,000 avid photo bugs. Write for details: C. A. Martin, Dept. 49, Popular Mechanics, 575 Lexington Avenue, New York, N.Y. 10022.

PHOTO SUPPLIES

PICTURE Takers need materials—and Popular Mechanics' readers are picture takers. Tell them about your photo supplies by placing a Small Classified ad in this space. Reach more than 1,550,000 readers. Write: C. A. Martin, Dept. 50, Popular Mechanics, 575 Lexington Avenue, New York, NY 10022.

PHOTO FINISHING

FAST, Hi-quality finishing. Kodacolor rolls: eight Jumbo prints \$1.98. Twelve \$2.49. Twenty \$3.49. Reprints 15¢. Also low B&W prices. Custom Quality Studio, Box 4838-PM, Chicago 60680.

FREE Kodacolor Film with roll developed and enlarged. 8 exposure, \$1.85; 12 exposures, \$1.98; 20 exposures, \$3.25. Failures credited. 30-Day Trial with this ad only. Skrudland Photo, Dept. PM, Lake Geneva, Wisconsin.

A FREE Kodak roll returned with each black and white or Kodacolor developed and printed, fast service, lowest prices, guaranteed quality send for free mailers. Economy Photo Service, Dept. P.M., Box 1111, Albany, N.Y. 12201.

FREE Film! Quality service, custom finishing, rapid! Send for bags, Quality Photo, Box 212, Downingtown, Penna. 19335.

SPECIAL WITH THIS AD—Kodacolor developed 8 prints \$1.75; 12 prints \$2.25. Black & white developed 2 prints each Jumbo size 8 exposures 50¢—12 exposures 70¢. Good for April only. LENS PHOTOS, Dept J-4, Janesville, Wis. 53545.

CAMERA Fans! Expert photofinishing and free film returned: 8MM Kodachrome \$3.10; 8 Exp Kodacolor \$3.10; 8 exp black & white 90¢. We give you free photo stamps to redeem for gifts. Satisfaction guaranteed. Send exposed film or request mailers and complete price list. Direct Mail Photo, Box 8352-PM, Pittsburgh, Pa. 15218.

COLOR SLIDES

ROLOC Covers The World, 21,000 subjects from over 100 countries. Production by Lt. Col. Arps. A.U.S. Ret., insures quality. United States catalogue, 6000 subjects, 25¢. Foreign lists, 10¢ each. Fill in scenes you missed, selecting only those desired. Roloc, Box 1715-S, Washington, D. C. 20013.

35MM COLOR SLIDES, FREE Catalog, finest worldwide selection collected over 20 years. Wolfe, Dept. 14-47, Los Angeles 90025.

MOTION PICTURES AND SOUND EQUIPMENT

16MM sound-projectors, films, new, used for sale. Free catalog. National Cinema, 333 W. 57 Street, New York City, N.Y. 10019.

5,000 8-16 MM, Movie films. Free catalogues. International, Greenvale, N.Y.

8MM, MOVIES—2"x2" Color Slides—biggest selection anywhere! Hollywood classics, great comedians, railroads, automobiles, trolleys, wars, travel, wild life, circuses, many others! 16mm, films also.. Big catalog free! Blackhawk Films, 86 Eastin-Phelan Bldg., Davenport, Iowa 52808.

16MM Sound films features and shorts. Bedner, 5300 So. Talman, Chicago.

IMPERIAL'S 1967 8MM-16MM film catalog free. Features shorts, projectors. Imperial's, 34 Park Row, New York 10038.

FREE Catalog! Save on 8/mm.-16mm. film and supplies. Superior, 448 N. Wells, Chicago 60610.

RADIO, TELEVISION AND HAM EQUIPMENT

BRAND New tubes. World's lowest prices on radio, TV-industrial, special purpose tubes. Write for free parts catalog. United Radio, Newark, N.J.

33¢ RADIO & TV tubes. Free list. Cornell, 4213-17 University, San Diego, California 92105.

POLICE — FIRE — AIRCRAFT — AMATEUR CALLS on your Broadcast radio—Tune The Band—Only \$29.95! Free catalog. Salch Company, Woodsboro P5, Texas 78393.

FREE Electronics catalog. Tremendous bargains. Send postcard. Electrolabs, Department C-663B, Hewlett, New York 11557.

GOVERNMENT Surplus receivers, transmitters, snooper scopes, parts. Catalog, 25¢. Meshna, Nahant, Mass. 01908.

EXCEPTIONAL VALUE in Portable Monitor Receivers. Details: Griffin's, 322 West State, Ithaca, N.Y. 14850.

TELEVISION Camera kits. Easy—Economic—Exciting! Catalog 10¢. ATV Research, Box 396-PM, South Sioux City, Nebraska 68776.

HIFI, RECORDS AND ELECTRONICS

TAPE Recorders, hi-fi components. Sleep learning equipment, tapes. Unusual values. Free catalog. Dressner, 1523C Jericho Tpke., New Hyde Park, N.Y. 11040.

STEREO Tapes. Save up to 60% (no membership fees, postpaid anywhere USA). Free 60-page catalog. We discount batteries, recorders, tape accessories. Beware of slogans "not undersold." as the discount information you supply our competitor is usually reported to the factory. Saxitone, 1776 Columbia Road, Washington, D.C. 20009.

EXCLUSIVE Free catalogue: extraordinary hard to find hobby party records. Record Suppliers, 300 Chelsea, Louisville, Kentucky 40207.

DIAMOND PHONO NEEDLES, \$3.95. One year guarantee—send old needle and remittance. R.C.A., 12208 So. 71 Hiway, Grandview, Missouri 64030.

200 LP Records Rack. Black Wrought Iron, 10 compartments. Shipped express prepaid, \$17.95. Leslie Creations, Box 10535, Pittsburgh, Pa. 15235.

TELEPHONE RECORDER-ACTUATOR (TWI-007). Solid state module automatically turns tape recorder, amplifier, or light on when telephone in use. Connected anywhere on line. Simple installation instructions included. Prepaid \$21.95. Surveillance recorders: (TWI-1000), (TWI-1010). Twilight Electronics, Box 11595-M, St. Louis, Missouri 63105.

FREE Catalog. Electronic parts, tubes. Wholesale. Thousands of items. Unbeatable prices. Arcturus Electronics PM, 502-22 St., Union City, N.J. 07087.

RECORDS! Discounts on all LP's. Free details. Citadel Record Club, 545 Fifth Ave., Dept. 2, New York 17, N.Y.



MUSIC AND MUSICAL INSTRUMENTS

GUITARS, \$11.95. Electric double pickups with tremolo bar, \$49.95. Accordions, \$125.00. Concertinas, \$350.00. Drums pearl set, \$99.00. Wind instruments \$39.95. Free catalogues. E.Z. Terms. Melody Music, 4951 W. 95th St., Oaklawn, Ill. 60453.

PLAYER Piano books. Free catalog. Vestal Press, Vestal 11, N.Y. 13850.

PIANO Self-Teaching Book. Includes popular, classical, harmony theory, chords, scales. Price \$5.00. LaPont Publishing Company, Box 606-P, Franklin, Michigan 48025.

GUITAR, Banjo Making books. Plans, woods, necks, tools. List 20¢. Satinwood, 510 East 11th Street, New York, N.Y. 10009.

SONG Ideas wanted. Write with active professional songwriters with publisher contacts. Records made. Share royalties. Send ideas—free examination. Songwriters' Associates, 236 W. 55th, N.Y. 10019P.

ACCORDIONS, GUITARS, BAND INSTRUMENTS! Save to 50%. Famous makes. Easiest terms. Trades accepted. Free home trial. Free discount catalog. Mention instrument. **INTERNATIONAL MUSIC MART**, 5535-R Belmont, Chicago 60641.

VIOLIN And guitar makers. send for latest Free catalogue of woods & accessories. International Violin, PM-5, 414 East Baltimore St., Baltimore 2, Md.

POEMS Wanted for new songs and records. Send poems. Five Star Music, 6M Beacon, Boston, Mass. 02108.

SONGS. Poems wanted! Accepted songs published, recorded at our expense! Talent, 17-PM Longwood Road, Quincy, Mass. 02169.

POEMS Wanted for new songs and records. Send poems. Crown Music, 49 - C West 32, New York 10001.

ELECTRIC Guitars, amplifiers, wholesale. Free catalog. Carvin, PMM, Covina, Calif. 91722.

CONCERTINAS. New and used. Tuning, repairing and remodeling of all makes. Write for brochure. Star Concertina Mfg. Co., 2351 Milwaukee, Chicago 60647.

SONGPOEMS. Songs for recording wanted. Royalties, copyright, publishing secured. **SONG ARCADE, INC.** 1472 Broadway, New York, N.Y. 10036.

SONGPOEMS Wanted. Send poems for offer. Nashville Music Institute, Box 532-PM, Nashville, Tennessee.

SONGWRITERS Wanted! Send song material for recording consideration. Tin Pan Alley, 1650-P Broadway, New York 10019.

USED Fender, Gretsch, Ricken Backe Guitars, Amplifiers. Many others. Bulletin, 25e. Hills, 3526 California, Peoria, Ill. 61603.

ACCORDION Top brands. Buy direct. Tremendous discounts. Trade accepted. Free brochure PM. **Accordion-O-Rama**, 874 Broadway, N.Y.C. 10003.

DRUMS. Electric guitars, amps, organs. Free catalog M: A.L.A.S. Import Company, 31 East 18th Street, NYC, 10003

PLAY Guitar — Piano — Accordion. Unique, Gov't. approved courses. One dollar—refundable—brings valuable demonstration record. Institute, Dept. M, Box 282, Beachwood, N.J. 08722.

ACCORDIONS. Tuning and repairing, remodeling of all makes. Star Accordion Mfg. Co., 2351 Milwaukee, Chicago 60647.

GUITARS Amps, wholesale. List \$1.00. L.M.I.C., Box 162, Burton, Texas 77835.

ACCORDION Manufacturing, 6343 - P South Ashland, Chicago, Illinois 60636. Piano Accordions, Chromatics, Hohners, Concertinas, Guitars, Drums, Band Instruments. Wholesale Catalogs Free.

REGISTER Your rebuilt player piano nickelodeon. Information. Player Piano Hobblist, 17 Delmar Street, Binghamton, New York 13903.

EDUCATION AND INSTRUCTION

FCC FIRST Class license in 6 weeks—Results guaranteed—Nation's Highest success rate. Write Elkins Institute, 2603D Inwood Road, Dallas, Texas 75235.

LEARN Civil and criminal investigation at home. Earn steady, good pay. State age. Institute Applied Science, 1920 Sunnyside, Department 165, Chicago, Illinois 60640.

PROFESSIONAL Engineering, electronics. Free prospectus. CIST, Suite 805, 263-A Adelaide Street West, Toronto, Canada.

OWN Collection agency. "Little Gold Mine!" Franklin Credit, Roanoke, Virginia 24004.

PASS Civil service examinations. Alena, 1513 64th Street, Brooklyn, New York 11219.

PIANO Tuning pays. Big money in spare time. Learn at home. No musical knowledge necessary. Phonograph, records, tools and instructions furnished. Electronic tuning also taught. Free catalog. Capital Tuning School, 3160 S.W. 16th Court, Ft. Lauderdale, Fla.

DETECTIVE Training—for free information write to: 1917M, North Kenneth Ave., Chicago, Illinois 60639.

COMPLETE YOUR HIGH SCHOOL at home in spare time with 70-year-old school. Texts furnished. No classes. Diploma. Information booklet free. American School, Dept. 545, Drexel at 58th, Chicago, Illinois 60637.

BOOKKEEPERS. Operate your own "Dollar-A-Week" system. Ellis, Box 200, Cedar Grove, North Carolina.

MEN Wanted. Earn \$125 a week and up. Master a trade with a future. Learn auto diesel mechanics in our shops. You learn with tools on real equipment. Earn while you learn. Many of our graduates earn \$125 a week and up. Write for free bulletin: Dept. 256, Auto Diesel College, Nashville 3, Tenn.

PIANO Tuning quickly learned with home study course. Diploma granted. American Tuning School, Gilroy, Calif. 95020.

DETECTIVE Course. Free information. Universal Detectives, Box 8180-F, Universal City, California 91608.

MISSOURI Auction School. Free catalog! 1330-03 Linwood, Kansas City, Mo. 64109.

HIGH School diploma at home. Licensed teachers. Send age, highest grade completed for free detail. No salesman will call. Southern States Academy, Professional Bldg., Dept. 16, Decatur, Ga.

INVESTIGATOR'S Course. Credentials, diploma. Free information. Southwestern Institute Criminology, Box 201, Geronimo, Oklahoma.

BE A Real Estate Broker. Big earnings. Free catalog. Weaver School of Real Estate, 3519-P Broadway, Kansas City, Missouri 64111.

SWEDISH Massage and physical culture pays big profits. Learn at home. Diploma. Free catalog. National Institute, Dept. E57, 307 North Michigan, Chicago 1.

USED CORRESPONDENCE courses and books sold and rented. Money back guarantee. Catalog free. (Courses bought.) Lee Mountain, Pisgah, Alabama.

PRE-PATENT IDEA WRITING: Editing service. Details \$1.00, self-addressed-stamped envelope. Clifford Johnson 1345 4th Avenue, PM, Rockford, Illinois 61108.

GET A British degree. Divinity, Philosophy, Radionics, 35 courses. Prospectus free. Brantridge Forest School, "Lodge" Brantridge Forest, Balcombe, Sussex, England.

USED Courses! Books! List 10¢. Smith's, 124 Marlborough, Salem, Mass. 01970.

AUTOSUGGESTION. Sleep-learning headquarters! Tapes, records, books. Gigantic catalog free. Research Association, Box 24-PM, Olympia, Washington.

LEARN Auctioneering. Term soon. Free catalog. The Reich American School of Auctioneering, Inc., Box 850, Mason City Iowa 50401.

FREE Bible course. Degree, PM, 143 South Gregg, Charlotte, N.C. 28208.

PENMANSHIP Corrector. Improve poor penmanship quickly. Details free. Ozment, Box 665-34, St. Louis, Mo. 63188.

PIANO Technology — Electronic organ servicing, learned easily at home. G.I. Approved. Free booklet. Niles Bryant School, Dept. P, 3631 Stockton, Sacramento, California 95820.

LEARN Asleep or awake! Records, tapes, equipment! Free catalog! Drawer, PM-400, Ruidoso, New Mexico 88345.

MINISTERIAL Extension courses. Send for entrance examination. Soms, 887 West Spruce, Ravenna, Ohio 44266.

PENMANSHIP IMPROVER: Improve poor writing quickly. Ornamental writing. Details free. Tevis, Chillicothe, Mo. 64601.

TOUCH Typing simplified—ten lessons \$5.00. G. Dews, 750 West 47th, Kansas City, Missouri 64112.

LEARN Expert cake decorating, catering, candymaking. Free details on home instruction. Candy & Cake, Dept. ATD, 1600 Cabrillo, Torrance, Calif. 90501.

SLY Secrets of Sudden Success "... legitimate; yet tremendously effective..." \$1.00. Box 10601, El Paso, 79996.

BIG Money is made as Real Estate Broker. Qualify for state examinations. Study at home. Write for free literature. Realtors Service, Dept. P., Box 31666, Omaha, Nebraska 68131.

WATCH REPAIRING. Learn to repair American and Swiss watches in spare time at home. Tuition \$5 monthly. Diploma awarded. Free sample lesson. No obligation. Chicago School, Dept. YR; Fox River Grove, Illinois, 60021.

DENTAL Technician's Home Study Kits!! Write for free lesson. Grant Laboratory, Box 493, Camino, Cal. 95709.

USED Courses, books. Catalog 10¢. Bayles, 78B Courtright, Wilkes Barre, Pa. 18702.

"SHORTHAND in 4 Days." \$3.00. Logsdon Enterprises, Station E, Box 8153, Louisville, Kentucky 40208.

GRASP Algebra, Calculus, fast. 4 lessons \$1.00. Kencoa, Box 167, West Chester, Ohio 45069.

AUTOMOTIVE Electronics and Mechanics Course. Free Aptitude Test, No Obligation. Delta Automotive Institute, 2313 N. Causeway Blvd., Metairie, Louisiana 70001.

EARN College or High School diploma at home. Ohio Christian College, 1156 Striebel Road, Columbus, Ohio 43227.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

EARN College Credits And Degrees through correspondence, and examinations. William Darren University, Fourteen North Central Avenue, Phoenix, Arizona 85002.

BECOME A Detective. Modern home training methods. Diplomas awarded. Men and women urgently needed in industry and government positions. Write: Alabama School, Box 185-P, Fairfield, Alabama 35064.

INVENTORS: Your ideas and inventions (patented; unpatented) expertly searched, developed for commercial appeal and cash/royalty sales to manufacturers by professional Invention Developer with excellent record of experience. B.S. Industrial Engineering; United States Patent Office former Patent Examiner. United States Government former Patent Advisor. Second decade reliable service! Member: United States Chamber Commerce, Free "Invention Record" and "Recommended Protection Procedure." Airmailed! Write: Raymond Lee, Invention Developer, 130-N West 42nd, New York City 10036.

PROFESSIONAL Patent searches, \$6.00 including official U.S. Patent Office copies of related U.S. patents! Prompt, dependable service. Certified, airmailed! For free "Invention Record Folio" and important patent information every inventor should have, write: United States Inventors Service Company, 501-P Thirteenth Street NW, Washington, D.C. 20004.

DRAFTING Service For Inventors. Drafting, 77 Surrey Lane, Hempstead, N.Y. 11550.

INVENTORS: Assistance with any problem. Searches, Applications prepared. All types. Design, chemical, mechanical. Time payment plan. Free information. Write: International Invention Service, Dept. 25; 160 Broadway, New York, N.Y. 10038.

INVENTORS! Get your "Little Piggy" to market via tested, most direct route. Highest cash or royalties. Financial assistance available. New York Invention Service, Dept. 1, 160 Broadway, New York, N.Y. 10038.

PATENT EXCHANGE NEWS & REPORTER. Professional publication for inventors. \$5 yearly, 12 issues, 26 Broadway, New York 10004.

IF Your invention is adaptable to promoting we will contract for selling on cash or royalty. Free booklet outlines royalty rates, requirements. Kessler Corporation, C-55-FI, Fremont, Ohio.

PATENT Drawing: by qualified patent draftsman. 2542 N. 73, Milwaukee, Wis. 53213.

PATENT Searches complete and thorough. Related copies Air Mailed with maximum speed \$6.00. Free "Protection Forms" and "Patent Information." Write American Patent Search Company, Dept. 27, 711 14th St., N.W. Washington, D.C. 20005.

"INVENTING For Pleasure and Profit"—how to develop and market inventions. By renowned professional inventor and creative engineer. Single copy \$2.25 postpaid, money order only. WALDROP ENTERPRISES, 805 West Bowie, Arlington, Texas 76010.

INVENTIONS WANTED

INVENTORS! Outright cash sale or royalties for your inventions. Patented. Unpatented. Active demand from our client manufacturers. Financial assistance available. Write Dept. 36, United States Invention Brokerage, 78 Wall Street, New York, N.Y. 10005.

INVENTIONS Wanted. Patented: unpatented. Tremendous manufacturers lists. Global Marketing Service, 2420G 77th, Oakland, California 94605.

INVENTORS! Sell your invention for cash or royalties! Our client manufacturers eagerly seek new items. Patented. Unpatented. Financial assistance if needed. 25 Years proven performance. For free information, write Dept. 15, Gilbert Adams, Invention Broker, 80 Wall St., New York, N.Y. 10005.

INVENTORS! Don't sell your invention, patented or unpatented, until you receive our offer. Eagle Development Company, Dept. H, 79 Wall Street, New York 5 N.Y.

WE Either sell your invention or pay cash bonus. Write for details. Universal Inventions, 298-E, Marion, Ohio.

INVENTORS Wanted: Manufacturers need new items! Your inventions, ideas developed for cash royalty sales. Free "Invention Record": Information. Raymond Lee, 130-P West 42nd, New York City 10036.

INVENTORS: PROTECT YOUR IDEAS! FREE "RECOMMENDED PROCEDURE." Washington Inventors Service, 422F, Washington Building, District of Columbia 5.

INVENTORS! Thousands have gone from "Rags to Riches" this safe, sure way. Custom-tailored, personalized program. Contact the organization with "Know-How." Pioneer Invention Service, Dept. 83, 150 Broadway, N.Y. 10038.

INVENTIONS Wanted immediately by blue-chip companies. Top cash or royalties. Do nothing 'til you hear from us. Write, wire, phone: Wall Street Promotions, Inc., Dept. 42, 99 Wall Street, New York, N.Y. 10005. (212-425-2280)

INVENTORS—Do you want to sell or license your invention on cash or royalty basis? Write: Kessler Corporation, C-55-IW, Fremont, Ohio.

OUR Computer matches your inventions with manufacturers' requirements. No royalties to pay! Just one small fee. Free details. Valentine, 543A East McDowell, Phoenix, Arizona 85004.

INVENTORS! We will develop, sell your idea or invention patented or unpatented. Our national manufacturer-clients are urgently seeking new items for highest outright cash sale or royalties. Financial assistance available, 10 years proven performance. For free information write Dept. 47, Wall Street Invention Brokerage, 79 Wall Street, New York 5, N.Y.

PATENTS FOR SALE

TELL The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 59A, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

MANUFACTURING

MODELS — Small lot manufacturing. Metals, plastics, etc. Milburn, Burlington, Kentucky 41005.

BUY IT WHOLESALE

ELECTRIC Guitars, amplifiers, wholesale. Free catalog. Carvin PMW, Covina, Calif. 91722.

TREMENDOUS Wholesale bargains. Half-million nationally known products. Rockbottom prices. Closeouts, bankrupts. Dropship merchandise. Automobiles. Worldwide imports. Hongkong clothes. Free details. International Buyers, 216-M, West Jackson, Chicago, Illinois 60606.

100,000 BARGAINS! Wholesale! Closeouts! Imports! Wholesalers. 1265-MP Broadway, New York, N.Y. 10001.

HEARING Aid batteries wholesale. National Wholesale Battery Company, P.O. Box 825, Wichita, Kansas 67201.

NEW 6-Color Deluxe below wholesale catalog. Automobile catalog and others. Housewares, clothing, suits, furs, shoes, furniture, rugs, appliances, refrigerators, washers, dryers, polishers, dinnerware, teflon, cookware, radios, televisions, stereos, phonographs, records, cameras, projectors, recorders, musical instruments, organs, typewriters, books, vitamins, shavers, wigs, binoculars, luggage, sporting goods, golf, bowling, game tables, guns, power tools, rider mowers, tractors, boats, motors, scooters, bicycles, watches, diamonds, jewelry. Huge discounts on thousands of name-brand products. For free list (factory prices) postcard: Selbyco-5, Decatur, Illinois 62522.

\$1.00, PATENTED Metal chest pocket handkerchief holder. Rula Sales, Box 5, Winston Salem, North Carolina 27102.

LOWEST WHOLESALE PRICES—Thousands of items. Earn commissions recommending to friends (no selling). FREE information. Universal, Box 6961A, Nashville, Tennessee 37215.

BARGAINS! Buy wholesale and below. Name brands. Appliances, furniture, sports equipment, televisions, cameras, watches, jewelry, thousands more. Huge discounts to \$1,000.00 on new automobiles. All makes. Free details. Write today: Worldwide Bargainhunters, Box 730-A, Holland, Michigan 49423.

EXPORT-IMPORT

"EXPORT Import without capital" \$5; Hong Kong Exporters \$2.50; Japan \$2.50. Germany \$2.50. Import journal sample \$1. All five items \$12. SJP, 25 Thames Crescent, Maidenhead, Berkshire, England.

FOR THE HOME

SMOKY Fireplace? Correct own. Information \$5.00. Collins, 806-52nd Ave., Oakland, Calif. 94601.

OF INTEREST TO WOMEN

DRIVE New car, wear new clothes, buy color TV. Get daily cash income. Put spare hours to work. Write for 5 months free subscription Opportunity Magazine; see hundreds easy ways to make money. Opportunity, Dept. 17-EO, 850 N. Dearborn, Chicago 60610.

WOMEN! Make big money at home. \$10.00 profit in an hour possible with invisible mending. Make holes, tears disappear from clothing, fabrics. Steady year-round demand from cleaners, laundries, homes. Details free. Fabricon, 1533 Howard, Chicago, Illinois 60626.

RAISE Rabbits for us on \$500 month plan. Free details. White's Rabbitry, Mt. Vernon, Ohio 43050.

\$100 WEEKLY Possible assembling our products! United, Box 55392-D, Indianapolis, Indiana.

\$45.00 THOUSAND. Home addressing! Longhand, typewriter. Information, send stamped, self-addressed envelope. Brewster, Box 1626-J, Clearwater, Florida 33515.

TYPE AT HOME! Earn extra money. \$1 for information. Profit, Dept. 5M, 440 Arapahoe, Boulder, Colorado 80302.

MAKE Gorgeous original candles for all holidays and special occasions. Learn expert Candle decorating, candlemaking, use of professional molds. Free details on home instruction method. Candle Institute, Dept. LW, 1600 Cabrillo, Torrance, Calif. 90501.

FASCINATING Gift catalogue. Sewall, Dept. 275, Box 3024, Glendale, California 91201.

MAKE More money home-typing! Modern business methods—\$2.00. Dennis, Box 44PM, Ventura, California 93003.

\$100.00 WEEKLY Possible, sewing, assembling, our products! Charmers, Warsaw 9, Indiana 46580.

\$50-\$100 WEEKLY Possible home typing. Complete moneymaking instructions, \$1.00. Consolidated Services, Box 593, PM75, Bettendorf, Iowa 52722.

FAST Reducing Diet Program plus New Novelty Calorie Counter Free! Please enclose 25¢ to cover postage and handling. Botab Company, P.O. Box 267, Dept. 14, Tifton, Georgia 31794.

GIFT SHOPPING

IMPORTS FROM WORLD'S FOUR CORNERS. Unusual bargains, exciting gifts. Free circular. House of Rose, Box 518-PM, Pixley, California 93256.

TOWELS New—not seconds. 6 for \$1.00. Hostess aprons assorted colors. Lace print 3 for \$1.00. American, PO Box 481, Gary, Ind. 46401.

DISTINCTIVE Gifts Catalog mailed free. V. Zorovich, 121 McKinley Ave., Brooklyn, N.Y. 11208.

WATCHES, OLD GOLD, JEWELRY

CASH Immediately for old gold, jewelry, gold teeth, watches, diamonds, silverware, spectacles, platinum, mercury. Free information. Rose Industries, 29-A East Madison, Chicago 2.

WANTED. Gold, silver, platinum, scrap (any form), coins. Information free. Wilmot's, 1067-D Bridge St., Grand Rapids, Michigan 49504.

USED Elgin, Bulova, watches \$5 up. Free list. Southern Watches, 5-PM South Wabash, Chicago 60603.

USED Pocket watches — as is — 5 for \$25.00. Joseph Bros., 5 South Wabash, Chicago 60603.

HIGHEST CASH for Gold, Jewelry, Gold Teeth, Rings, Diamonds, Watches, Silver, Platinum, Mail Articles Today. Free gift with information. Chicago Gold & Precious Metals, 6 E. Monroe, Dept. 958, Chicago 60603.

WATCHMAKERS — Jewelers' supplies. Catalog 50¢. Bengal's, 10717 Venice, Los Angeles, California 90034.

WATCHMAKERS Tools, materials, supplies, watches, Catalog, Gales, Box 1000, Chicago 90, Ill.

PRECISION WATCH REPAIRING \$5.95. Clean, adjust most watches. Retired master watchmaker. 30 years experience. Guaranteed! Enclose remittance, save C.O.D. Precision, Box 7704, Atlanta, Ga. 30309.

OVERNIGHT! Higher payment! Gold-Silver-Platinum-Mercury. Any sort scrap, jewelry! Send articles now. Metalics, 380 Mentor, Pasadena, California 91106.

WATCH And clock repairing books. Free catalog. North American, Box 77-AE, Fox River Grove, Illinois 60021.



SCIENCE AND CHEMISTRY

ROCKETS! Flight kits, testing equipment. Catalog 25¢. Rocket Development Corporation, Route 3, Seymour, Indiana 47274.

CHERRY Bomb fuse, water proof 25 feet with formulas, instructions \$1.00; 125 feet \$4.00 Postpaid. Free catalog. Zeller, Box 638, Hudson, Michigan 49247.

FIREWORKS! Rocket fuels! Explosives! Easily prepared formulas \$1.00. U.S. Pyrotechnics, Box 0234, Cedarhurst, N.Y. 11516.

FREE Periodic classification of elements and conversion tables with catalog 25¢. Chemicals, apparatus, biology. Mid-States Scientific, 7053 N. Clark, Chicago, Ill. 60626.

CHEMICALS And apparatus for industrial, analytical, and private laboratories. Catalog 35¢, Dept. M-50. Biological Supply Co., 1176 Mt. Hope Ave., Rochester, N.Y. 14620.

EXPLODING Booby traps, contact explosive, fireworks, Formulas \$1.00. Import, P.O. Box 71, Pottsville, Pennsylvania 17901.

ILLUSTRATED Catalog: Chemistry, mineralogy, biology 25¢. Tracey Laboratories, Evanston, Illinois 60204.

SKYROCKETS, Firecrackers, fireworks — Make your own! 60 simple formulas \$1.00; 30 smoke formulas, 15 colors \$1.00; 10 fuse formulas 50¢. Paloma Pyrotechnics, Box 247, Auburn 5, California 95603.

ROCKETS! 3 Solid fuel aluminum rockets — smoke trail, safety chlorate fuel. Complete, ready to launch — \$1.00. Pyrotech, Box 701-P, Manchester, Vermont 05254.

PERCUSSION Bombs — Explode when thrown down. Complete, non-commercial manufacturing procedure, formula, only \$1. Chemicals available. Technitome, Box 22, Berlin, New Jersey 08009.

ROCKETS: Real flying models — flights up to 2500 ft. New illustrated catalog 25¢. Single and multistage kit, cones, engines, launchers, trackers, rocket aerial cameras, technical information. Fast service. Estes Industries, Penrose 7, Colorado 81240.

FIREWORKS — Explosives — detonators. New manual reveals formulas, preparations, only \$2. Free with order. \$2 certificate for fuse. Pyrochem, Box 169, Berlin, New Jersey 08009.

PROFESSIONAL Fireworks fuse, burns underwater, 75 feet, \$1.00. Ecolabs, Box 99, Berlin, New Jersey 08009.

ROCKET Fuel for sale, engine making kits, free information. Rocfuel, 56 Cortland Ave., Dumont, N.J. 07628.

FIREWORKS Supplies, casings, end caps, plugs, chemicals, fuse, do-it-yourself kits, send 35¢ for samples and catalogue — Ecco, Box 189, Northvale, New Jersey 07647.

ROCKETS, Single, multi-stage kits, parts amazing Accelerometer. Illustrated catalogue 25¢. Rocket Supply, Box 51B, Tappan, New York 10983.

FREE Science Catalog if you state your zip code. Chemicals, glassware, physics, biology. Allen Laboratories, Box 1263, Mansfield 1, Ohio

SKYROCKETS! SUPER FIREWORKS! 28 Different types! — Complete, detailed instructions, diagrams, 75 formulas — rocket construction, aerial displays, fountains, fireballs, roman candles, mortars, colored flares, smokes, fuses, propellants, contact explosives \$1.00. Sentec-LD, 433 Ellis, San Francisco 94102.

UNDERWATER Fuse 54 feet plus fireworks catalogue \$1. — Christy, Box 85, Bergenfield, New Jersey 07621.

PLASTIC Embedders, jewelry workers. We have everything. Findings, moulds. New catalog 25¢. David Co., 861 Broad St., Dept. M, Providence, R.I. 02907.

ROCKET Manual — illustrated booklet describing model rocket construction, engines, launching. Send \$1.00. Vanguard Engineering, P.O. Box 1885, Pittsburgh, Pa. 15230.

LASER Pistol — \$1.00. Make a laser pistol. Instructions drawings, parts, manufacturers addresses battery or electric. Build a Laser Rifle. Continuous Laser. Chemical Laser, \$4.95 Each. Laser Catalogue 25¢. Roy Davis Laboratories, Dept. PM, Drawer 17067, Jacksonville, Fla. 32216.

LOWEST Prices! Chemicals, apparatus, specimens, minerals, magnets. Catalog plus circular slide rule gift. 35¢ Dissect-A-Kit, Box A55, Wantagh, N.Y. 11793.

FLYING SAUCERS — Build "Detector," inexpensive, instructions \$1.00. Christie, 111 Sterry, Playa del Rey, Calif. 90201.

FREE! \$6.00 worth of pyrotechnic and fireworks formulas with purchase of 50 cent catalog. To get hundreds of additional free formulas, see details in our catalog! Franks Scientific Co., P.O. Box 156, Martelle, Iowa 52305.

CONTACT Explosive — Explodes with touch of feather. Handled safely wet. Powerful Ideal for jokes. Applies like paint. Made from household chemicals. Results guaranteed. Complete instructions for making both kinds only \$1.25. Free! \$8.00 worth of explosives formulas and fireworks formulas with every order. Franks Scientific Co., P.O. Box 156, Martelle, Iowa 52305.

AERIAL Bomb kits! Professional, absolutely complete! Catalog 25¢. Tecko, Box 294, Westfield, N.J. 07090.

TIME CAPSULE — Go back in time 1000 or one million years. Build a time capsule. Make genetic and hereditary changes in plants and animals. A brand new science project. A winner. Instructions for building your own TIME CAPSULE including theory and explanation of the earth's force fields. Only \$4.95. Roy Davis Laboratories, Dept. PM, Drawer 17067, Jacksonville, Florida 32216.

LIQUID RUNS UPHILL. . . New scientific discovery! Demonstrated on "I've Got A Secret". As liquid flows, set container upright — liquid continues pouring! Flow stopped by cutting with scissors! Kit makes 2 gal. liquid; includes manual by discoverer. \$2.00. Elastic Water, 248 E. California, Pasadena 10, Calif. 91106.

FORMULAS! NITROCELLULOSE! Plastic! Water! Contact! Thermite! Ten Complete Super Formulas — \$1.00! — Explosives! Fireworks! Contact Explosive! Smoke, Flare Compositions! Others! 100 Formulas — \$1.00 — Chemicals! Having trouble buying? Directory lists 151 supply houses! — \$1.00! (limited supply) — Pyrotechnic, 380 Mentor, Pasadena, California 91106.

SEARCHING For economically priced chemicals and apparatus? Gifts with catalogue, 25¢. Starr Scientific, Manitowoc, Wisconsin 54220.

FORMULAS, PLANS, ETC.

FOR Proof of what you can do in specialty manufacturing get our literature. It's free! Miller, Chemist, 1517-P, Tampa, Florida 33601.

LATE. Modern manufacturing formulas. List free. Moen Chemical, Martville, New York 13111.

ENCYCLOPEDIA Of formulas, processes. Details free. Cassill, Box 1535, Eugene, Oregon 97401.

PLASTICS

PLASTICS for arts & crafts, fun & profit. See how easy it is to work with liquid plastics. Turn your plastics hobby into \$ for you. Send 50¢ for catalog to PMI, 1644 20th, Santa Monica, California.

NEW Liquid Casting Plastic sets hard like glass without heat. Clear, Colors. Embed real flowers, butterflies, photos, coins. Make beautiful things at home, sell at big profits. Illustrated Booklet shows How — Send 25¢. Dept. 67-101E, Castolite, Woodstock, Illinois 60098.

PLASTICS — Small plastic parts injection moulded. Submit drawing. D & D Plastics, Box 155, Marion, Michigan 49665.

PLASTIC Embedders, jewelry workers. We have everything. Findings, moulds. New catalog 25¢. David Co., 861 Broad St., Dept. M, Providence, R.I. 02907.

TREASURE FINDERS

NEW Canadian mineral, treasure map world's richest areas. Location's guaranteed plus free Great Lakes Treasure Folder. Send only \$2.00. Mineral Club Of Canada, 504A Victoria, Windsor, Ontario.

POWERFUL Metrotech locators detect gold, silver, coins, relics. Moneyback guarantee, terms. Free information. Underground Explorations, Dept. A, Box 793, Menlo Park, California 94205.

NEW Revolutionary selective transistorized metal detector. Push button tuning, automatic tuning, etc. Many models. Free catalog. Gardiner Electronics Co., Dept. 9, 4729 N. 7th Avenue, Phoenix, Arizona 85013.

PROVEN Sensitive M-Scopes locate coins, relics, gold, silver, etc. Guaranteed. Terms. Free fascinating booklet. Fisher Research, Dept. PM-7, Palo Alto, California 94302.

TREASURE. Find gold, silver, relics with super, powerful Detectron locators. Free information. Detectron, Dept. PM-5, P.O. Box 243, San Gabriel, California.

TREASURE. Gold, silver, relics. New 1967 detectors now available. Free information. Rayscope, Box 715, North Hollywood, California 91603.

URECON metal finder, 8" head, transistorized, \$37.50 delivered. Urpa, 6304 Beechwood, Sarasota, Fla. 33581.

FREE 84 Page detector catalog. General Electronic Detection Co., Box 67, Bellflower, Calif. 90706.

WHERE TO FIND Buried treasure, lost mines, ghost towns, battlefields, 1000's books, maps. Free catalog. Backcountry, Box 866-C, Tarzana, California 91356.

METAL Locator kits and assembled models from \$39.90. Terms. Transistorized models available. Free catalog. Electronic Applications, Dept. M Box 6095, Alexandria, Virginia 22306.

NEW For '67! Goldak Treasure Locators. Find coins, gold, silver. A profitable yet fun hobby. Goldak, Dept. PMC, 1544 W. Glenoaks, Glendale, California 91201.

FIND Buried coins, treasures, relics, New supersensitive, low priced detectors for land or underwater use. Free information. Sensitronix, 2225-C Lou Ellen, Houston, Texas 77018.

DRYWASHER — Gold Concentrator, plans for \$5.00, guaranteed. M. Bowser, 1675 Wilson, Upland, California 91786.

NEW Coin locators! Free literature. Howeco, 811-C Kansas, Atchison, Kansas.

LOCATE Anything! Any depth! Anywhere! Electronically! Information \$1.00. Refundable. MicroBionics, 2A, Heritage Hill, Tuscaloosa, Alabama 35401.

COMPLETELY New prospecting technique developed by Relco. New transistor models detect buried gold, silver, coins, treasures. \$19.95 to \$129.50. Write for free catalog and "guide for beginners." Relco-A40, Box 10563, Houston, Texas 77018.

PRECIOUS STONES AND MINERALS

SEMI-Precious uncut gems. Ten different for \$1.00. Request list 30. Prospectors Shop, 201 San Francisco, Santa Fe, New Mexico 87501.

100 COLORFUL, Polished gemstones, \$1.00. Tumblecraft, 5401 James North, Minneapolis, Minnesota 55431.

400 POLISHED Gemstones \$2.75. Beautiful crystals, 6 different \$2.00. Lists with order. Sering, 1705 E. Michigan, Indianapolis, Indiana 46201.

GET Free catalog no serious rockhound, gem cutter, jewelry maker, hobbyist or craftsman can be without. Full of bargains, exclusive items, low prices from largest suppliers and authorities in the field. Free new catalog just off the press, yours for the asking. Write Grieger's, Dept. C-12, 1633 E. Walnut, Pasadena, California 91106.

EARTH Science Rockhound Magazine. Subscription \$2.50. Sample 35¢. Box-550-PM, Downers Grove, Ill. 60515.

CARTOONING, COMMERCIAL ART, SHOWCARD & SIGN PAINTING, TATTOOING

LEARN Sign painting at home. Free talent test. Ben Kerns, Box 812-PM, Greenville, S.C. 29601.

"HOW To Made Money With Simple Cartoons"—Everyone who likes to draw should have this book; Free. Send name, zip code. Cartoonists Exchange, 912 Pleasant Hill, Ohio 45359.

SIGN Painting. Fascinating system. Straley, 410 South Western, Springfield, Ohio.

COMPACT 23 Lesson Cartoon Course and Cartoonist's Magazine, \$1.00. Hartman, Box 30367, Lincoln, Nebraska 68510.

YOU Can entertain with chalk talks. Catalog 10¢. Balda the Cartoonist, Oshkosh, Wis. 54901.

LIKE To draw? Splendid opportunities in professional cartooning. Write for free catalogue. No obligation. National School of Cartooning, Studio-H, Box 8958, Cleveland, Ohio 44136.

2 ART Lessons free. Enjoy glamorous high-pay career or profitable hobby. Study at home in spare time. Drawing, Painting, Advertising Art, Fashion Illustration, TV Art, etc. Assignments corrected with overlays by mail. Tuition \$6 a month. Kits included. Free Catalog. Special offer. No salesman will call. Washington School of Art Studio 145, Port Washington, N.Y. 11050.

LEARN Profitable fascinating tattooing. Illustrated information \$1.00—Zeis, 2220 P Delcy Drive, Rockford, Illinois 61107.

SIGN Lettering Tricks. Free catalog. Harris, Box 1567, Portland, Oregon 97207.

CARTOONERAMA Teaches you cartooning in a 24 lesson course. Free brochure. CPA, Box 263-3C, Brandford, Connecticut 06405.

ADVERTISING AGENCIES, ADV. SERVICE, MAILING LISTS

MAILING Lists most all kinds 1000 \$5.00. Free folder. Your circulars mailed \$4.00 1000. Dixie Mailers, King, N.C. 27021.

ADVERTISING Ratebook leading newspapers, magazines, free. Chicago Advertising Agency, 28-E Jackson, Chicago 4.

MAILORDER Record Book, 30 pages. Records inquiries, orders, advertising expense, etc. Most complete. Just send dime for postage and handling. C. A. Martin, Popular Mechanics, Dept. RB5, 575 Lexington Ave., New York, N.Y. 10022.

TYPEWRITERS, DUPLICATORS, OFFICE EQUIPMENT

FREE Plan. Start printing, lettershop. Offset Presses, Mimeograph Copy machines, DixieGraph, King, N. Car. 27021.

RUBBER STAMPS AND OFFICE SUPPLIES

FINEST Quality Stamps, three lines, \$1.00. Dee's, Box 14004, Phoenix, Arizona 85031.

FREE 32 Page rubber stamp catalog. Signature stamps \$3.50. Youngers Stamp Shop, Princeton, Iowa 52768.

FREE Catalog: Rubber stamps, printing. Dowling Products, Dept. PM36, Pittstown, N.J. 08867.

ADDRESS Stamp, \$1.50. Signature \$2.88. Free catalog. Jackson's, 1433 Winnetka, Chicago, Illinois 60640.

FREE Catalog-Rubber stamps, labels. Bilmar, 11117-Ewing, Minneapolis, Minnesota 55431.

PERSONALIZED Engraved plastic name plates, adhesive backed, suitable for doors, tool chests, lunch boxes etc. Price \$1. Custom Engraving, 1023 S. Truro Ave. Inglewood, Calif. 90301.

DESK Name Plates, Door Signs, Free Catalog. Engraving, 34 Cora Avenue, Williamstown, New Jersey 08094.

FINEST Quality stamps, three lines, \$1.00. Lornel Industries, Norwood, Missouri 65717.

CATALOG: Rubber stamp equipment, supplies, Martin, 1425S Major, Jefferson City, Missouri 65101.

PRINTING, MULTIGRAPHING, MIMEOGRAPHING, GUMMED LABELS

1000 GUMMED Address labels, \$1.00. Walt's, Box 966-A, South Bend, Indiana 46624.

AMAZING Business printing values. Samples, Print Shop, Box 576, Greenville R.I. 02828.

FREE Literature: 1000 name, address, labels \$1.00. 1000 business cards \$4.95. Printing, rubber stamps. Satisfaction guaranteed. Jordan's, 552 West O'Connor, Lima, Ohio 45801.

QUALITY Printing: Lowest prices. Samples. Dowling Press, Dept. PM-36, Pittstown, N.J. 08867.

OFFSET Printing 25 to 5,000 lettersizes 8 hour shipment. Printing While-U-Wait, 305 S. 4th, Springfield, Illinois 62701.

1000 EMBOSSED Business cards, \$3.95 postpaid. Free samples. Discount Printing, 211-B Church, San Francisco, Calif. 94114.

FREE Booklet "Secrets of cutting printing cost" Printing, 305 S. 4th, Springfield, Illinois 62701.

THERMOGRAPHED Business cards 1-000 \$3.95. Samples. Cooper's, Box 178, Brighton, Michigan 48116.

100 PORCELAIN Business cards \$1.25. Eslick's Craft Studio, Delavan, Wisconsin 53115.

EMBOSSED Business cards \$2.99-1000. Free samples. Bestval, Box 4091, New York, N.Y. 10017.

1000 GUMMED Address labels \$1.00. Labels, 3063 Port Au Prince, Phoenix, Ariz. 85023.

PERSONALIZED Pads, saying From the desk of: or, Memo from: and your name. 500 sheets, \$2.95. Bushor's, P.O. Box 2086, Inglewood, California 90305.

8-PAGE Catalogs, 1000 lots—1½¢ each. Samples. Printers, Box 13020, St. Louis, Missouri 63119.

EMBOSSED Business cards, \$2.99-1000. Free samples. Gables, 405A Clifton, Glenshaw, Pa. 15116.

PRINTING & RUBBER STAMP OUTFITS—SUPPLIES

PRINTING Presses, type, supplies. Lists, 5¢. Turnbaugh Service, Mechanicsburg, Pennsylvania 17055.

TYPE And supplies for rubber stamp makers. New wholesale price list No. 4 free. Star Stamp Supply, 732 Federal, Chicago, Ill. 60605.

TYPE Catalog No. 11, 96 Pages. Send One Dollar. Deductible First Order. Acme Type, 732 Federal, Chicago, Illinois 60605.

TYPE Cases, cabinets. Manufacturer. Catalog. King McKay Company, 23179 Telegraph, Southfield, Michigan 48075.

MAKE Your own self-molding rubber stamps and printing cuts. Plexirubber, Argyle (1), Wisconsin.

RUBBER Stamp manufacturers supplies. Starting outfits, presses, low prices, fast service. Catalog. Jackson Supply, 1433 Winnemac, Chicago, Illinois 60640.

RUBBER Stamp presses, hydraulic operated, electrically heated. Sizes 5" x 8", 8" by 12", 10" x 15". Starting outfits, supplies. Printing Presses. Orders presses, supplied shipped day received. 1966-67 catalog low supply prices. Custom Manufacturing, 406 East Elm, Springfield, Missouri.

WHOLESALE Rebuilt offset presses. Maurice Bower, Route 3, Floyd, Virginia 24091.

RUBBER Stamp outfits, supplies. Kiewiet, 2025 Barney Road, Kalamazoo, Mich. 49007.

DO Your own printing. Save money. Simple rules. We supply everything. Print for others: good profit. Raised printing like engraving too. Have home shop. Details free. Kelsey Presses, V-11, Meriden, Connecticut 06450.

REMAILING SERVICE

LOS ANGELES, Hollywood, San Fernando Valley—25¢ single; \$3.00 monthly. Confidential, 10437 Lanark Street P. Sun Valley, California 91352.

TIMELY Remailing 25¢. Unlimited Monthly \$3.00. Confidential Postcards. Schoen, Box 1963-P, Chicago, Illinois 60690.

SECRET Receiving and remailing. Discreet and confidential. Remail 25¢ single. 8050 S. Main, Houston, Texas 77025.

WAIKIKI: Fast, dependable, confidential. 25¢ Single—\$3.00 monthly—cards. P. O. Box 8193, Honolulu 96815.

MIAMI Remails 25¢. Monthly rates. P. Marie, Box 1266, Coral Gables, Florida 33134.

AUSTRALIA—New Zealand, Pacific Islands. Jeanne's, Box 201, Pioneer, Calif. 95666.

REMAILS, Forwarding, receiving. Since 1958. Ellis, 407-PM Washington, Fairfield, Illinois 62837.

N.Y.C. Remailing, 25¢. \$2.00 monthly. Williams, 2100 Mapes Ave., Bronx, 10460.

NEW YORK CITY Confidential Mailing Address. Economical, Guaranteed. Valles, 3450 Broadway, New York 10031.

OHIO Remails .25¢. Monthly rates, Box 136, Marion, Ohio 43303.

WONDERFUL New Orleans Remails 25¢; Monthly \$3.00, Box 10563, New Orleans, La. 70121.

FROM Fabulous Las Vegas, Unexcelled, fast, dependable, confidential service. Remails 25¢. Monthly rates. Colorful cards. Ruthie, 558 Oakley Boulevard, Las Vegas, Nevada 89105.

SECRET Mail receiving system. Hedg-peth, 406-M South Second, Alhambra, California 91802.

MEXICO Re-airmails, Forwarding, receiving. \$1.00. Postcards, Kaylu, Apartado 669, Guadalajara.

MONTREAL Expo-67, Canada, Milwaukee, Chicago Remails, 50 postcards, information, write: J. H. Ouellette, Fox Lake, Ill. 60020.

CONFIDENTIAL Remails, Single 25. Monthly \$3.00. Rose Co., Box 508, Framingham, Mass. 01701.

SECRET Remailing, Domestic-foreign. Ben-Sun, Meeting Street, Wayzata, Minn. 55391.

DARLING Remails 25¢. Monthly \$3.00. Confidential, Charles, Box 27, Darling, Pa. 19063.

TEXAS Capitol 25¢. Overnight delivery by air, CAPITAL Service, P. O. Box 1592, Austin, Texas 78767.

PAGO PAGO remails 25¢ Single, \$3.00 monthly. 936 Pago Pago, American Samoa 96920.

TORONTO Remails, prompt, 25¢ five for dollar. Scott Service, 22 Strathearn Blvd., Toronto 10, Canada.

ANYWHERE Re-mailing 25¢. Rainbow Service, Box 2762, Spokane, Wash. 99220.

CONFIDENTIAL Mail receiving system, 25 single, Westmail, 463 S. Crescent Heights, Los Angeles, California 90048.

CONFIDENTIAL Remailing and all other services, H.A.W. van Grinsven, Johan Jongkindstraat 87, Amsterdam, The Netherlands.

SO. AMERICA Registered re-airmails, \$1.00. Confidential, Genaro, Box 360, Guayaquil, Ecuador.

REPAIRS AND SERVICING

TELL The more than 1,550,000 avid readers of Popular Mechanics about your products and services. It costs very little to place your classified message in front of these proven mail order buyers. For further details, write: C. A. Martin, Dept. 79N, Popular Mechanics, 575 Lexington Avenue, New York, New York 10022.

SPECIAL SERVICES

PRODUCT, Book, and information search. \$2.00. A. Hickman, Box 5996, Reno, Nevada 89503.

CONFIDENTIAL Reports, any subject-product, mail \$3.00. Garrison, 620 Anson, J-29, Winston-Salem, North Carolina 27103.

RESEARCH—Your name product—subject. Send \$2.00. Horton, Ramblewood, Greenville, South Carolina 29706.

LOCATING Service! Any item or product. Jake Barraco, 478 Gardner, South Beloit, Illinois 61080.

AEROSPACE Technology. Ten examples—\$5.00. Technology Consultants, Box 4047, Torrance, California 90510.

INFORMATION On anything. Ferguson Research Specialists, 83-45 Vietor Ave., Elmhurst, N.Y. 11373.

TOBACCO

FREE Tobacco Brochure, The Pipe Rack, P.O. Box 3259 G.C.S., New York, N.Y. 10017. Expert Pipe Repairs.

RAZORS

AMAZING! Compact Swiss Electric Shaver, \$8.50. Satisfaction guaranteed. Manard, Box 53, Merrill, Wis. 54452.

WANTED—MISCELLANEOUS

STAMP Collections, accumulations, Eagle Stamp Co., 2221 Romine, Pittsburgh, Penna. 15226.

SPECIAL! Property deed plotting my hobby. Write: Deedettes, Mt. Pocono, Pa. 18344.

MERCURY, Gold, Silver, Platinum; Ores assayed. Wholesale Terminal, Norwood, Mass. 02062.

PERSONAL

BIBLE Questions answered. Stamped envelope. Bylon, 17167 Bentler, Detroit, Michigan 48219.

BORROW \$1,205 AIRMAIL! Repay \$47 for 36 months. State licensed. Postal Finance, Dept. 17-E, 200 Keeline Building, Omaha, Nebraska 68102.

LOW-Cost loans by mail, \$6.00 monthly repays \$104.50; \$56 monthly repays \$1,321.39. Borrow any amount. Guaranteed fast, confidential. Write today! Bankers Investment 67-A, Box 1648, Hutchinson, Kansas 67501.

SURVEILLANCE Equipment. New high performance models. Free details: Security Electronics-PM, 11 East 43 Street, N.Y.C. 10017.

SUBCONSCIOUS Conditioning remakes personality while you sleep. Free details. Sleep-Learning, Box 24N, Olympia, Washington 98551.

INVESTIGATORS. Free brochure. latest subminiature electronic surveillance equipment. Ace Electronics, 11500-P NW 7th Ave., Miami, Florida 33168.

BLITZ Reducing! 5 pounds overnight! Guaranteed! Bijou, Box 1727-BM, Hollywood, California 90028.

MUSIC Lovers, continuous, uninterrupted background music from your FM radio, using new inexpensive adaptor. Free literature. Electronics, 11500-T NW 7th Ave., Miami, Florida 33168.

FREE Catalogue, surplus & survival equipment. Wolf Enterprises, 21 Main St., Denville, New Jersey.

MEN—Bring out your best personality, gain new confidence, style your hair like movie stars do. Kit with complete instructions \$5.00. diRoss, Box 1087A Hollywood, California. 90028.

WHY Borrow? Government researched "Financial Guide" prescribes CORRECT living expenses for different family incomes, sizes, location, etc., \$1.00. Financial Advisors, Box 1962, Philadelphia 19105.

BORROW \$100 to \$1000 by Mail. Quick, easy, private. No Co-Signers. Repay in 36 small monthly payments. For the amount you want write today to Dial Finance Co., 410 Kilpatrick Bldg., Dept. 5-214, Omaha, Nebraska 68102.

BILL Problems? Poor credit no trouble. Not a loan company. Send for free application. Nationwide Acceptance, Dept. PM, 930 F St. N.W., Washington, D.C. 20017.

RARE Document available to WWII Veterans. Write "Wes," 64 Logan, Charleston, S.C. 29401.

WIPE Out all debts to \$30,000. One step legal plan, immediate relief. Free details. Counselor-7, Harlingen, Texas.

HELP Wanted: for difficult, tired, sore, warm feet. Information, Dawl, 423 Holmes St., Levittown, N.Y. 11756.

\$100,000.00. Eight years. 3,750,000 earning. Laborless. Government Regulated. Information \$1.00. Guaranteed. Brietenfeldt, Marathon, Wisconsin 54448.

NEED Money? Your debts too big? Solutions to all financial problems. Amazing results. Free details. Licensed and bonded. Write Financial Consultants, 28 E. Jackson, Suite 1204-PM, Chicago 60604.

MISCELLANEOUS

ORNAMENTAL Iron designs. Book of 1600 beautiful, practical designs for railings, columns, etc. Free literature. Cunningham, 3881 South 3200 West, Salt Lake City, Utah 84119.

YOUR Name sent to 1000 importers, publishers, mailers, wholesalers, etc. on our mailing list. Year \$1.00. Dixie Mailers, King, N. Car. 27021.

LOG Cabins; Ship anywhere 35 plans, specifications and prices. Send \$1.00. Write Eloch Brothers, Waterford 4, Michigan.

WINEMAKING . . . Grape, Elderberry, Dandelion, Frozen Juices, etc. Brewmasters' secrets revealed! Powerful methods! Instructions, recipes, and supplies catalog. \$1.00. Continental, Box 26034-PE, Indianapolis, Indiana 46226.

WINEMAKERS. Free illustrated catalog of yeasts, equipment. Semplex, Box 7208, Minneapolis, Minn. 55412.

HEARING Aids, batteries, discount. Free list. Piston, Box 1444, New Preston, Conn. 06777.

BIRTH Certificates, Marriage Certificates, Diplomas! 2 blank forms \$1.00. Sample 10¢. Standard Forms, Box 482-M Washington, D.C. 20044.

HOMEBREW Formulas! Everything covered in this manual! \$2.25. (complete brew supplies hydrometers catalog 10¢)—Research Enterprises, 29-SN35 Samoset Woburn, Mass. 01801.

HOW TO BUILD A STILL. Humorous, factual, illustrated, 50 pages. Includes distillation, fermentation, wine, homebrew, taxes, etc. Over 25 recipes. \$2.00. Buze, Box 490A, Norman, Oklahoma 73069.

HEARING Aid batteries wholesale. Free list. Habs, Box 51, York, Penna. 17405.

KILL Mosquitoes, crop destroyers. Electronically. Free information. Box P. 204, Metamora, Michigan 48455.

CIGARETTES — Make 20 filtertip or plain, king or regular, for 10¢. Facts free. Moberly, Box 954, Owensboro, Kentucky 42301.

NEW Zip code directory. 35,000 listings, 50 states, U.S. possessions. \$1.00 postpaid. Zipco, Box 73212, Los Angeles, California 90003.

LIQUID Soap, 50¢ gallon. Postpaid. Chevalier, 318 East 27th Street, New York 10010.

WINEMAKERS Catalogue-Samples-Recipes-25¢. Kraus, Box 451-L, Nevada, Missouri 64772.

ZIP Code directory. Sell—huge profits! Sample \$1.00. BEAN, 377, Port Orford, Ore. 97465.

SAFEGUARD Against check forgery. Discover PERSONAL CHECKWRITER. Details free. Francoma, 20 North Pine Drive, Massapequa, N.Y. 11758.

RECREATIONAL Vehicle parts and equipment catalog. Everything for building, remodeling campers, trailers, covers, including aluminum skin. Only \$1.00 ppd. (refundable). Plans to build. Details 10¢. Viking Camper Supply, Inc., 94-FA Glenwood, Minneapolis, Minn. 55403.

SECRET EGYPTIAN EMBALMING REVEALED! \$1. Nile, Box 4323, Takoma Park, Maryland 20012.

BREWMAKING — Brewmaster secrets! Powerful! Strong home-style formulas! Illustrated Booklet, \$2.25. (supplies catalog 10¢). Interstate Products, Box 1-7G40, Pelham, New Hampshire.

FORTUNE Building recipes: Char-broil Steaks, Thousand Island, Bleu Cheese, Garlic Dressing. All four, \$2.00. Satisfaction guaranteed. Zack Enterprises, Box 55226, Houston, Texas 77055.

GLAMORIZE Your telephone, mailbox, etc. Send \$1.00 to: Jerry's Enterprises, Dept. 4, 3230 St. Joan Lane, St. Charles, Missouri 63301.

DRIVE Safely with "Twin-Temp." Details free. Gelane Enterprises, 3609 Belaire Rd., Des Moines, Iowa 50310.

ATTENTION Nevada Visitors! Keno players — Computed Keno Comb. Slide Chart. Free set of comb. tables & Keno fully explained. \$3. check-M.O. to T. J. Rivas & Co., P.O. Box 5887, San Francisco 92101.

ALPACA SLIPPERS, soft, fluffy, snow white, made by Indian craftsmen in high Andes. Sent directly to you by registered mail. Per pair only US \$5.-postpaid. State size, mail cheque to CORSUR S.A. POB 33, Arequipa, Peru.

RACING PROFITS Possible in 9 of 10 races played. Details, Howard, Box 507, M-5, Carroll, Iowa 51401.

BOOKS On antiques and their prices. Free circular! P. Warman Publishers, Uniontown, Penna. 15401.



FREE BOAT FINISHING LOGS

HOW-TO-FINISH
CANVAS BOATS

HOW-TO-FINISH
WOOD BOATS

HOW-TO-KEEP
BRIGHTWARE BRIGHT

HOW-TO-FINISH
METAL BOATS

HOW-TO-FINISH
FIBERGLASS BOATS

AT YOUR AUTHORIZED VALSPAR DEALER!

ALABAMA — Birmingham — Aeromarine Sup. Co. **Guntersville** — Go-Da Co. **Mobile** — McLeod Marine.

ALASKA — Ketchikan — Nord-by Sup. Co.

ARIZONA — Phoenix — W. P. Fuller & Co.; McCune Marine Co.; Seth Smith Bt. Wks. **Tucson** — 22nd St. Boat Dock.

ARKANSAS — Hot Springs — Albert Pike Sup. Co.; Couch Marine, Inc. **Knoxville** — Kenner Boat Co. **Little Rock** — Bush-Caldwell Co.; Lake City Marine. **Springdale** — Dales Hardware.

CALIFORNIA — Alameda — Coast Distr. Co. **Anaheim** — Thermec Engineering. **Costa Mesa** — Carver Craft Distr.; Southern Marine Sup. **El Monte** — Salman Stiles Corp. **Fontana** — Osgood Pt. **Fullerton** — W. P. Fuller & Co. **Lake Arrowhead** — Lake Arrowhead Marine. **Los Angeles** — Diversified Products; Golden State Distr.; Speedo Tach Service. **Newport Beach** — Newport Marine Sup. **Oakland** — Fitzgerald Enterprise; Taylor & Art. **Redondo Beach** — Redondo Trading Post. **Redwood City** — Jordan Pt. Co. **Sacramento** — Hallcraft Mfg. Co., Inc. **No. Sacramento** — Aurora Pacific Co. **San Diego** — Kettlenburg; Midway Marine & Electr.; San Diego Marine Exch. **San Francisco** — E-Z Sort Systems Ltd.; San Francisco Distr.; W. P. Fuller & Co.; Weeks-Howe-Emmerson. **San Pedro** — Marine Hdwe. Co. **Stockton** — Stephens Marine. **Sun Valley** — Olympian Yacht. **Tiburon** — Tiburon Hdwe. & Marine.

COLORADO — Aspen — Aspen Lbr. & Sup. **Boulder** — Saunders Pt. & Glass. **Brighton** — HiWay Lbr. **Castle Rock** — Richardson Lbr. Co. **Colorado Springs** — L. Dummer Auto & Marine. **Craig** — Siebott Hdwe. **Denver** — The Anchorage; Clark & Son Hdwe.; E. Denver Lbr.; General Hdwe.; Marsoleks Hdwe.; May D & F Co.; McCune Outboard Marine; McMurtry Home Planning; So. Federal Lbr. Co.; Odds & Ends; Union Hdwe. Co. **Fort Collins** — Bussard Bt. & Motr.; McMurtry Pt. Spot. **Glenwood Springs** — McMurtry Glass of Glenwood. **Granby** — Norton Marina. **La Junta** — Taylor Lbr. Co. **Littleton** — Home Lbr.; Valore Hdwe.; Littleton Lbr. Co. **Longmont** — Foley Gl. & Pt. Co.; Home Lbr. Co. **Montrose** — Montrose Pt. Store. **Saguache** — Saguache Hdwe. Sup. **Salida** — Snell Lbr. Co.

CONNECTICUT — Berlin — Mickey Finn Stores. **Essex** — Essex Pt. & Marine. **New Haven** — N. T. Bushnell Co. **Newington** — Bill Slaymakers Skippers Locker. **New London** — N. London Marine

Sup. Co.; Miner & Alexander Lbr. Co. **Orange** — Herman's Army & Navy Store. **Westbrook** — Duck Island Marine.

DISTRICT OF COLUMBIA — Washington — Cunningham Pt. Co.; Nash Marine Supplier; Sarff Marine Service; Wash. Marina Co.

DELAWARE — Lewes — C. H. Ellis Co. **New Castle** — Brosius Eliason. **Rehoboth** — Millman's Hdwe. **St. George** — St. Georges Lbr. **Wilmington** — Brosius Eliason; Kagel Pt.; Moreheat Coal.

FLORIDA — Boca Raton — Sewell Hdwe. **Cocoa** — Lyons Marine Sup. **Coral Gables** — Del Vecchio Co. **Dania** — Cozy Cove Marina, Inc. **Ft. Lauderdale** — Bahria Mar Marine Inc.; Bollinger Marine; Lewis Marine Sup. **Ft. Myers** — Port Comfort Marina; So. Marine Sup. **Ft. Pierce** — Sewell Hdwe. **Ft. Walton Beach** — Standard Marine Inc. **Gainsville** — Camp Lbr. Co. **Jacksonville** — S. B. Hubbard Co.; Jacksonville Marine Sup. Inc. **Marathon** — Bayles Boat Yard. **Miami** — Commercial Fishing Sup.; Gable-Tite Prods.; Keely Gardner Swasey; Pauls Boat Sup. Inc.; H. Pittman Pt. Co.; Santa Ana Marine Service. **Mt. Dora** — Golden Triangle. **Oakland Park** — Phil Burns Painting. **Orlando** — Hagood Bros. Inc. **Pensacola** — Killinger Marine. **Pompano Beach** — Phil Burns Pt. **Tampa** — Poston Marine Hdwe. & Sup. **Venice** — Gulf Liner Marine.

GEORGIA — Albany Plate Glass. **Atlanta** — Pyron & Garrow; Griffin Outboard Marine. **Augusta** — Hobbies Marina. **Columbus** — Philips Hdwe. & Sup. **Doraville** — Griffin Outboard Marine. **Gainesville** — Paris Dunlap Hdwe. **Milledgeville** — Chandler Bros. Hdwe. **Savannah** — Warno-Cam Pt. Co.

IDAHO — Blackfoot — Johnys Pt. & Glass. **Boise** — Wilsons Boise Saw Sales & Marine. **Coeur d'Alene** — Inland Marine Sup. **Idaho Falls** — W. P. Fuller Co.

ILLINOIS — Algonquin — Treadwell Boats & Motors. **Aurora** — Decor Pt. **Batavia** — Treest Pt. **Belleville** — Weissenborn Boat & Motr. **Canton** — Reicherts Pt. **Cary** — Hansen Marine Service. **Chicago** — Airmarine; Chicago Marine Co.; Tom A. Edwards & Co.; Elston Pt. & Sup. Co.; R. Leonard Boat & Motr.; Miller Marine Sales & Service; Root Bros. Mfg. & Sup. Co.; Stacy's Pt. & Wlpr. Co.; Stairs Pt. & Wlpr. Co. **Cicero** — Hawthorne Marine Sales. **Crystal Lake** — Roden Pt. **Decatur** — Lee Kimmons Hdwe. **DeKalb** — Peterson Pt. Shop. **Eldorado** — Moss Bait & Marine. **Elgin** — Fishburn's. **Fox Lake** — Chain O Lakes Marina; Miniola Marine. **Freeport** — Rockcote

Decor. Ctr. **Geneva** — Village Decor. **Grayslake** — Grayslake Pt. & Gl. **Ingleside** — Seyl Outboard Motors. **Joliet** — McMahoons Marine. **Kankakee** — Kankakee Marine Sales. **Maywood** — Bachall Hdwe. Co. **McHenry** — Fox River Valley Boat; No. Bridge Marine Sup. **Metropolis** — Kortess Pt. & Wlpr. **Mundelein** — Mundelein Pt. Center. **Peoria** — Valspar Decor. Center. **Quincy** — Huseman Pt. & Wlpr. **Rockford** — Colorama Pt. & Wlpr.; Rockcote Decor. Center; Smith Pt. & Wlpr. **Rock Island** — Rock Island Pt. Co. **Taylorville** — Gardner Gl. & Pt. **Urbana** — Markland's Pt. **Washington** — Washington Sup. Co. **Wilmington** — Joliet Yacht Club. **Winthrop Harbor** — Mac's Hdwe. **Zion** — Al's Pt.

INDIANA — Bloomington — Southern Sport Goods. **Cedar Lake** — LaTulip Harbor. **Elkhart** — Knappen Marine; R. Williams Pt. Spot. **Evansville** — Geo. Koch & Sons Inc. **Ft. Wayne** — Houts Color Center. **Goshen** — Stevry Boat Co. **Griffith** — Griffith Boat Shop. **Hammond** — Paint City. **Hartford City** — Hartford Hdwe. Co. **Indianapolis** — Indianapolis Boat Co.; Mannix Marine Co. **Lafayette** — The Sportsman, Inc. **Monticello** — Tall Timbers Bt. & Mtr. **Portland** — Jay Supply. **Richmond** — J. M. Hutton & Co. Inc. **South Bend** — Kindig Bros. Inc. **Syracuse** — Macy's Wawasee Slip. **Walkerton** — Porter's Pt. Distr.

IOWA — Cedar Falls — Barnes Bldrs. Sup.; Olsen Wholesale Sporting. **Clear Lake** — Touristville Boat Co. **Clinton** — Rod Fitch's Sport Ctr.; Sportsmans Exch. **Des Moines** — Kline Distr. Co.; Lorenz & Jones. **Dubuque** — Bob Zehentner Marine. **Ft. Dodge** — Dilston Marine & Sport. **Grinnell** — Ahrens Mfg. **Iowa City** — Carol Marina. **Montezuma** — Brownell's Inc.

KANSAS — Great Bend — Field & Lake Sports. **Kansas City** — Smittys Bait & Fly Co. **Topeka** — Vans Marine. **Wichita** — Dix Marine & Piper Airplane Sales.

KENTUCKY — Brandenburg — Allen Thompson Inc. **Louisville** — Falls City Boat Works; Marine Sales & Service; Tel-Ray Inc. **Monticello** — Monticello Pt. & Sup. **Owensboro** — Geens Hdwe. & Pt.; Hartman Hdwe. **Paducah** — Campbells Sporting Goods; Paducah Lbr. & Mfg. Co.

LOUISIANA — Baton Rouge — Bonfanti Inc.; Harrison Pt. Co. **New Orleans** — Beacon Sup. Co.; Donovan Boat Sup.; Higgins Marine Sales; Lanasa Hdwe. Co. **Shreveport** — Loe Marine Sup. Co.

MAINE — Gardiner — Harvey Distr. **Lewiston** — Hall & Knight

Hdwe. Co. **Portland** — Harris Co.; Sargent Lord & Co. **Saco** — Saco Hdwe. & Sup. Co. **So. W. Harbor** — Manset Marine Sup. **Waterville** — W. A. Taylor Co.

MARYLAND — Annapolis — Henry B. Myers Co.; Sadlers Hdwe. **Baltimore** — Budeke's; Felmore Corp.; Jenkins Marine Mtr.; McClean Bros.; Stickel Flanagan Marine Corp.; Wm. H. Whiting Co. **Bel Air** — Hartley's Pt. & Wlpr. **Belle Haven** — Mason Lbr. Co. **Cambridge** — Burch Pt. & Gl. Co. **Chestertown** — Kibler's Marina. **Crisfield** — Bradshaw Hdwe. **Deale** — Wheelers Hdwe. **Essex** — Albert Milke & Sons. **Glen Burnie** — DeGrange Cash & Carry Lbr. **Mardela** — Adkins Bros. **Pasadena** — Pasadena Hdwe. & Sup. **Pocomoke City** — Lankford & Cutler Inc. **Princess Anne** — Warwick's Store. **Shady Side** — Crestwood Bldg. & Sup. **Silver Springs** — The Boat Center. **Snow Hill** — The Adkins Co. **Queentown** — Friel Lbr. Co.

MASSACHUSETTS — Boston — Atlantic Marine Exch. Corp.; Levy Hdwe. Co.; Marine Hdwe. & Sup.; Harry Miller Co. **Brookline** — Atlas Pt. & Sup. **Brocton** — Acme Sup. **Concord** — Vanderhoof Hdwe. **Dedham** — James Bliss & Co. Inc. **Dorchester** — Acme Sup.; Berry Hdwe. Co. **Fall River** — Fall River Sportg. Goods. **Lowell** — A. J. Gagnon Hdwe. **Lynn** — Western Ave. Pt. & Sup. **Medford** — Hillside Hdwe. **N. Bedford** — C. E. Beckman Co.; De Wolf & Vincent Inc.; Franklin W. Hatch Co.; Kirby Pt. Co. **Quincy** — Max's Pt. & Hdwe. Co. **Reading** — Atlas Pt. & Sup. **Spencer** — The Fair. **Springfield** — Bassetts Boat Co. **Wellesley** — Crandell-Hicks Co. **Woburn** — Atlas Pt. & Sup. **Worcester** — Doc Chauvin; The Fair.

MICHIGAN — Ann Arbor — Anderson Pt. Co. **Bay City** — Brennan Cruiser Sales. **Birmingham** — A. L. Damman Co.; Warfield's. **Detroit** — Chamberlain Marine; A. L. Damman Co.; Mich. Fiber Glass; H. H. Smith Co.; Steffen Hdwe.; Triangle Bts. & Mtrs. Corp. **Eaton Rapids** — Hart's Gamble. **Farmington** — H. A. Smith Lbr. Co. **Flint** — Flint Tent & Awning Store; Doc Wise Bts. & Mtrs. **Frankfort** — Luedtke Engineering. **Greenville** — Recreational Sup. Co. **Hamtramck** — Kosinski Hdwe. **Hancock** — Dube Auto Body Sup. **Harbor Springs** — Walstrom Marine Inc. **Houghton Lake** — Bing's Pt. Store. **Houghton** — Hamar-Quandt Co. **Ishpeming** — West's Pt. Store. **Jackson** — Lutz & Thayer Marine. **Kalamazoo** — E. H. Oosterhouse Co. **Lansing** — Allevas Marine Sales; B & W Sup. Co.; Calkins Pt. Co.; Larry's Hdwe.; Plywood Sales Corp.; Rosebrough's Pt.; Valley Farms Lbr. **Mason** —



ALL VALSPAR SYSTEMS ARE

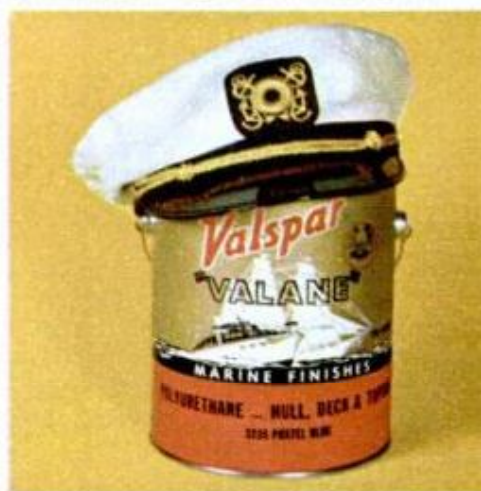


Leave it to Valspar to give you a space-age plan for painting boats of wood, metal and fiberglass. Valspar, leader in marine finishes for over 160 years, introduces the sure way to paint. A complete system from sealers to top coats — specifically designed for each type of boating material. Your benefits? Better paint life because you use exactly the right products for your particular boat — and because each recommended coat mates with its top coat. Complete instructions on how-to and how-not-to paint your boat are yours free with or without purchase. So whether you're fitting out a day sailor, racing shell, camper or run about, you'll find the correct Valspar system to do the job quickly, effectively and practically. Ask your Valspar dealer, he's an expert.

Valspar 


MARINE DIVISION
200 SAYRE STREET
ROCKFORD, ILL., U.S.A. 61101

Manufacturers of: Poly-Aqua epoxy marine finishes, Valane polyurethane enamels, Vinylon liquid vinyl finishes and Marprox live rubber sealers.



Mickelson Baker Lbr. Co. **Muskegon Hts.** — Mich. Pt. Co.; Bob Moore's Bts. & Mtrs. **Okemos** — Marine Access. Distr. **Pontiac** — Pontiac Rockcote Pt. Store. **Port Huron** — Marshall E. Campbell; Port Huron Pt. Co. **Saginaw** — Kopanek Marine Ctr.; Rockcote Decor. Ctr.; Uloth's. **St. Clair** — J. A. Biewer Co. Inc. **St. Clair Shores** — Cooper Chris Craft; Jefferson Beach Marina. **St. Ignace** — Hollingsworth Buildware. **St. Johns** — Penny's Pt. & Sup. **Sterling Township** — A. L. Damman Co. **Utica** — VanDee Pt. **Southfield** — Federal Hdwe. & Sup.

MINNESOTA — **Alexandria** — Alexandria Boat Works, Inc. **Anoka** — Gopen Mfg. & Fly Co. **Brainerd** — Sport Sup. Inc. **Cook** — Johnsons One Stop. **Duluth** — St. Germain Bros. **Erskine** — B-Z Sales & Distr. Co. **Hibbing** — Sacco Pt. **Internat'l Falls** — Falls Marine Service. **Minneapolis** — Paul Bunyon Co. Inc.; Coast to Coast Stores; Hannays; Honn Pt. Sup. Co.; Inland Marine Corp.; Larsen Olson Co.; Lathrop Pt. Co.; Elmer N. Olson Co.; Our Own Hdwe. **Moorehead** — Moorehead Plastics. **Spicer** — Little Crow Sport Ctr. **Virginia** — Virginia Boat & Sportg. **Wayzata** — Eggers Tile & Pt.; Reeds Inc. **Winona** — Winona Pt. & Gl. Co.

MISSOURI — **Bridgeton** — Bel Air Bts. & Mtrs. **Florissant** — Korte Hdwe. **Kansas City** — Bruce Marine; Covert Marine; Neal Bt. & Mtr.; Star Boat Mtr. Co. Inc.; United Marine Co. **New London** — Mark Twain Marine. **Portage des Sioux** — Venetian Boat Harbor. **St. Louis** — Meisel Distr. Co.; Central Hdwe.

MONTANA — **Billings** — Aldrich & Co. **Great Falls** — W. P. Fuller & Co. **Hardin** — Hardin Lbr. Corp.

NEBRASKA — **Fremont** — Nelson Pt. Store. **Lincoln** — Burden Sales Co.; Cook Pt. & Varnish Co. **Omaha** — Kristiansens House of Color. **Wausa** — Hult Craft Boat Works.

NEW HAMPSHIRE — **Keene** — Zimmermans Sport Shop. **Manchester** — Stan's Masury Pt. Store.

NEW JERSEY — **Atlantic City** — Joseph Soltz. **Avon-by-the-Sea** — Inland & Coastal Prods. **Belford** — A & B Boat Sales. **Brielle** — Brielle Hdwe. **Camden** — Johnson & Towers Inc. **Egg Harbor City** — General Marine Sup. **Hackensack** — Salem Pt. Inc. **Jersey City** — N. Siperstein Inc. **Ledgewood** — Dawson Marine & Sup. **Linden** — Siperstein St. Geo. Pt. & Wlpr. **Lodi** — Siperstein's. **Long Branch** — Siperstein W. End Pt. Co. **Maple Shade** — Johnson & Towers Inc. **No. Bergen** — Rendall Lbr. & Marine. **Ocean City** — Davis Hdwe. **Pt. Pleasant** — Ship Chandlers Inc. **Red Bank** — Jersey Marine Co. **Riverton** — Monarch Sup. **Trenton** — Kucker Haney Pt. **Union City** — Siperstein's. **Vineland** — So. Jersey Gl. Co. **W. Milford** — Conklin & Strong. **Westville** — Marine Equip. & Sup. **Wildwood** — Colson Lbr. Co.

NEW MEXICO — **Albuquerque** — B & N Marine Distr. Co.; H. Cook Sportg. Goods. **Clayton** — Swagerly Trading Co. **Las Cruces** — Witts Tackle & Marine.

NEW YORK — **Albany** — Andy's Colonia Hdwe. **Baldwinsville** — Rainbow Harbor Inc. **Batavia** — Batavia Marine & Sports Shop. **Beacon** — Knapp Pt. & Wlpr.

Bellerose — Norman & Sons. **Bemus Point** — L. S. Aero Marine; Skillman & Wight. **Binghamton** — Lou Rappaport Inc. **Brewerton** — Brewerton Boat Yard; Brewerton Hdwe. **Bronx** — City Island Pt. Store; Hdwe. & Yacht Sup.; Malia & Son. **Brooklyn** — Brooklyn Elton Pt. **Buffalo** — Howard H. Baker. **Burnt Hills** — Anderson Boat Sup. **Canandaigua** — Waldorf Boat Co. **City Island** — G G Marina. **Coeymans** — Gerry Finkes Marine. **Conesus** — Carls Marine. **Cortland** — A. J. Meldrim. **Depew** — Transit Marine. **Dunkirk** — Lake Shore Wlpr. & Pt. **Easthampton** — E. Hampton Lbr. Co. **Fairhaven** — Hadcock Mtr. Inc. **Farmingdale** — Al Barnett & Son; Cantor Bros. **Freeport** — Freeport Marine Sup. **Garden City** — Durko Marine Inc. **Geneva** — J. W. Wright & Sons. **Greenport** — E. End Sup. Co. **Henderson Harbor** — Harbor Marina. **Hudson** — Cordatos Hdwe. **Hudson Falls** — Griffin Lbr. Co. **Ithaca** — Johnson Boat Yard. **Jamestown** — Jamestown Cycle Shop. **Johnson City** — Glenwood Bldg. Sup. **Kingston** — Shultz Pt. Co. **Mamaroneck** — Robt. E. Derecktor. **Massapequa** — White Merch. Distr. Co. **Medina** — Medina Trading Post. **Middletown** — Geric Pt. Co. **Mount Kisco** — Young & Halstead. **Newark** — Gerry's Trading Post. **N. York** — Defender Industr. **Niagara Falls** — LaSalle Marine Mart; Niagara Falls Marine Sales. **Northport** — Cycle & Sea Inc. **No. Tonawanda** — Niagara Park Marine; Stahl Marine Sales; Wardell Boat Yard. **Oneonta** — Stevens Hdwe. **Ontario** — Pugsley's Marine. **Ozone Park** — Liberty Pt. Sup. **Painted Post** — Martin Marine. **Pelham Manor** — Manor Marine. **Perry** — Burt's Builders Sup.; Ireland & Sweeney; Don Smith's Marine Sales. **Port Jervis** — Luger's Pt. & Wlpr. **Port Washington** — Manorhaven Hdwe. **Rochester** — Cadillac Plastic; Ras Marine Service; Slim's Auto, Marine Sports Sup.; Teschuers Wlpr. & Pt.; Triangle Marine Inc. **Rushford** — Damon & Kellogg. **Schenectady** — Demeo's Pt. Store. **Scotia** — Kozlows Sales Inc. **Silver Creek** — Repp's Marine Sales. **Sodus Point** — Arney's Marine; Geo. Helfer Marine. **Southampton** — Southampton Lbr. Corp. **Stoney Point** — Homestead Hdwe. **Suffern** — Paint Market. **Syracuse** — Lewis & Tanner Pt. Co. **Tupper Lake** — Fortunes Hdwe. **Utica** — Roberts Hdwe. Co. Inc. **Vernon** — Wilton Furnishings. **Watertown** — Howard H. Vrooman. **Watkins Glen** — Jerry's Boatarama. **Westfield** — Monroe Marine. **Williamsville** — L. D. Bond Pt. & Wlpr. Co. **Yonkers** — Schall Pt. & Hdwe. **Youngstown** — Youngstown Boat Co.

NORTH CAROLINA — **Burlington** — Central Pt. Distr. **Charlotte** — Henderson Marine Service; Nisbet Marine Mart. **Greenville** — Carolina Sales Corp. **Newton** — Dixie Boat Works. **Raleigh** — Hills Inc. **Salisbury** — Bernhardt Hdwe.; Cal-Tone Pt. **Whiteville** — Columbus Sup. Co. **Wilmington** — J. W. Murchison Inc. **Winston Salem** — Doss & Sons.

NORTH DAKOTA — **Minot** — Minot Marine Distr.

OHIO — **Chagrin Falls** — Zucker Marine. **Cincinnati** — Sam Hern; Kruse Hdwe. Co.; Southern Ohio Distr. Inc.; Swallows W. Hill.

Cleveland — Cleveland Yacht & Sup. **Columbus** — Wm. C. Kennedy & Son. **Coshocton** — Fisher Wlpr. & Pt. **Dayton** — Brock & MacFarlane. **Leavittsburg** — Wager Boat & Cabinet. **Minerva** — Ohio Marine Distr. **Parma** — Modern Marine Inc. **Port Clinton** — Vita Plate Battery. **Salem** — Charlies Boats & Mtrs. **So. Zanesville** — Ray Thomas Lumbertown. **Toledo** — Bodette Marine; The Netcraft Co.; Payne Marine. **Youngstown** — Youngstown Boat & Sup.

OKLAHOMA — **Guyman** — Lbr. Mart. **Okla. City** — Cook Pt. & Varnish; Ribble Boat Works; **Tulsa** — Southwest Sporting Goods; Wait Mfg. & Sales Marine. **Wagoner** — Whitehorn Marine.

OREGON — **Portland** — Marine Wholesale Inc.; McCuddys Marina; Oregon Marine Sup.; Seal-Kote Pacific Pt.; Staff Jennings Inc.; Taylor & Art Plastics.

PENNSYLVANIA — **Bethel Park** — Wm. D. Gregg Co. **Bethlehem** — Bethlehem Mtr. Boat Sales. **Bloomsburg** — Appelman's Pt. Store. **Broomall** — Broomall Hdwe. **Clearfield** — Gray Battery & Auto Sup. **Conneaut Lake** — Reimons Marine Service. **Dallas** — Caddie Labor Sports Store. **Downington** — Maxwell & Son. **Erie** — Great Lakes Marine; R. D. McAllister & Son; Presque Isle Sport Shop. **Forty Fort** — Nat'l. Pt. Co. **Hamburg** — Adams Pt. Store. **Hawley** — Watts Hdwe. **Hershey** — Aumens Pt. & Wlpr. Store. **Mifflinburg** — Shipton Bros. **Norristown** — Bregler's Pt. **Old Forge** — Gilotti Decor. Co. **Philadelphia** — Gochenaur Marine Co.; Goldbergs Wholesale Distr.; Johnson & Towers; N. York Pt. Sup. **Port Trevorton** — Keller Marine Service. **Sayre** — Joe's Marine. **Sellersville** — Pennington & Pealer. **Sharpsville** — Costar Marine & Sport Ctr. **Williamsport** — E. End Lbr. Co.; Finks Pt. Store.

RHODE ISLAND — **Johnston** — Barket Chadsey Co. **Westerly** — Culey Hdwe.

SOUTH CAROLINA — **Anderson** — Dillards Sportg. Goods. **Chapin** — Ellett Bros. Inc. **Charleston** — F. Dougherty & Assoc. **Columbia** — Jack A Helms Co. **Easley** — Owen Pillards. **Laurens** — Hamiltons Recapping. **Seneca** — Harris Sportg. Goods. **Ware Shoals** — People's Hdwe.

SOUTH DAKOTA — **Deadwood** — Elmers Repair.

TENNESSEE — **Chattanooga** — Chattanooga Hdwe.; Spears Hdwe. Co. **Nashville** — Advanced Plastics.

TEXAS — **Amarillo** — Amarillo Lbr. Co.; Jennings Marine Sales. **Austin** — B. Gaston Boat & Mtrs. **Borger** — Knight Lbr. Co. **Corpus Christi** — Reynolds Bros. Inc. **Dallas** — Schoellkopf Co.; Specialty Sales & Sup. **Ft. Worth** — Cadillac Plastics; Plas-Tex Co. Inc.; Texas Marine Distr. **Houston** — C. B. Delhomme Inc.; The Lubri Kote Co.; Rex Fiberglass Distr. **McAllen** — Pittsburgh Plate Glass. **Port Arthur** — Pittsburgh Plate Gl.; Sabine Propeller & Marine Service. **San Antonio** — O J Marine Sup. **Waco** — Wm. Cameron & Co.

UTAH — **Heber City** — Ashton Lbr. & Hdwe. **Ogden** — The Gift House Inc. **Salt Lake City** — Grays Mtr. Service Inc.

VERMONT — **Burlington** — Hills Hdwe. & Pt.; Thayer Marine.

VIRGINIA — **Alexandria** — Gaines Bros. Inc.; A. S. Irwin & Sons. **Atlantic** — E. L. Thomas. **Melfa** — Economy Feed & Milling Co. **Norfolk** — E. Caligari & Co.; Colley Marine; Hampton Roads Sanitation; Kings Dept. Store; Norfolk Marine Co.; Paxton Co. **Onancock** — Carmine Hdwe. **Onley** — Onley Hdwe. **Parksley** — Jack's Hdwe. **Richmond** — Carwich Marine; Guy Smith Hdwe. **Smithfield** — Smithfield Feed & Mill; **Springfield** — Fries, Beall & Sharp. **Va. Beach** — Iowa Pt.

WASHINGTON — **Bellingham** — Morse Hdwe. **Everett** — Pittsburgh Plate Gl. **Olympia** — W. J. Lynch Pt. Co. **Pasco** — Kellys Distr. Co. **Seattle** — Bryants Marina Inc.; Fisheries Sup. Co.; Internat'l Sales Corp.; Kolstrand Sup. Co.; Nordby Sup. Co.; Pacific Marine Schwabacher Inc.; Pike Pt. & Glass Co.; Ray Marine Distr.; Riverside Marine; Seattle Marine & Fishing; Wright Outboard Marine. **Sokane** — Appletons; Paul C. Fossum Inc. **Tacoma** — Hunt & Mottet Co.; Washington Hdwe. Co. **Walla Walla** — W. P. Fuller Pt. Co. **Yakima** — Standard Pt. & Wlpr.

WISCONSIN — **Arlington** — Arlington IGA Store. **Ashland** — E. Garnish & Sons Hdwe. **Berlin** — Kaufman Bldg. Ctr. **Burlington** — Reineman's Hdwe. **Delafield** — Stamm Boat Co. **Eagle River** — Northern Bldr. Sup. Co. **Eau Claire** — Schwahn Seyberth Co. **Edgerton** — Richardson Marine. **Green Bay** — Monte's Rockcote Pt.; Al Zeller & Sons. **Janesville** — Allen Lloyd Pt.; Helgesens Sales & Service. **Kenosha** — Streblo Boats Inc.; Tyson Cycle & Marine. **LaCrosse** — Berg Pt. & Wlpr.; Effman Marine Inc. **Land O Lakes** — Dickman's Land O Lakes Mtr. Co. **Madison** — C & P Plaza; Madison Marine. **Manitowoc** — Huchthausen Co.; Lakeshore Bldg. & Sup.; Spindler Co. **Manitowish Waters** — Hansons Hdwe. **Marinette** — Lauerman Bros. Co.; Reimers Marine. **Medford** — Arndt Pt. Store. **Milwaukee** — A B C Sup. Co.; Bluemound Marine; Frank Dau Pt. & Wlpr. Co.; Holt Lbr. Inc.; Laacke & Joys Co.; Marineland Inc.; Shorewood Elec. & Hdwe.; Steinbrenner Pt. **Minocqua** — Minocqua Marine. **Muskego** — Muskego Hdwe. **Oconomowoc** — Kinn Mtrs. Marine. **Oshkosh** — Eddies Sport Shop; Tower Pt. Co. Inc. **Portage** — Nehls Boat Co. **Prairie du Chien** — Prairie du Chien Marina. **Racine** — LaFond Marine. **Randolph** — Randolph Hdwe. **Schofield** — Northland Marine. **Sheboygan** — Lakeshore Display Co.; Merlin Marine. **Sheboygan Falls** — Born Fuel & Marine. **Stevens Pt.** — Point Sportg. Goods. **Sturgeon Bay** — Baudhuin Yacht Harbor. **Waukesha** — Anchor Pt. Co.; Waukesha Gl. & Pt. **Waunakee** — The Russell Marina. **Wausau** — Mesker Inc. **Wautoma** — The Walker Co. **Williams Bay** — Inland Marine Boat Co. Inc.

WYOMING — **Casper** — Builders Mart; John Jourgensen Pt. **Cody** — Diamond Lbr. Co. **Lander** — Valley Lbr. & Sup. **Lovell** — Diamond Lbr. Co. **Powell** — Powell Valley Cash & Carry. **Rawlins** — Build Rite Lbr. & Sup. **Riverton** — Sunset Lbr. & Hdwe. **Rock Springs** — Kellogg Lbr. Co. **Saratoga** — Lens Sport Shop. **Sheridan** — Diamond Lbr. Co. **Torrington-Bloedorn** Lbr. Co.; Brights Pt. & Gl. Store.

New GRAVELY Convertible Tractor makes tough jobs easy...simple jobs a pleasure!

Here's the power partner you've always wanted . . . the Gravelly Convertible that gives you the best of *both worlds*. Now you sit back and ride through those big lawn areas . . . in command all the way. Your all-gear, no-belt drive gives you instant control, and that new Gravelly engine gives you power to spare. Four speeds forward, four reverse . . . without clutching. Safe, comfortable, almost indestructible!

When the going gets rough... pull one pin and your rider converts to a walker. Takes to steep terrain like a mountain

goat . . . does the tough trimming, the gardening and rugged clearing jobs with ease.

Four-season performance... with your choice from 39 attachments that give you power to mow, plow, blow snow, haul or do any other lawn and garden job — better! For as low as \$27.07 a month*, you can own the new Gravelly Convertible with 40" mower! See your Gravelly dealer for exact price in your area. Send for our FREE CATALOG. Write now: Gravelly, 5705 Gravelly Lane, Dunbar, W. Va. 25064.

**After minimum down payment*

 **GRAVELLY**

TRACTOR DIVISION
Studebaker
CORPORATION

**The newest in compact tractors
from the oldest compact tractor
manufacturer—1917-1967**



COMMERCIAL-10



CONVERTIBLE

SUPER L



**Walking
Versatility**

**Riding
Convenience**

DETROIT

LISTENING POST

BY BOB IRVIN

A "GASOLINE-ELECTRIC" CAR is being developed by General Motors as the "perfect solution" for the smog problem. Outside metropolitan areas, the driver would use a gasoline engine to propel the car. In large cities where air pollution is a growing problem, the driver would switch off the gasoline engine and turn on the battery electric drive system. It's only an experiment by GM, but it could answer a main objection about electric cars—their limited range. Conceivably, the gasoline engine could be used to recharge the battery electric system, eliminating the need for overnight recharging. American Motors toyed around with a similar system in the late '50s.

HEADLIGHTS THAT OPERATE DAY AND NIGHT—just as on Greyhound buses—are a safety requirement being proposed for 1969 cars by the U. S. General Services Administration. The GSA lists this as one of the 31 safety standards for the '69 cars it will buy for its own use. Almost all the GSA's 17 standards for 1967 cars are on all civilian autos this year. Another '69 requirement of the GSA is a rollbar for cars. To comply, a car would have to be rolled at 50 mph and the top not dented more than six inches. The GSA also wants a "bulkhead" between the rear seat and the trunk to prevent things from being thrown into the passenger compartment in a collision. It would be similar to the "firewall" between the engine and the front seat. Another requirement is a buzzer attached to the reverse gear of a transmission. When you wanted to back up, the buzzer would sound automatically, warning pedestrians who might be behind the car. How many of these will find their way into regular production is open to conjecture. Another federal agency writes standards for private cars and it has the final say in this area.

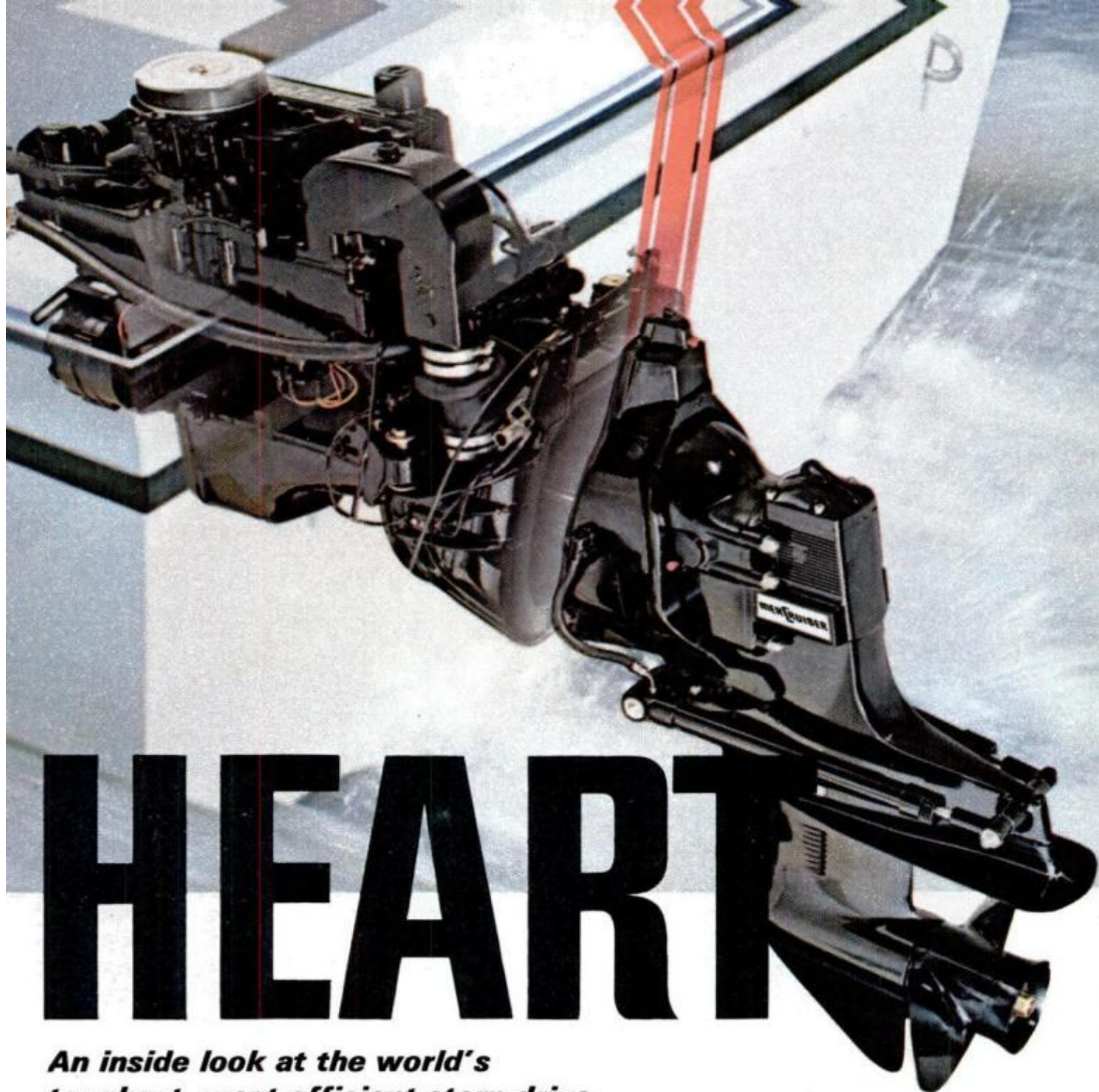
NUTS AND BOLTS obviously play an important part in determining the safety of an automobile. One Ford engineer, R. E. Van Deventer, believes a "respectable percentage" of all safety recall campaigns by the industry can be blamed on problems associated with "fasteners." So, Ford has invented a new nut and bolt system. Called "uniform bearing stress" fasteners—or UBS for short—they clamp together at a uniform strength of 25,000 pounds per square inch. Another feature—they don't require washers. Ford expects to save millions of dollars with the new system and will have some of the new nuts and bolts on the 1968 model cars.

SMALL BUT WELL-KNOWN AMERICAN AND FOREIGN CAR MANUFACTURERS may be in trouble on the government's 1968 safety standards, even though "watered down" because of vigorous industry complaints. The NSU Prinz and the Sunbeam Imp, for example, can't meet a standard requiring a rupture-proof fuel tank and as a result probably will not be sold here next year. Another well-known European manufacturer that pioneered in the use of shoulder belts is in trouble meeting the loading requirements established by Washington. Checker Motors, of Kalamazoo, Mich., with only limited engineering and research facilities, is going to have to make some major changes if it expects to sell cars next year. Ditto for some of the specialty carmakers.

A THIEF has been hired by General Motors. He's a pro and his job is to show GM engineers how easy it is to break into cars and steal them. GM hopes to learn from him how to build a "thiefproof" car.

JAVELIN IS THE NAME mentioned for American Motors' new sporty car. The Javelin is a Mustang-type auto featuring a long hood and short rear deck treatment. It'll be out next year.

(Please turn to page 78)



HEART

An inside look at the world's toughest, most efficient stern drive.

Rugged MerCruiser power speaks softly: rubber-mounted engine, neoprene coupling between crankshaft and drive unit plus Jet-Prop exhaust make this the quietest stern drive ever built. And MerCruiser carries a big stick: performance-proved engines geared to take bigger props for tremendous low-speed thrust and high-speed efficiency. MerCruiser is built to last, with lower unit housing die-cast of one piece of high-impact aluminum—no nuts, bolts, screws or gaskets. Rugged shearproof drive eliminates vulnerable shear or drive pins. And MerCruisers with Jet-Prop exhaust require only one hole through the transom: it's a stronger, neater, leak-free installation. MerCruiser is tough, but responds instantly to the lightest touch on its single-lever throttle and shift control. And new Power Trim

hydraulic system (optional on 120, 160, 225-HP models) lets you trim your boat while under way with the flick of a dash switch. MerCruiser '67: *engineered to stay ahead*: 60, 80, 110, 120, 150, 160, 225, 325, 475 HP—plus 60-HP diesel. See your MerCruiser dealer, or write for '67 catalog to Dept. PM-5A, Kiekhaefer Corp., Fond du Lac, Wisconsin.



WORLD LEADER IN MARINE PROPULSION

Kiekhaefer Corp., Fond du Lac, Wis. Kiekhaefer Mercury of Canada, Ltd. Kiekhaefer Mercury of Australia Pty. Ltd. Subsidiary of Brunswick Corp.

More people buy

MERC[RUISER

than all other stern drives combined

Материал, защищенный авторским правом

3 tools that stop leaks permanently.



They're 3 DOW CORNING® Silicone Rubber Sealers that repair, seal, insulate and waterproof.

These are the tough sealers like those developed by Dow Corning to help keep Gemini spacecraft in orbit. They'll stand up to extreme heat and cold. They're all silicone rubber. Guaranteed for 10 years against shrinking or cracking.

There's no guessing about which one to use. The color tells you which sealer does the job best. And even if you're "all thumbs", you'll find Dow Corning sealers give you a professional-looking job.

You'll find lots of new uses for these sealers. Pick up some at your hardware, paint supply or specialty store. They cost a little more than non-silicone sealers. But they're worth it.

METAL SEALANT (Aluminum) **CLEAR SEALER** **GLASS CAULK** (Black)

DOW CORNING

Consumer Products Division
Greensboro, N.C.

DETROIT LISTENING POST

(Continued from page 76)

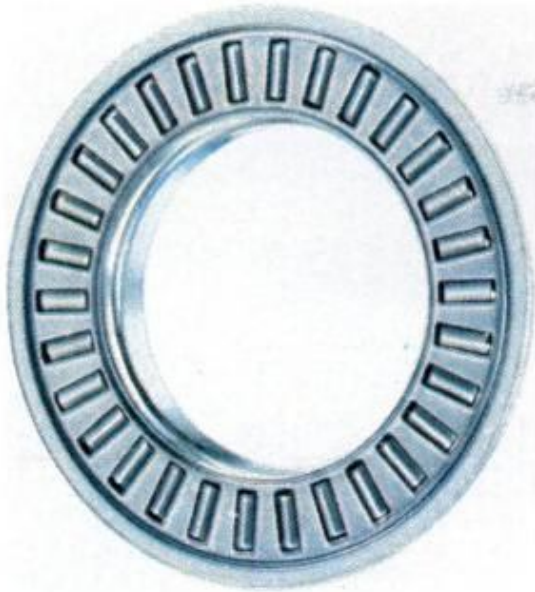
AUTOMATIC HIGHWAYS within eight years are a possibility predicted in a new national urban transportation study ordered by the Automobile Manufacturers Assn. Prototype systems already exist that would permit automated steering and spacing control of autos on freeway-type roadways. "Such systems, which may be in partial use by 1975, will permit cars to travel bumper-to-bumper at speeds up to 150 mph, with the driver retaining manual control of the car when not on the automated roadway," according to the AMA study.

THE UNMISTAKABLE SMELL of a diesel-engine bus may be on the way out. Bus companies tried additives in the gas (a "rose" smell was used in Detroit), but this merely ruined the engines. Now, General Motors has a new catalytic muffler it's testing that eliminates both smell and smoke. The federal government says it hopes to make such devices mandatory, starting with 1970 models.

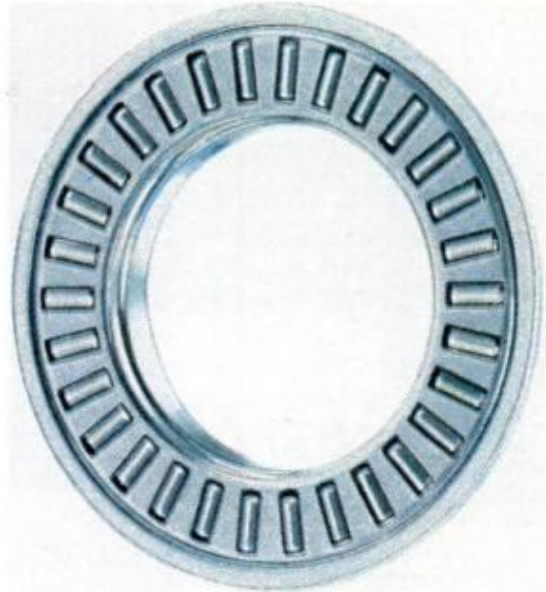
PRICES OF 1968 CARS are sure to go up at least \$100. But the auto industry may have a hard time justifying the increases. This is because the only things being added that the public will be able to see are two more lap-type safety belts and two more shoulder belts. An exhaust emission control system is also being added, but that will be out of sight. However, as General Motors Pres. James M. Roche puts it, "Additional equipment costs money and everything that goes into a car is reflected in its overall price."

THE FEDERAL GOVERNMENT is conducting "recall campaigns" of its own. It hasn't been publicized, but Secretary of State Dean Rusk wired all embassies and diplomatic posts a few months ago to check the safety belts on their cars. It seems the buckles have been sticking and may be faulty. The belts, it's understood, are made by an "in house" source and are not from any private company.

HEY, DOC! Sales will jump as employment goes up and economic growth factors restore consumer confidence, says AMC boss Roy Chapin, Jr. He says this winter's poor sales resulted from the U.S. being in a "psychological slump." ★★★



**This is a
GM Original:
It smooths
out transmissions.**



**This is a
GM Replacement:
It's just
as shifty.**

There's only one difference between a GM Original Part and a GM Replacement: One comes in a car—the other comes in a box. Besides that, they're identical. That's good news. Especially if you ever need anything as strong as this needle thrust bearing. It has to take your engine's torque by the horns. And pin it down. Give your car the best. Take it where they use Genuine GM Parts. They're available just about everywhere in GM and United Delco packages.

Good parts go with good service.

GENUINE GENERAL MOTORS PARTS



CHEVROLET • PONTIAC • OLDSMOBILE
BUICK • OPEL • CADILLAC • GMC TRUCKS

**United
Delco**



This 2 level house and garage were painted 4 years ago. The colors are so bright they look like they were painted last week. That's the superb color retention of Dutch Boy Latex House Paint.



A beautiful house with a beautiful paint job done in 1964. Dutch Boy Latex House Paint makes the difference—200 years of paint-making experience.



This house? Painted 6 years ago and not one sign of peeling! When used with PBL (Penetrating Bonding Liquid), Dutch Boy Latex House Paint is guaranteed against peeling from a sound previously painted surface for 5 years.



This can has it all! Exclusive formula with 100% pure acrylic latex. Plus 200 years' experience. Plus superior color retention. What more could you want from a paint?

**All Latex House Paints
are not the same.
Dutch Boy[®]
makes the difference.**

THE MOST DANGEROUS JOB IN VIETNAM

Disarming Vietcong bombs and booby traps is the everyday work of explosive-ordnance-disposal crews—whether in a crowded Saigon street or an insect-infested jungle

By WILLIAM KREH

Illustrations by ZIK Associates

IT WAS ONLY a cheap wristwatch concealed inside a discarded flight bag on a Saigon sidewalk. A U.S. Navy man in green combat uniform needed only one look.

"It's a Claymore, and she's ticking," he quietly told his companion. "Get the area cleared—quick!"

A Claymore is an ingenious mine designed to spray hundreds of jagged iron pellets when it explodes. The

wristwatch inside this one was its timer, and the tick that would set it off could be the next.

The airline bag had been discovered minutes after 250 pounds of explosive, hidden in an automobile, had blasted Saigon's Metropole Hotel, killing 10 and wounding 37.

Quietly, while American MPs and Vietnamese police moved to clear the area, the Navy man went to work. Us-

ing his tools with all the care of a brain surgeon, he occasionally stopped to take a deep breath and wipe perspiration from his forehead. One wrong decision would be fatal.

Finally, he straightened up, smiled and waved his hand. The crowd that had retreated to a safe distance began to move again. The Navy man exhaled deeply and reached for a cigaret. Another successful mission for the EODers—the men with the nerve-racking job of explosive-ordnance disposal. The teams are composed of a special breed of derring-do men from



FAVORITE VC TRICK is to set small explosives in areas where crowds gather. Above, bomb was set in flight bag, triggered by wristwatch, after Metropole Hotel explosion attracted the curious. EOD man disarms it

all the military services whose mission is disarming and disposing of all types of ordnance.

In Vietnam, where the name of the VC game is booby traps and chaos, the EODer's job is a lot more complicated because the weapons used are far from conventional. Take bicycles, for example. Plastic explosives can be—and have been—packed into the fenders and frame of an ordinary bicycle, and there are thousands in Saigon. Flashlight batteries provide the detonating power, and the headlight usually contains the timing device, connected by wire to a blasting cap. Enough explosive can be loaded into one bike to kill or maim several people.

And, of course, there are the explosive-packed loaves of bread, the deto-



BOOBY TRAPS are set by Vietcong in innocent everyday items like loaves of bread and empty beer bottles



ORDINARY BICYCLE can become death trap with explosive charge in framework set off by head lamp

nating beer bottles, and the exploding "souvenirs" that the Vietcong are noted for. (See *Deadly Booby Traps in a Dirty War*, June '66 PM.) They're all in the EODer's repertoire of disarming techniques.

Sometimes the Vietcong booby-trap the booby traps in an attempt to catch the EODers at their work. Boiler Tender I.C. Paul McCraw, a veteran of 10 months with the Navy EOD team in Saigon, says, "We're always on the alert for some second or third device."

Just such a thing happened. A piece of pipe with a burned-out fuse wrapped around it was found. It looked like a common homemade pipe bomb that had failed to go off. The EOD man who was called to the scene may have thought it was a dud, but no one will ever know because it exploded the minute he got near it. The pipe bomb had been purposely rigged to get him—and no one else.

The six-inch piece of pipe may have contained a complex electrical system, designed to explode on touch. Or it could have been fixed to explode when

light entered it, or it could have contained a trembler switch that would set it off through the vibration of the EOD man's approach. It could have been mechanically rigged, or electrically, or chemically, or electronically, or any combination of these.

A favorite story among EODers—and a true one—is the time a team was called to dispose of a small box thought to be a bomb. It was a tricky, time-consuming procedure. First the area was cleared of spectators. Then the team went to work. They discovered, with their electronic stethoscope, a timing device inside the box. It could trigger the bomb at any moment.

Further investigation showed signs of a gravity switch, which rested on the ground below the box. If the box were lifted, the bomb would explode. A mercury switch was positioned inside the box, so tilting it would trigger the charge. An elaborate system of wires spread over the sides and lid of the box. If the lid was lifted or a cut made in a side of the box, *boom!*

Another device inside the box made it impossible to take X-rays of the bomb without detonating it. Nevertheless, the

(Please turn to page 201)



U.S. BOMBLETS that fail to go off are used against Americans, rigged under rock that hits detonator

The flight that tied

Forty years ago this month Charles Lindbergh flew alone across the Atlantic Ocean, dramat-

IT'S DIFFICULT to imagine today, in an age when jets crowd the airways and rush passengers in a few hours from the United States to Europe, that just 40 years ago those skies were empty.

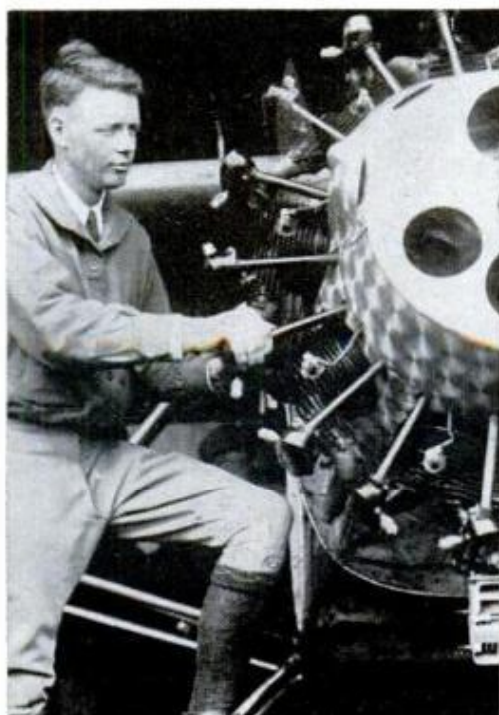
Then in May, 1927, amidst a rash of publicity, several great names—Americans Byrd and Chamberlin, and Frenchmen Fonck and Nungesser among them—prepared to vie for a \$25,000 prize offered for the first non-stop flight between New York and Paris. Great plans and great planes were at their disposal, some with multi-engines, copilots and navigators.

Into their midst flew an unknown pilot in an unknown airplane with only one engine. And he announced he was going to do it alone. His name was Charles Lindbergh.

In the end, of course, the loner triumphed. His 33½-hour solo flight, made with maps he marked himself in a public library, still stands as one of the great epics of human achievement.

Quotes reprinted with the permission of Charles Scribner's Sons. Excerpts from The Spirit of St. Louis by Charles Lindbergh. Copyright 1953 Charles Scribner's Sons.

By KEVIN V. BROWN

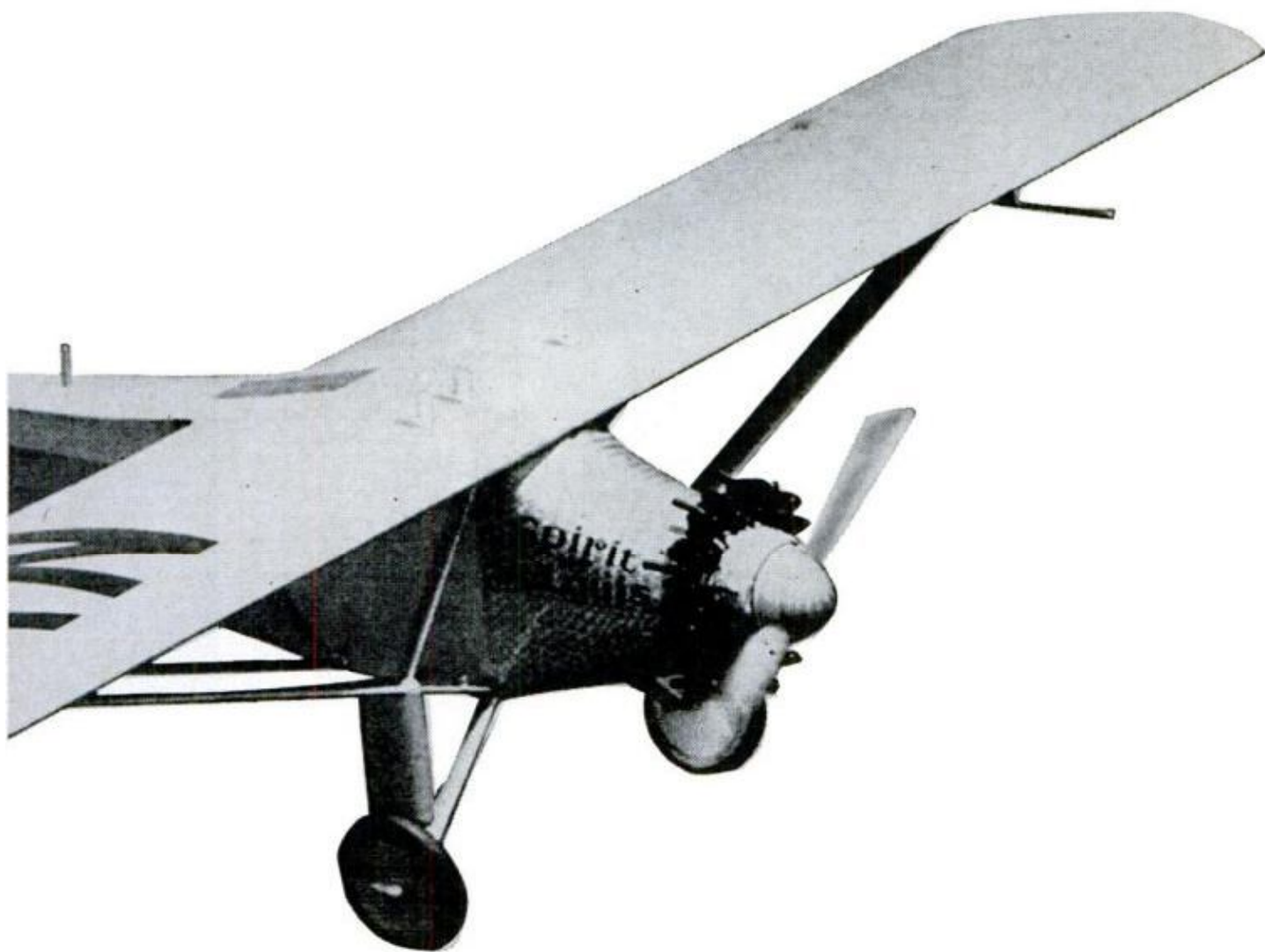


"Why shouldn't I fly from New York to Paris? I'm almost twenty-five . . ."

But into those 25 years Lindbergh had poured rich experience. He was a complete aviator, a mechanic as well as pilot. He could—and often did—repair and test his own aircraft. In the end he helped design the plane he flew across the Atlantic. He knew exactly what he wanted. He had been a barnstormer and an airmail pilot, logging more than 2000 hours in all kinds of weather and over all kinds of terrain. They called him Lucky Lindy, but it wasn't luck. It was preparation and skill.

the world together

ically lifting aviation from the barnstorming era into an age of intercontinental flight



"I don't want a trimotored plane . . . it would need a crew. I'd rather go alone."

Compared to other huge planes attempting the flight, *The Spirit of St. Louis* (named for St. Louis businessmen who sponsored his flight) looked too small for the task. But even this, like its lone, young pilot, made the ultimate triumph even more dramatic. There was sound reason for his selection. Multi-engine planes, he said, had more things that could go wrong with them. He wanted simplicity. He stripped the Ryan monoplane of all unnecessary weight. He carried no parachute, and only a small raft.



***"I'll have to get 450 gallons into the air.
It's more than Hall designed the plane for . . ."***

Lindbergh sacrificed everything for lighter weight and greater range—he had 3600 miles to go, mostly over water—and Donald Hall, chief engineer for Ryan Airlines, obliged by redesigning the basic Ryan monoplane to accommodate five fuel tanks. So on the morning of May 20, 1927, the first problem was not whether he would make it to Paris, but whether the small, overloaded plane would even get off the ground and clear the telephone wires at the end of Roosevelt Field. It did—by 20 feet—and the next 33½ hours divided all aviation into the past and the future and shrank the world.

"I had barely cut the engine switch when the first people reached my cockpit . . . souvenir hunters were going wild."

The French picked up news of his impending success when Lindbergh crossed the tip of southwest Ireland (less than three miles off course, more than 28 hours after leaving New York) and began flocking to Le Bourget Aerodrome as more sightings over England and northern France were reported. Lindbergh was surprised at the reception. He thought he might have to identify himself when he landed. Instead, the cheering French, almost insane with joy at being witness to history, carried him away bodily and, were it not for the cordon of police and soldiers, might have destroyed the aircraft for souvenirs.



***"I woke that afternoon . . .
into a life that could hardly
have been more amazing . . ."***

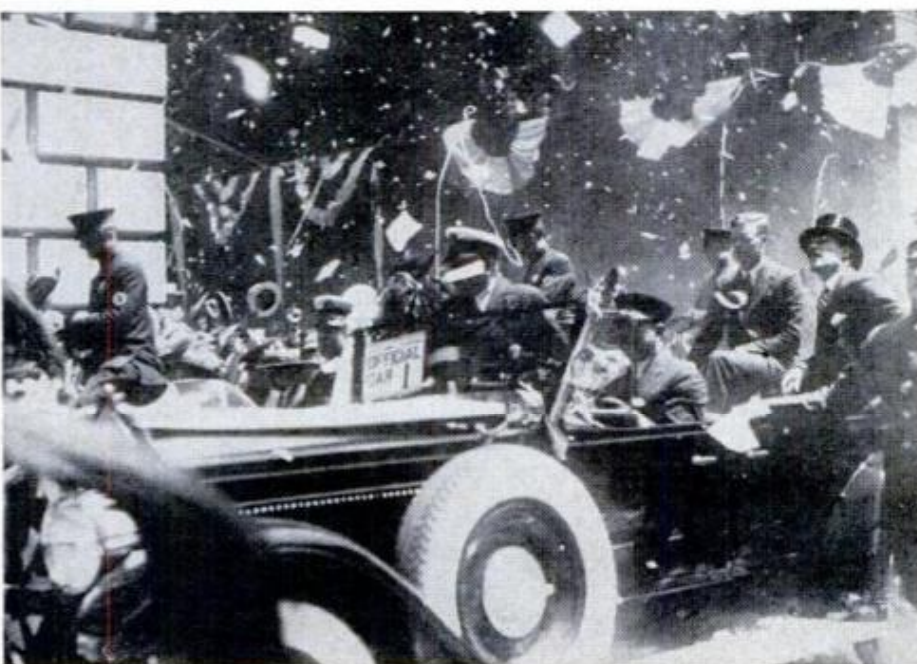
He had not slept in 63 hours, and when he awoke after a mere eight hours' sleep, the world awaited him. First the French, who greeted him with Ambassador Myron Herrick as he waved American and French flags from a balcony of the American Embassy, then the Belgians, then the English, when he flew the battered but repaired *Spirit of St. Louis* to each of their countries. Then President Calvin Coolidge sent the cruiser *Memphis*, to bring both him and his airplane home to a waiting America.

Chicago Sunday Tribune

LINDBERGH LANDS IN PARIS

"Am I Here." He Asks
The New York Times.

LINDBERGH DOES IT! TO PARIS IN 33½ HOURS;
FLIES 1,000 MILES THROUGH SNOW AND SLEET;
CHEERING FRENCH CARRY HIM OFF FIELD



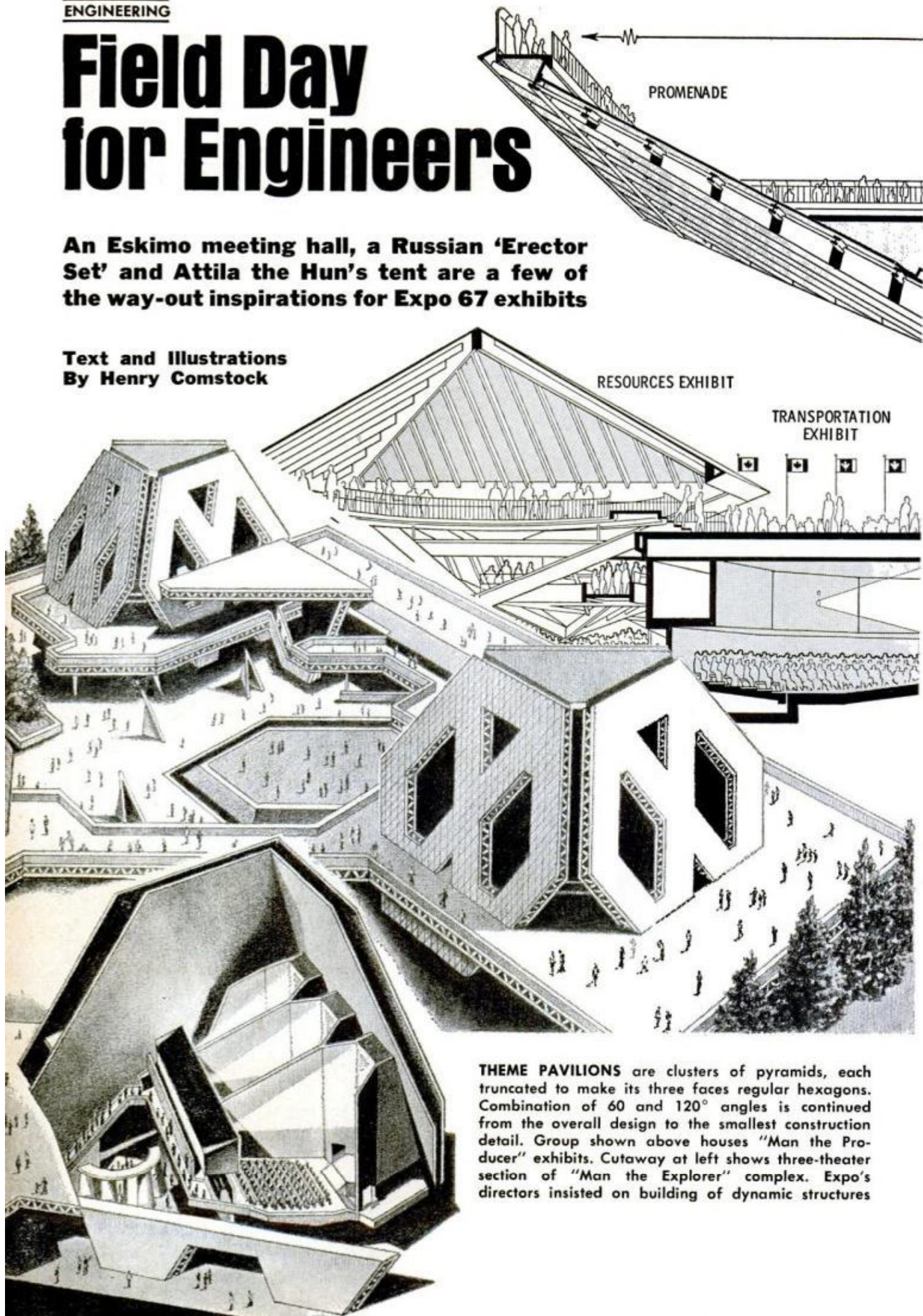
"It was a welcome which words of appreciation are incompetent to cover . . ."

Lindbergh captured the imagination of the American mind as no hero, real or fictional, has ever done. A young, shy, modest, yet rugged individualist, he had done what most had thought impossible—and he did it alone! Five million New Yorkers filled the streets to see him, and he didn't disappoint them. Smiling shyly, waving hesitantly, he was everything a hero should be—uncomfortable, but tolerant. Nothing he did ever topped his epic flight—nor has anything else in aviation history.

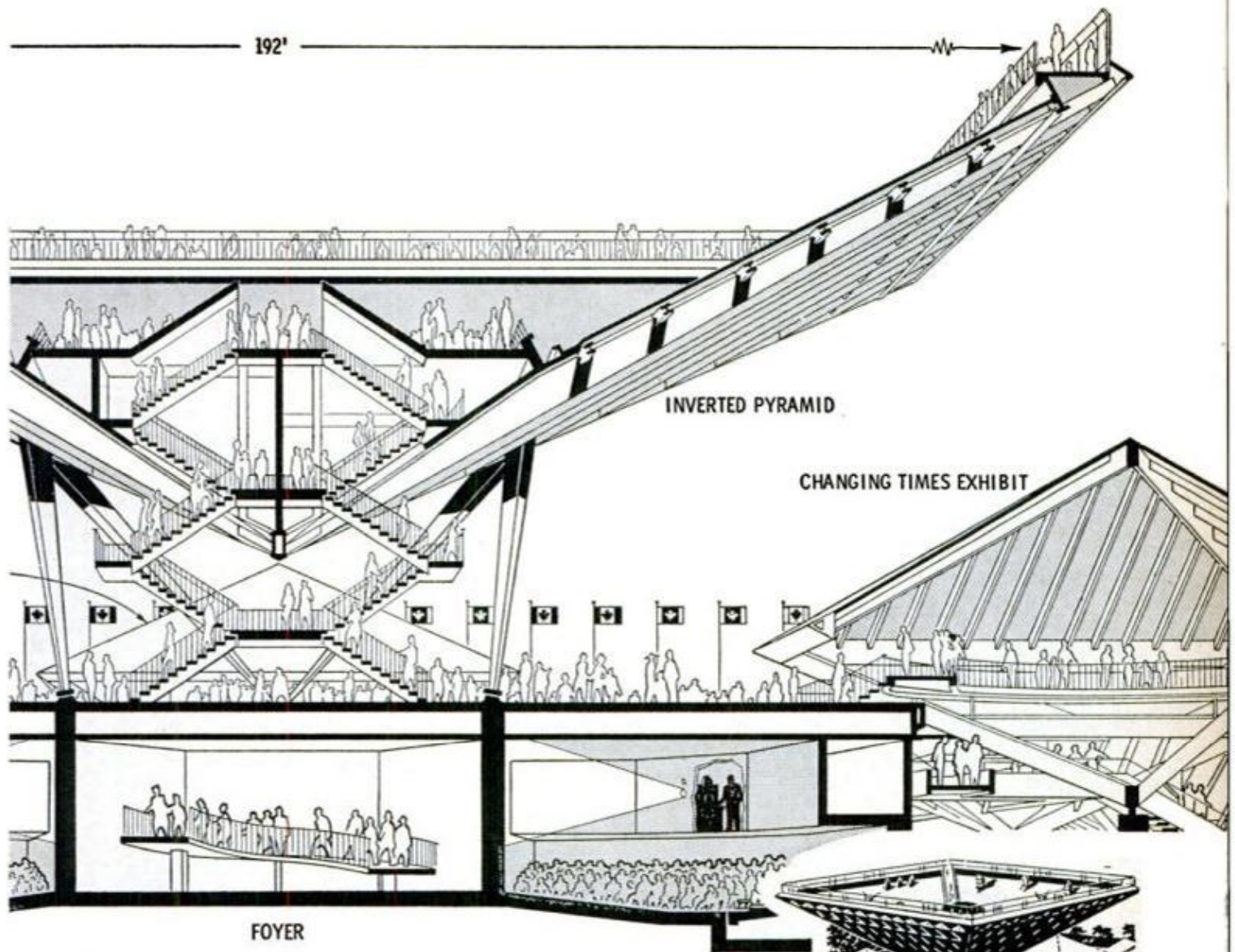
Field Day for Engineers

An Eskimo meeting hall, a Russian 'Erector Set' and Attila the Hun's tent are a few of the way-out inspirations for Expo 67 exhibits

Text and Illustrations
By Henry Comstock



THESE PAVILIONS are clusters of pyramids, each truncated to make its three faces regular hexagons. Combination of 60 and 120° angles is continued from the overall design to the smallest construction detail. Group shown above houses "Man the Producer" exhibits. Cutaway at left shows three-theater section of "Man the Explorer" complex. Expo's directors insisted on building of dynamic structures



CANADIAN PAVILION complex is topped by 100-foot inverted pyramid called *Katimavik*, Eskimo for "meeting place." Below four supporting columns, a slowly rotating theater will offer 950 seated spectators a filmed history of Canada's growth. Exhibits in three connected pyramids will feature Canadian resources, transportation and changing times. From the lip of the 102-foot *Katimavik*, promenaders will view displays on the vinyl-skinned structure and, outside, panoramas of the fairgrounds, the St. Lawrence River and Montreal. The fair has been built on largely man-made islands in the river

EXPO 67 THE ONLY spectacular you'll miss at Canada's newly opened Expo 67 is the construction spree which produced its 1000 acres of eye-popping pavilions.

This hardhat's field day began when our northern neighbor invited the world to set up shop at its Centennial Exhibit. More than 70 nations sent architects and engineers to Montreal.

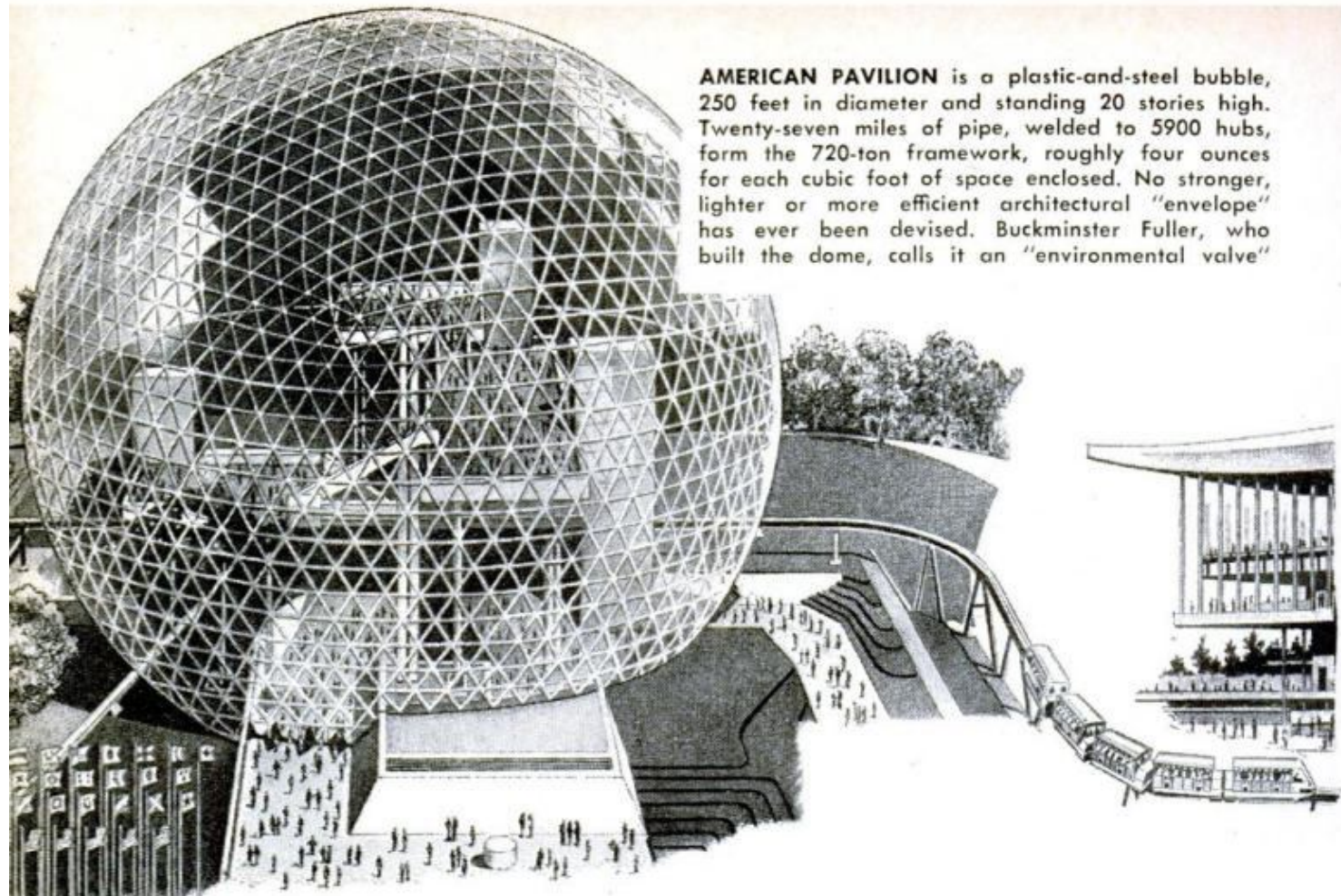
They were shown a handsome building site—an arm of the St. Lawrence waterfront and two adjacent islands. Seven-million cubic yards of fill had been plopped into the stream to extend the peninsula, form one of the "iles,"

and double the area of the other. Diked pockets marked locations for coming lagoons, Venetianlike canals and a marina.

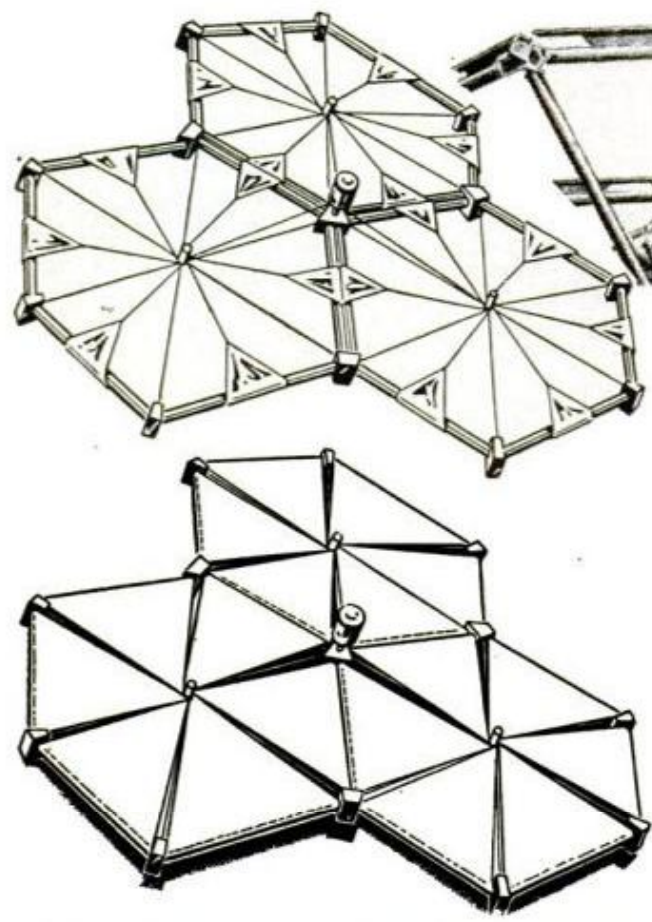
Expo 67's directors tactfully made it clear they wanted no static structures marring that setting. Instead, the pavilions should match the free-wheeling mood of the river itself.

This was all the T-square and slide-rule artists wanted to hear. Some of the steel, glass, plastic, plywood and concrete palaces they whipped up would turn a Martian pink with envy. Others were only awesome, thought-provoking or good for a laugh.

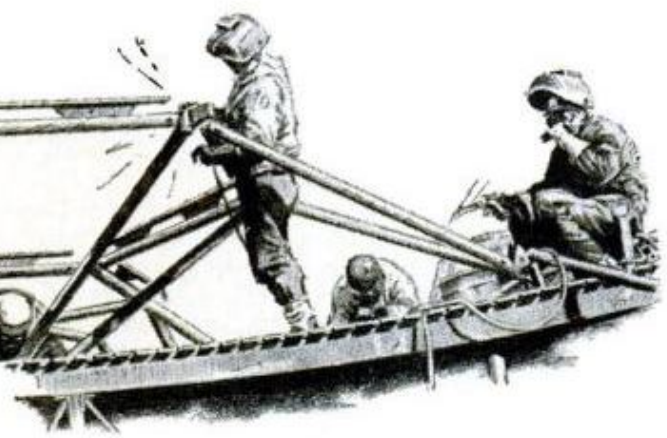
No one can tell you which are which;



AMERICAN PAVILION is a plastic-and-steel bubble, 250 feet in diameter and standing 20 stories high. Twenty-seven miles of pipe, welded to 5900 hubs, form the 720-ton framework, roughly four ounces for each cubic foot of space enclosed. No stronger, lighter or more efficient architectural "envelope" has ever been devised. Buckminster Fuller, who built the dome, calls it an "environmental valve"



THERMOSTAT-TRIGGERED MOTORS draw heat-refracting shades across acrylic-glazed hexagons when sunlight is intense, governing temperatures inside huge geodesic dome—part of environmental control



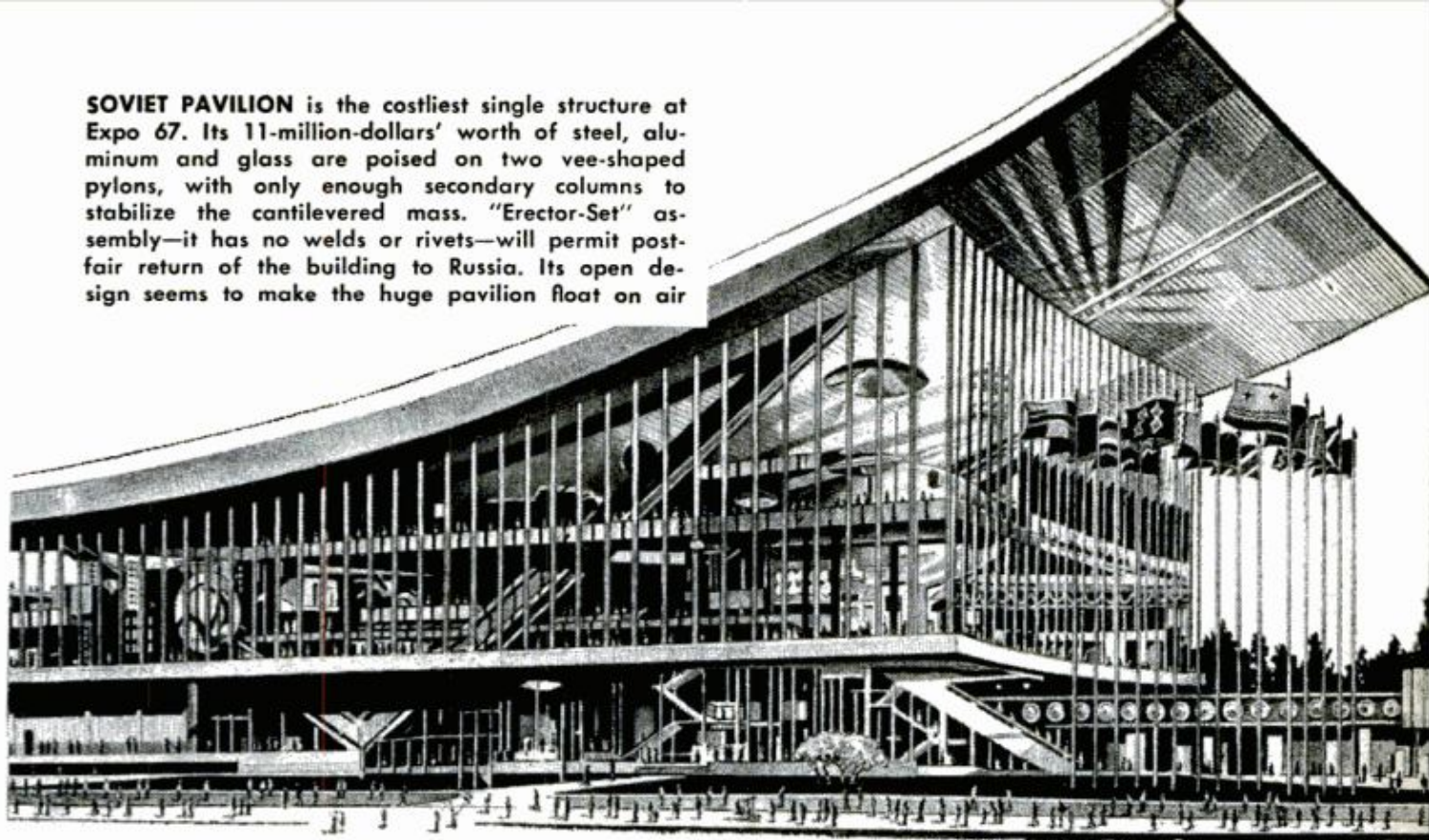
HEXAGONAL-FRAME SECTIONS were welded to perfect contour on saucer-shaped jig formed of 1-by-3-inch metal bars, then hoisted into place on dome

it's a decision you have to make for yourself. But here are some random notes that may suggest why Expo 67's attendance counters are expected to click 30 million times before the wrecking cranes move in next November:

- **Canada's Katimavik.** An inverted pyramid nine stories tall, symbolizing Canada's spreading development. Filled with music as well as exhibits, it may kindle wistful gleams in the eyes of audiophiles, unhappy with 12-inch woofers.

Within the base, a carousel theater,

SOVIET PAVILION is the costliest single structure at Expo 67. Its 11-million-dollars' worth of steel, aluminum and glass are poised on two vee-shaped pylons, with only enough secondary columns to stabilize the cantilevered mass. "Erector-Set" assembly—it has no welds or rivets—will permit post-fair return of the building to Russia. Its open design seems to make the huge pavilion float on air

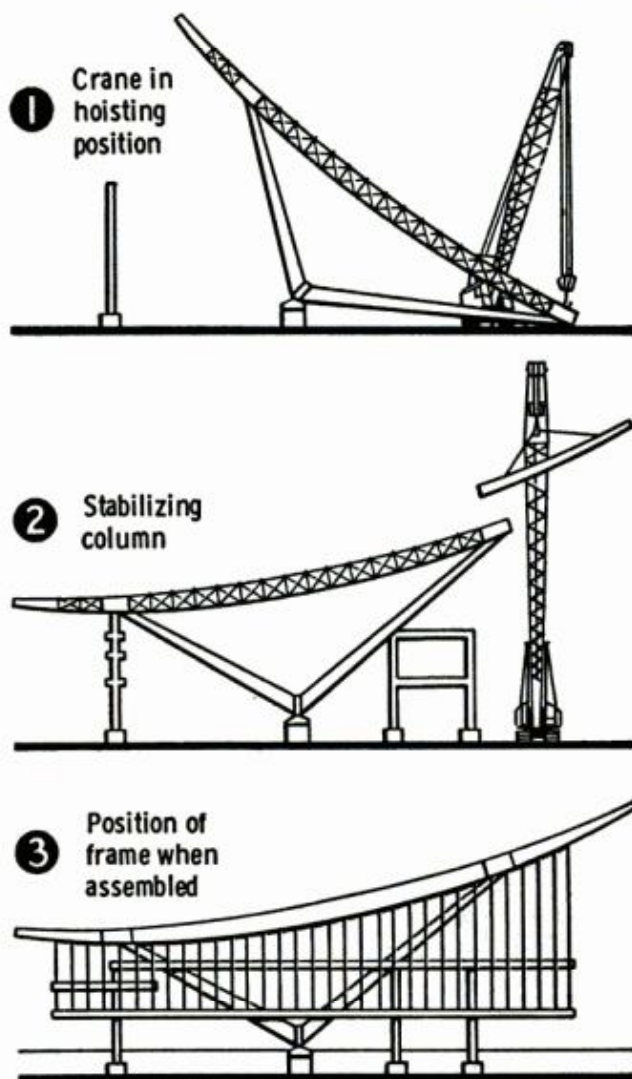


with five pie-shaped seating sections and a sixth for loading, will hitch audiences from one showing to another, revolving once each half hour.

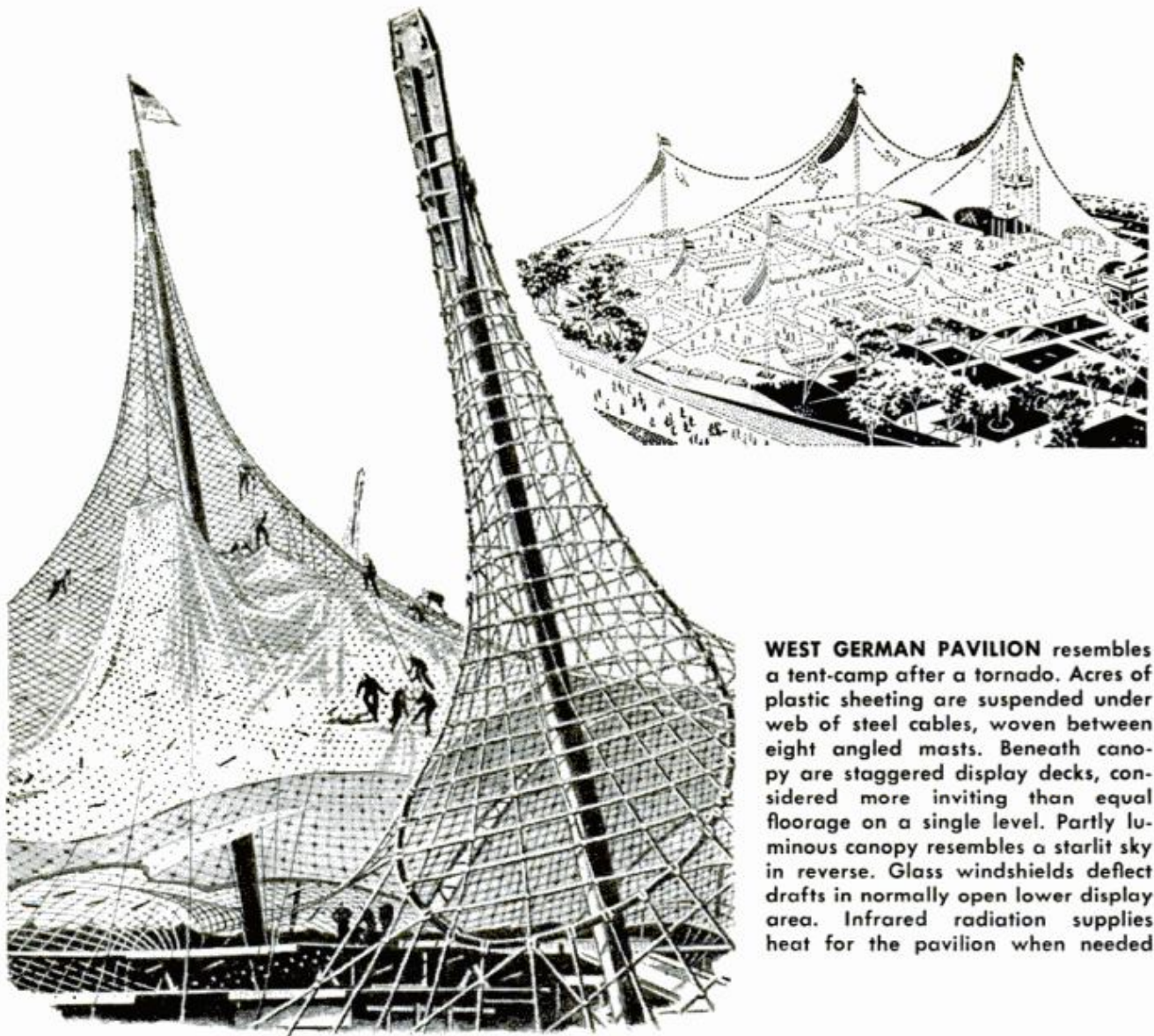
● **Uncle Sam's Big Bubble.** Seventy-year-old architect-engineer Buckminster Fuller has rolled out his largest geodesic dome yet. He describes it as "an environmental valve; the kind within which whole communities may some day enjoy a benign microcosm." This prototype literally breathes through a system of exhaust vents spotted among its 2000 acrylic "windows." The plastic is tinted to reduce glare and, for temperature control, retractable screens travel across the surface of the sphere, following the sun.

Inside, six-story-high exhibit decks are interlinked with bridges, elevators and escalators. One moving stairway has a 123-foot free span—world's longest.

● **Russia's Ambient Arena.** With its cantilever construction and 10,000 square yards of plate glass, this huge pavilion seems to float on air. But under its curved roof (big enough to hold 1000 automobiles) there's sufficient steel for a 30-story office building. While the architects were Russian, all of that metal, along with the aluminum



TWO 400-TON MAIN FRAMES were teetered to cantilevering position with the 120-ton tug of a long-boomed crawler crane. Oddly, the Russian pavilion was constructed by Italian engineers and field crews



WEST GERMAN PAVILION resembles a tent-camp after a tornado. Acres of plastic sheeting are suspended under web of steel cables, woven between eight angled masts. Beneath canopy are staggered display decks, considered more inviting than equal floorage on a single level. Partly luminous canopy resembles a starlit sky in reverse. Glass windshields deflect drafts in normally open lower display area. Infrared radiation supplies heat for the pavilion when needed

used for surfacing and trim, was prefabricated in Rome and Milan. Italian engineers and field crews erected it.

The chief attraction here is a simulated moon flight. With only 70 seats in the space capsule, waiting lines may be like those at a fogged-in airport.

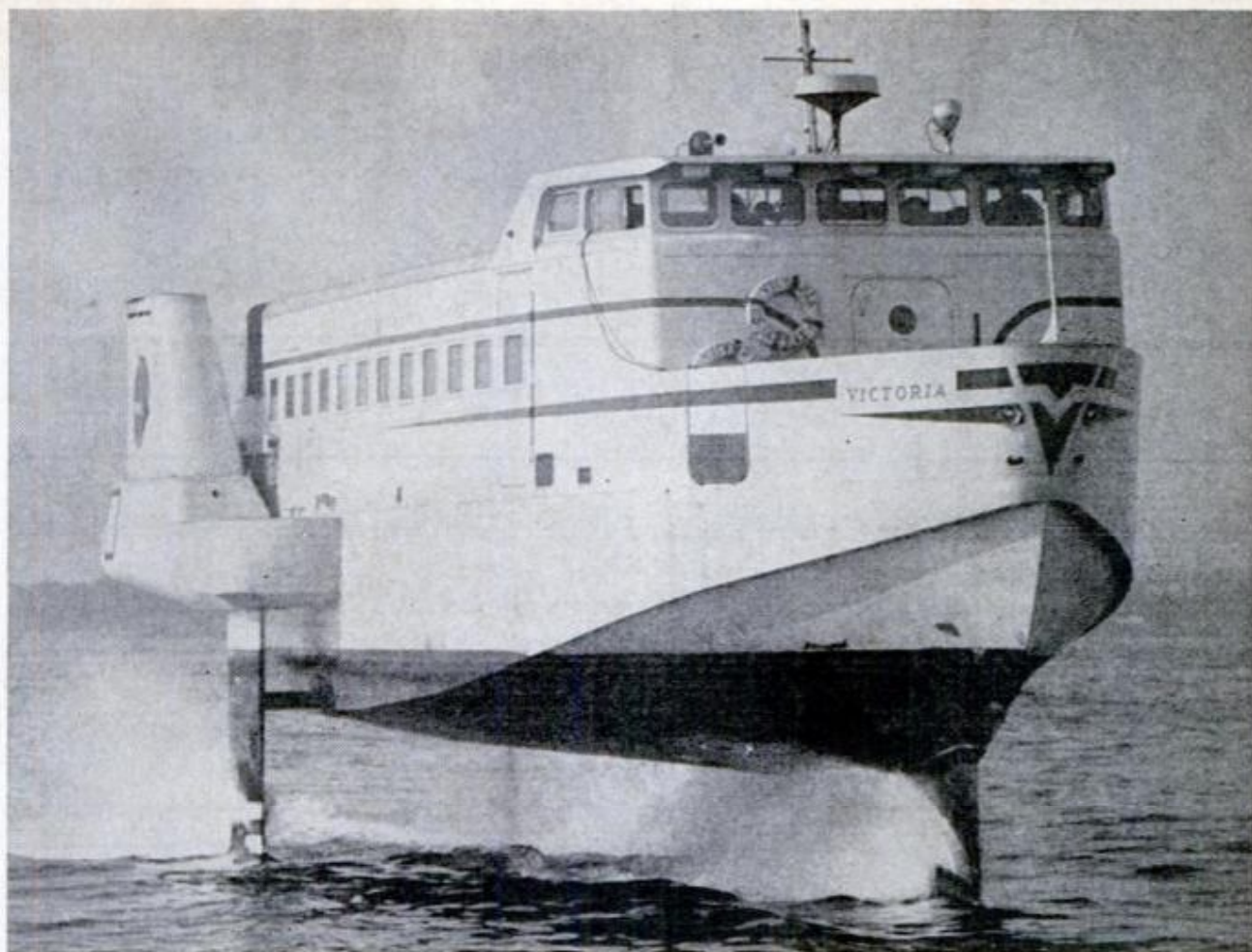
- **West Germany's Tent City.** Externally a zany network of cables, with the ends of tilted masts piercing three acres of translucent fabric, this may suggest that some huge cranes were found on the grounds opening day, and not too successfully hidden with a tarp.

But inside, the effect is handsome. The partly luminous canopy, anchored to the unseen cables, looks like a starlit sky in reverse. In good weather, the lowest display area is kept open, with drafts controlled by windshields.

- **Transportation.** Sometimes sharing plazas with, and in one case passing completely through the U.S. pavilion,

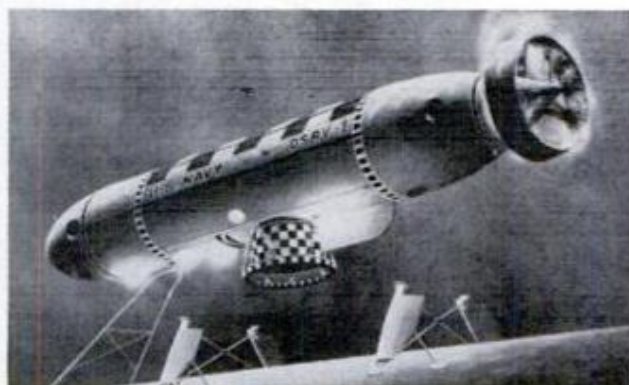
three small monorail systems are practically a part of the exhibit's architecture. Each line is a closed loop, traveled by trains of the straddling, rather than suspended, type. Imported from Lausanne, Switzerland, and Munich, Germany, 32 of these "Minirailers" ramble over 46 collective miles. There are no operators; a station attendant simply pushes a starting button and the cars amble away at a leisurely seven mph. A computer keeps traffic spread out.

Automatic operation doesn't bother the passengers here, but on the standard-size, multiple-unit trains which whisk foot-weary fairgoers between the peninsula and the islands for free, high operating speeds had an unnerving effect upon riders when the equipment was first tested. So while he does nothing but open and close the doors, an authoritatively uniformed "motorman" now sits at the head of each flyer. ★ ★ ★



Off-shore commuter boat 'flies' off water

Capable of carrying 75 passengers at more than 40 mph, the 38-ton *Victoria* tests its stainless-steel stilts on which it will glide above the water on its regular run from Seattle, Wash., to Victoria, B.C., a distance of 75 miles. The three hydrofoils pivot into place to lift the hull above the surface.

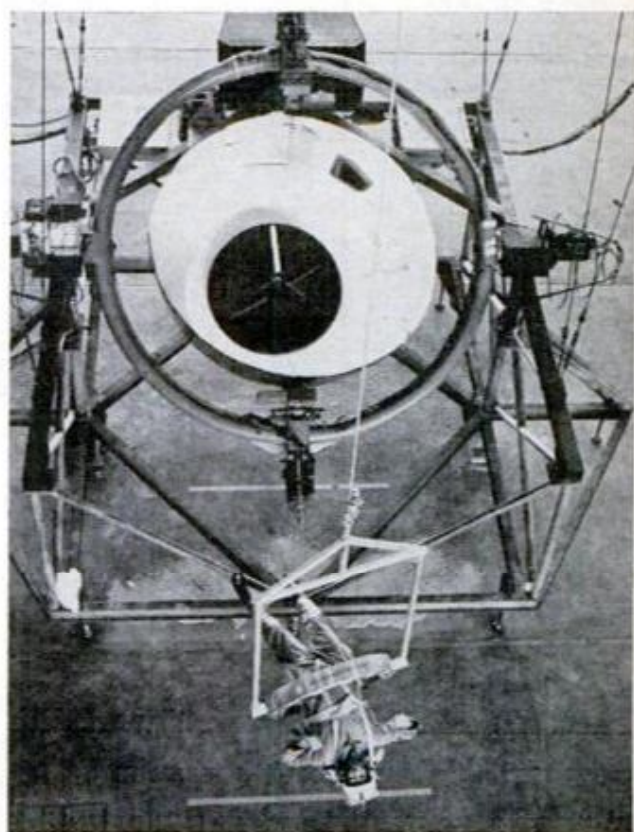


Submersible samaritan

Operating at depths to 3500 feet, a submersible rescue vehicle will be able to pick up 24 men a trip. Six are planned by the Navy for deep-sea operations.

Walking to nowhere

Suspended by gimbals, a test subject tries NASA's space-walk simulator. Using cold gas propulsion system, he propels himself in any direction he chooses.



PM OWNERS REPORT



CHEVROLET IMPALA

Impala owners buy their cars because they're Chevrolets. Past experience, price, resale and trade-in value—with style thrown in—make the choice easy for most buyers

By **BILL HARTFORD**, Associate Auto Editor

A CHEVY by any other name is still a Chevy. And that's the big reason for half of all Impala owners becoming "past experience" buyers according to *PM's* Owners Report poll.

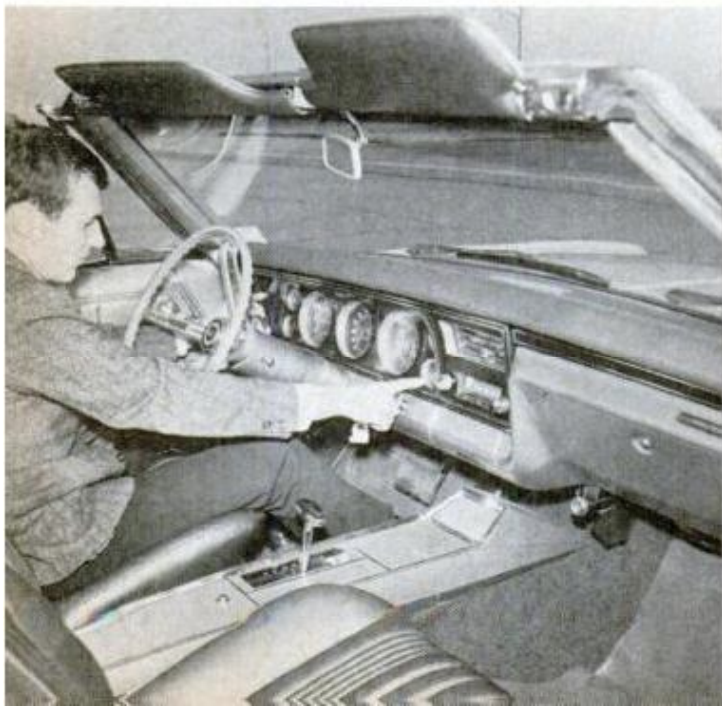
Of course, this fact is not very startling. I know a lot of car nuts who are monomaniacs when it comes to their "Mini" or their "Volks" or their "What-have-you." For them there's only one car in the world, and it's the one they're hooked on. Sometimes it's their first "What-have-you," but very often it's the latest in a long buying history.

But the Impala owners we questioned, however hooked on the Chevy line, are by no means what we call car

monomaniacs. They're not outspoken in their enthusiasm, and they don't bug their friends with advertisements for "the one and only Chevrolet." They just know that their Chevy is the best car for their money.

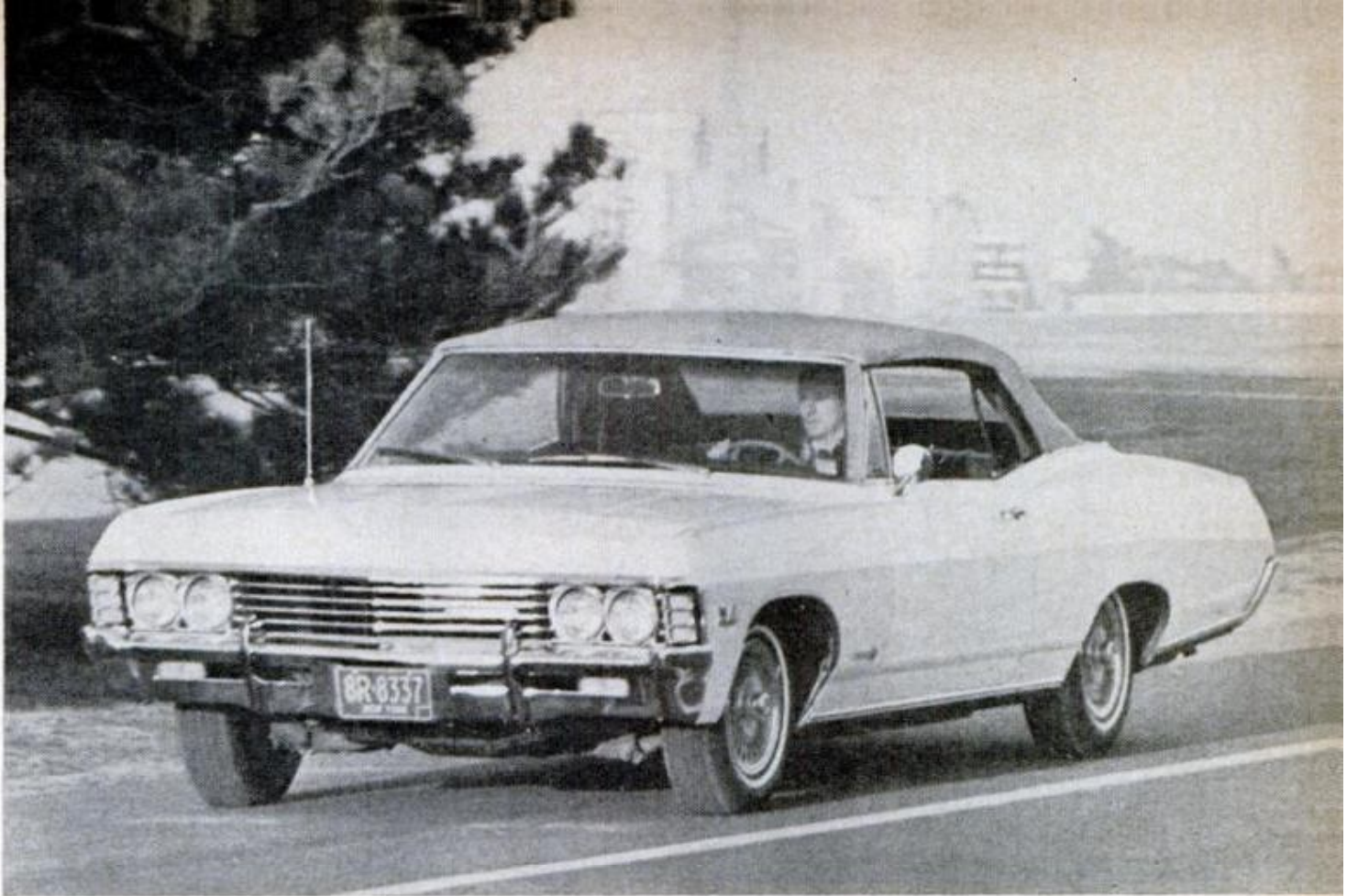
We've all known at least one old-time Chevy owner whose classic remark, when in a group of car owners talking about this or that trouble with their car, is a quiet, conversation-stopping "My Chevy always runs." Of course, there's something to be said about a dependable car, but 1967 Impala owners have a lot more to say about their cars than that they just "run"—although some owners cannot even say that.

INSTRUMENT PANEL VISIBILITY and plastic dust cover over entire panel got applause from owners



REAR-SEAT PASSENGER COMFORT got good rating from owners. Rear visibility, however, got complaints





Owners that we questioned totaled 787,912 miles of driving in their Impalas and had much in the way of details to relate to us about the car. Some of the comments should turn the heads of the "Chevy-always-runs" school.

A Maryland radar technician passes the word that his Impala is "hard to start."

An Indiana interior-decorating student found her car "hesitating on ac-

celeration" ("from a bad plug installed at the factory").

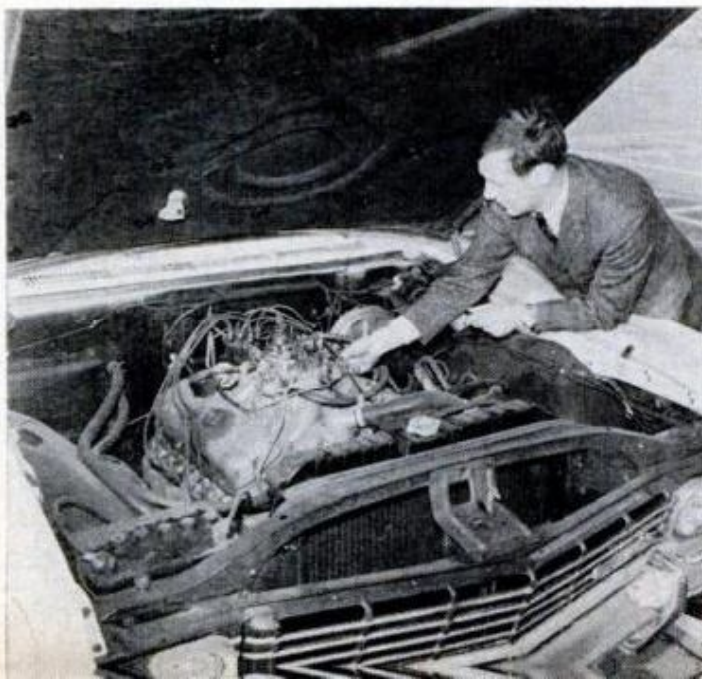
A Michigan gas man had a "miss in the motor."

And here's a frightening one. A very honest respondent—one employed in Chevrolet sales in Arkansas—says, "Anytime I accelerated to pass a car, the engine would quit running until I'd lift my foot off the gas pedal."

Naturally, these hard-starting, mis-

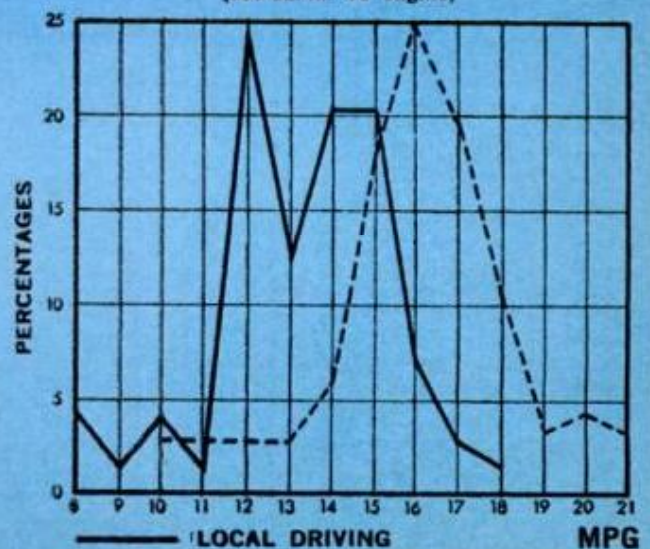
MOST FREQUENT MECHANICAL PROBLEM experienced was carburetor. Dealer repair was good

MOST POPULAR ENGINE was the 283 V8 with 2-bbl. carb. Averages for chart are 13.2 and 16.1 mpg



CHEVROLET IMPALA GAS MILEAGE CHART

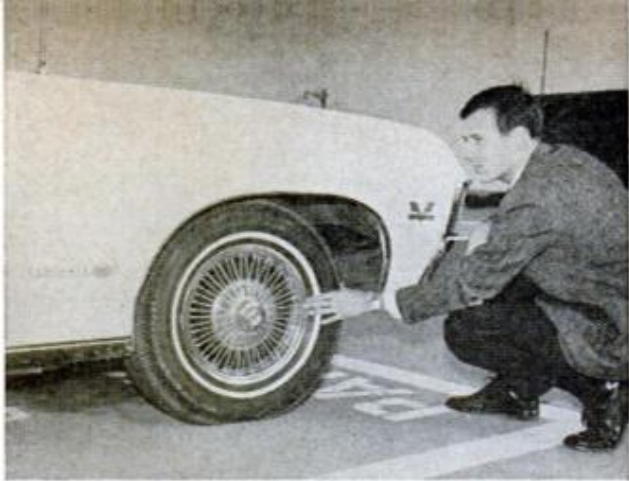
(283-cu.-in. V8 engine)





CONVERTIBLE TOP LATCH gets nothing but praise for its very quick, easy and effective operation

firing, and hesitation problems were just the "bugs" in a new car, but certainly bugs that proved aggravating and dangerous to the owners. All reported that the difficulty was repaired, but why did they have to suffer with the problem in the first place? There are few owners who will bear with a manufacturer and a dealer without com-



FRONT DISC BRAKES are on one-fifth of cars in PM owners poll. They're also big "next time" option

plaining while the bugs in his car are ironed out *after* he buys it.

It's the rare owner who can say—like the Massachusetts store owner—that the mechanical problems he's had have been "just the usual odds and ends on a new car." He's a second-time Impala owner who "had one before and was

(Please turn to page 204)

Summary of Chevrolet Impala Owners Reports*

Total miles driven787,912

Average miles per gallon:

283-cu.-in. V8, local driving	13.2
long trips	16.1
327-cu.-in. V8, local driving	13.2
long trips	16.1
396-cu.-in. V8, local driving	12.6
long trips	14.9

Specific likes:

Handling	38.4%
Styling	37.9
Comfort	31.6
Ride	26.0
Performance	20.9
Economy	17.5
Power	9.0
Visibility	7.9
Quietness	6.8
Roominess	5.7

Specific dislikes:

Rear visibility	22.9
Economy	20.1
Wind noise	11.8
Rattles	9.0
Workmanship	7.6
Fender splash	7.6
Glove compartment	6.9
Weak rear suspension	5.6
Dealer service	5.6
Poor window fit	5.6
Lack of gas-tank baffles	4.9
Roadability	4.9
Engine noise	4.9

Model:

SS Coupe	23.2
SS Convertible	2.6
Impala Sport Sedan	12.9
Impala Sport Coupe	30.4
Impala 4-door Sedan	30.9

Transmission:

3-speed manual	6.2
4-speed manual	7.3
Automatic	86.5

Had mechanical trouble?

No	50.5
Yes	49.5

What kind of trouble?

Carburetor	16.0
Transmission	8.5
Window fit and action	8.5
Electrical	7.4
Brakes	6.4
Oil leak	6.4
Door fit	6.4
Minor	6.4
Airconditioning	5.3
Clock	5.3

Dealer service:

Excellent	15.0
Very good	20.0
Fair	10.0
Poor	10.0
Very bad	30.0
Too expensive	5.0
Warranty not honored at all dealers	5.0
Not enough mechanics	5.0

Why did you buy your Impala?

Past experience	47.8
Style	27.4
Value/trade-in/price	25.3
Resale value	12.9
Performance	12.4
Economy	9.7
Dealer/dealer service	6.5
Size	5.4

Would you buy another Impala?

Yes	86.4
No	13.6

Is Impala your only car?

Yes	51.8
Two cars	38.1
Three or more	10.2

Other cars owned:

Chevrolet	47.4
Chevy pickup	16.8
Oldsmobile	8.4
Ford	6.3
Chevelle	5.3
Corvair	4.2
Volkswagen	4.2
Ford pickup	3.2
Pontiac	3.2
Bu'ck	3.2
Unspecified pick-up	3.2

Options and accessories:

Power steering	88.3
Power brakes	44.7
Tinted windshield	42.9
Airconditioning	41.8
White-wall tires	21.2
Front disc brakes	20.4
Safety items	15.2
Rear speaker	14.7
Wheel covers	14.1
Vinyl roof	10.3
Positraction	8.7
Window washer	7.6
Heavy-duty suspension	6.5
Courtesy lights	6.0
Stereo tape player	6.0

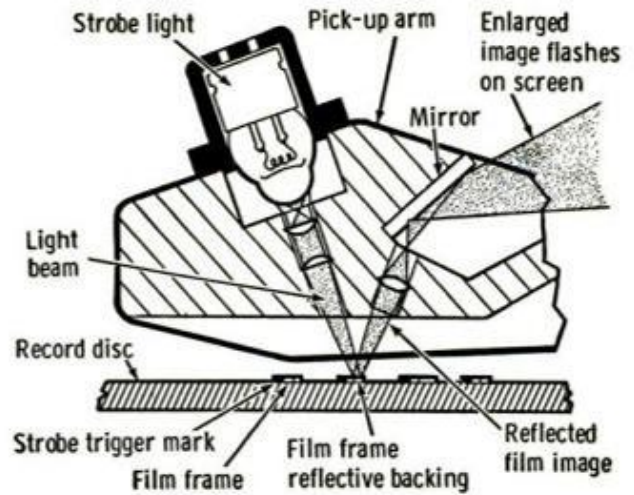
What options and accessories would you order next time?

Same	59.7
Same plus:	
Air conditioner	12.7
Power brakes	6.1
Front disc brakes	4.4
Power steering	3.9

Age distribution of owners:

15-29	29.7
30-49	41.0
50 plus	29.2

*Where applicable percentages may not equal 100 percent due to rounding and/or insufficient sample



Movies with sound on a record disc

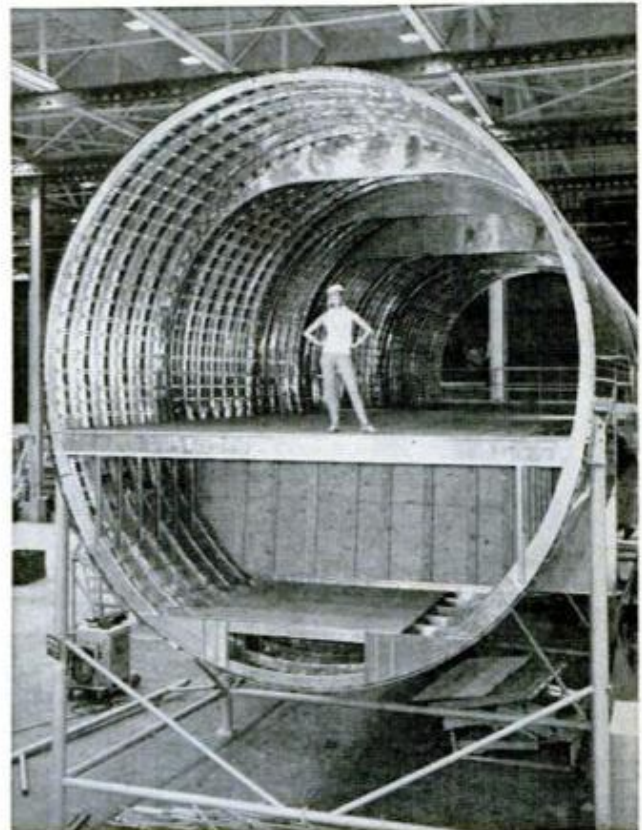
Three West Coast inventors have developed a machine that will project motion pictures from specially made phonograph records at the same time the music is playing. Ordinary motion-picture frames are drastically reduced in size and, with a reflective backing added, are stripped on the surface of the disc paralleling the sound track. A video pickup consists of a strobe light that flashes on each frame and a lens system that focuses the image and projects it on a screen on the lid of the phonograph. The makers hope to market discs for jukeboxes, home record players and schools. They foresee recording entire operas or textbooks on video discs.



Walking on water

No miracle worker, he's just a designer with a new idea for navigating on water. He calls the two floats "skinoes." They're miniature canoes fitted to his feet, and with a pole for balance Alex Wozniak tried them out in a 260-mile jaunt on Britain's River Thames.

MAY 1967



Mock-up of a monster

Designed to carry 490 passengers, the new Boeing 747 jumbo jet is shown in a full-scale mockup. Passengers will ride the upper level—about 21 feet in width—and cargo will be carried below. The subsonic monsters will be ready to start flying in 1969.

97

You can't call them toys anymore

Tractor makers are in a competitive battle to give buyers what they want — a beefier, more efficient machine for really rugged yard jobs

By JAMES M. LISTON

THERE'S BEEN A BIG CHANGE under the hood of the "cute" little garden tractor. Most top models now have a 12-hp engine and hydrostatic transmission. The result: a surprising beef-up for heavy work — plowing, tilling, snow-throwing, and blade work — and a more efficient tractor at every speed.

The top-of-the-line model for most manufacturers today has a hydraulic transmission (though several makers maintain that an all-gear transmission with the big engine performs as well). The hydraulic drive eliminates foot-clutching and gearshifting, but it is more than just a convenience.

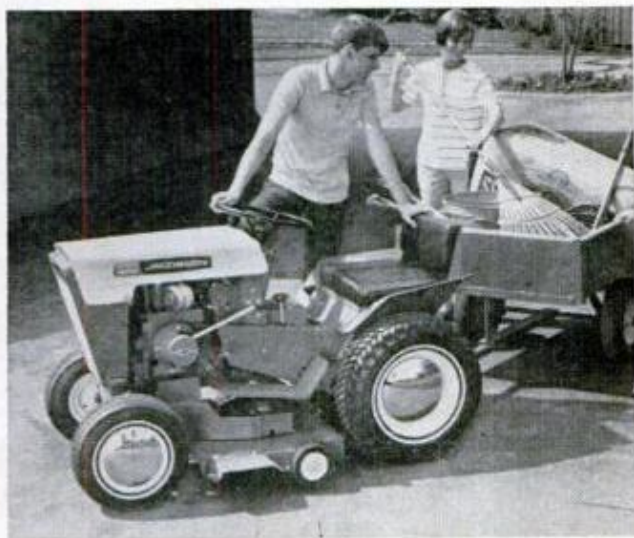
"The tractor is a better-working tool because of it," says the spokesman for Jacobsen Tractors. "The tractor is working at maximum efficiency at all times.

HUSKY 12-HP FORD TRACTOR has dual headlights for night work and fat, high-flotation tires for good traction. Its hydrostatic transmission provides an infinite speed range to 6.7 mph without clutching





INTERNATIONAL-HARVESTER Model 123 shows few sheet-metal changes, but under the hood a 12-hp engine and I-H's exclusive "all-piston" hydrostatic transmission revamps performance



HYDROSTATIC DRIVE is standard on both 10 and 12-hp Jacobsen Super Chief models. Wheelhorse (right), first to introduce hydrostatic transmission, finds it outsells shift model

Maximum power is being delivered to the wheels; you're never lugging the engine. If you slow your ground speed, engine rpm and torque can remain the same. You have 100-percent pulling power until such time as you lose traction."

International-Harvester has introduced its own version of the Sundstrand hydro-transmission. (Sundstrand Corp. supplies hydro-transmissions for most tractor makers.) I-H is counting on its "all-piston" hydraulic to give it a competitive edge:

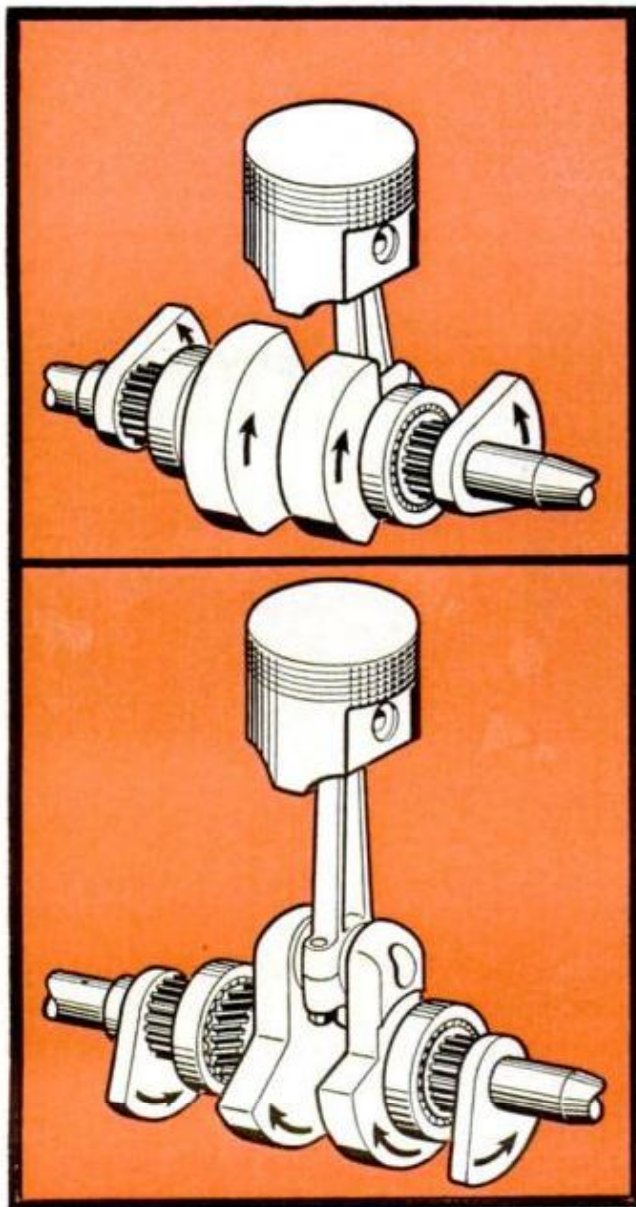
"We chose a system that is unique. We have it exclusively. It's our answer to the growing demand for a creeper drive for heavy work. To



J. I. CASE'S top-of-the-line model is the 195, a 12-hp (Kohler) hydrostatic "complete" at \$1175



SIMPLICITY has Briggs & Stratton 12-hp "balanced" engine, gear drive, self-locking differential. \$865



BRIGGS & STRATTON "synchro-balancing" cuts 12-hp vibration with counter-rotating weights. Counter-weights balance crankshaft weights (A); combine with crankshaft weights to balance piston (B)



ALLIS-CHALMERS: 12-hp B&S "balanced" engine, gear drive, 3 PTO outlets, controlled differential. \$885

equal with gears what we have in our new hydrostatic would require bull gears so big you couldn't fit them into a garden tractor."

Wheelhorse, first to introduce hydrostatic, says: "Today the tractor has the acceptance the second car had a few years ago. People have discovered how a tractor saves time for other things. First and second buyers are going for higher horsepower and hydrostatic because it gives them more versatility in the use of attachments. Our hydrostatic is outselling the shift model."

J. I. Case has gone all-out for hydro-



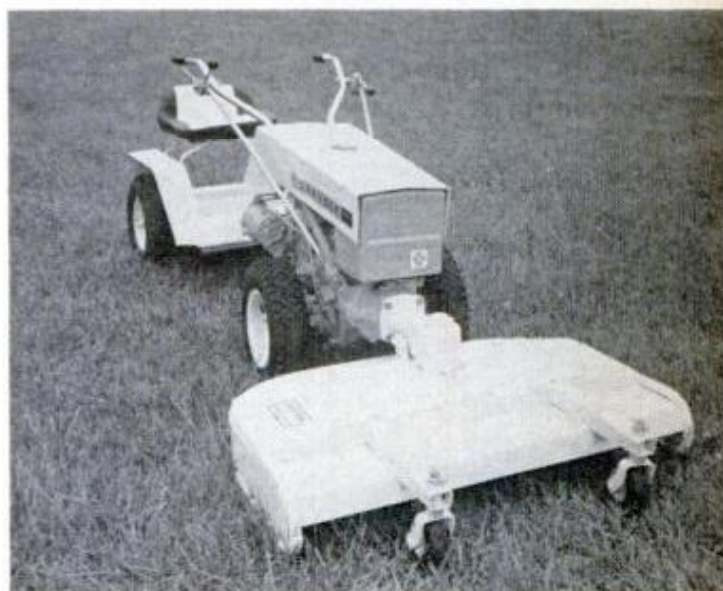
BOLENS Husky 12½-hp (Wisconsin) hydrostatic moves forward with toe pressure, reverses with heel



JOHN DEERE 10-hp has variable-speed drive that slows ground speed without rpm loss or shifting



MASSEY-FERGUSON 12-hp hydrostatic offers wide range of speed variations without clutching



GRAVELY "Commercial-10" has 4 forward, 4 reverse speeds, instant control without clutching. \$650

static, no longer offers a clutch model. Case believes its direct-mounted system (no power shaft or belt as an intermediate drive from engine to hydraulic system) puts the firm ahead of competitors. Case has a radiator and fan mounted at the front of the engine to dissipate heat in the hydraulic system and claims this is more efficient than the cooling fins used by competitors. (All hydrostatic tractors have some provision for dissipating heat, which alters the viscosity of fluid and causes power loss.)

In tractor pulling contests in the Midwest last summer, Case hydrosta-

tics outpulled tractors of comparable weight and horsepower "because they were not handicapped by clutch-slippage. This is the main reason why hydrostatic tractors show to best advantage on heavy plowing and tilling jobs," says the company.

Bolens considers its Husky 1250 a "scaled-down farm tractor." Much heavier (975 pounds) than Bolens' standard 10-hp tractor (650 pounds) and more expensive (\$1275), it was introduced as an industrial item but is selling briskly as a result of the demand for more power.

(Please turn to page 206)

Olds Cutlass:



HANDLING IS RIGHT UP AT THE TOP on the list of owners' specific praises for their 1967 Oldsmobile Cutlasses



COMPLAINTS about dashboard refer to placement of controls and switches. Also, as pointed out, smokers burn padding due to narrow access to ashtray



STRANGE, SMALL GLOVE BOX will hold no more than gloves, gripe owners. This one is only typical of recent glove boxes stuck in after dash is designed

Performance Yes, Economy No!

Owners buy 'em for looks, love 'em for handling, power and performance—but, like owners of big V8s everywhere, complain about paying for petrol

By BILL HARTFORD, Associate Auto Editor

IT'S SOMETHING LIKE "Fly now, pay later." After zipping away from lights, cruising down super highways at 70 mph and generally getting anywhere swiftly and effortlessly, naturally you have to fill up that huge gas tank—and there goes another seven bucks.

We all hope to get something for nothing, and Cutlass owners are no exception. They've got plenty of praise for pep and power but chief gripe is economy. But it's not the car; it's the owner!

Car owners everywhere will be singing the same sad song for as long as we have internal combustion. Some day, when we drive our charged Chargers, electric Electras and fuel-cell Cutlasses, the lyrics are sure to change to the miles-per-charge lament and the new-battery blues. In short, we're all looking for the fabled perpetual-motion machine that never needs *nuttin'*.

Mileage figures averaged from reader replies show the Olds' engines no better or worse in fuel consumption than other Detroit engines of comparable displacement and horsepower. In spite of this, the greatest number of Cutlass owners are down on the economy of their car:

"Uses more gas than I had figured on."—Arkansas clerk.

"Poor mileage for gas—and oil."—Mississippi chemical engineer.

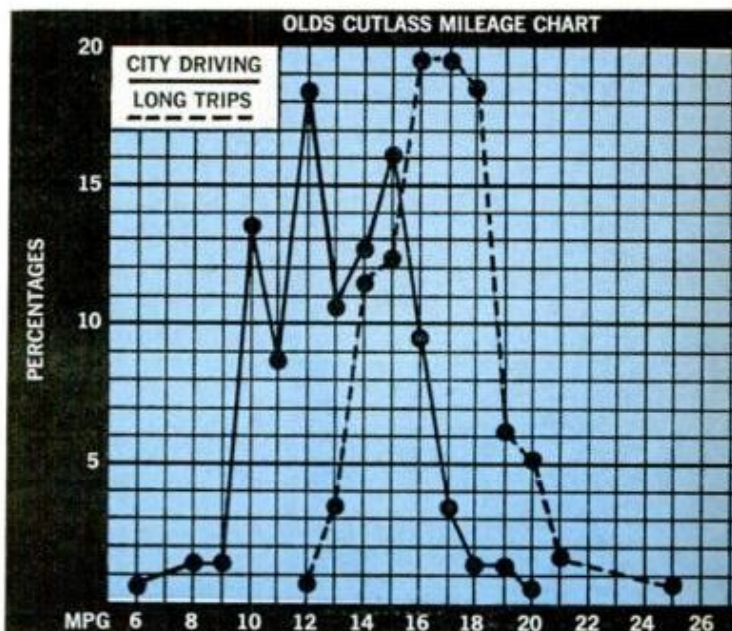
And so it goes with only a few exceptions. A West Virginia scientist, who may be working on a perpetual-motion machine in his lab, can nevertheless appraise his economy with objectivity: "Decent gas mileage in spite of hard, fast operation."

Before the Cutlass owners who cooperated with *PM* in returning our questionnaires take offense at our seeming indictment of their complaints, let's justify their sometimes paradoxical



BEST-SELLING ENGINE with Cutlass is the 330-cu.-in. V8. Overwhelming 87.8 percent of owners specified the engine, the majority with 4-bbl. carburetor

MAY 1967



MILEAGE CURVES for 330 engine average out to 13.1 mpg around town and 16.6 on long trips. Figures for 400 cu. in. were 11.9 and 14.7 respectively



"IT'S A SOLID LITTLE CAR" was a prevalent attitude in reader replies despite complaints on workmanship, rattles and finish which followed economy gripe

cal answers. The fact that an owner can boast about his car's performance, then in the same breath complain about his fuel consumption; or brag that his car is "... a tough beauty" and then top his list of complaints with gripes about workmanship and rattles, says something about the people who are buying new cars and also pays compliment to them.

It shows that car buyers today are demanding that Detroit live up to its slogans. If "Body by Fisher" is a mark

of excellence, then a GM car should not develop rattles fore and aft the first time it hits a pothole. If quality's "Built In . . ." then an owner should not have to plague his dealer to get this fixed, that repaired and so on.

Owners are aware of the technological competence that can squeeze out more and more horsepower per cubic inch each year, and they are demanding that some of that ingenuity be devoted to corresponding gains in fuel economy. They are demanding a better and better car.

Cutlass owners' demands for perfection are found in the nature of their replies. Resounding boasts and praise are often followed up by a small "but" that expresses dissatisfaction with details rather than with any overwhelming negative quality of the car.

"Great handling, performance, appointments, finish, ride, but needs quicker steering."—Maryland civil servant.

"No trouble, quiet body and motor, wonderful ride, but could use a couple more inches of headroom front and back."—Michigan real estate man.

(Please turn to page 208)

Summary of Cutlass Owners Reports*

Total Miles Driven919,922

Specific likes:

Handling56.9%
 Style46.3
 Comfort28.2
 Power26.9
 Ride25.5
 Performance22.7
 Economy16.7
 Size8.8
 Interior styling8.3
 Quiet7.4

Specific dislikes:

Economy23.8%
 Workmanship16.6
 Rattles8.6
 Finish7.3
 Rear visibility6.6
 Traction6.0
 Dealer service6.0
 Brakes5.3
 Cold starts5.3
 Wind noise5.3

Model:

Holiday Sedan22.1%
 Town Sedan22.5
 Holiday Coupe23.9
 Sports Coupe22.5
 Convertible5.9

Station Wagon 3.2

Transmission:

3-speed manual 3.1%
 4-speed manual 5.7
 Automatic91.2

Had mechanical troubles?

No48.9%
 Yes51.1

What kind of trouble?

Electrical (usually directional signals)18.1%
 Carburetor12.9
 Transmission 8.6
 Window fit/action 6.0
 Steering 5.2
 Steering shaft 5.2
 Speedometer 5.2

Dealer service satisfactory:

Yes62.2%
 No30.6

Why the Cutlass?

Style44.2%
 Past experience27.0
 Size24.2
 Price/value/trade-in20.9
 Performance11.2
 Dealer 7.0
 Reputation 6.5
 Other17.1

Is Cutlass your only car?

Yes51.3%
 No48.7

Other cars owned:

Oldsmobile31.9%
 Chevrolet16.8
 Volkswagen12.4
 Other22.7

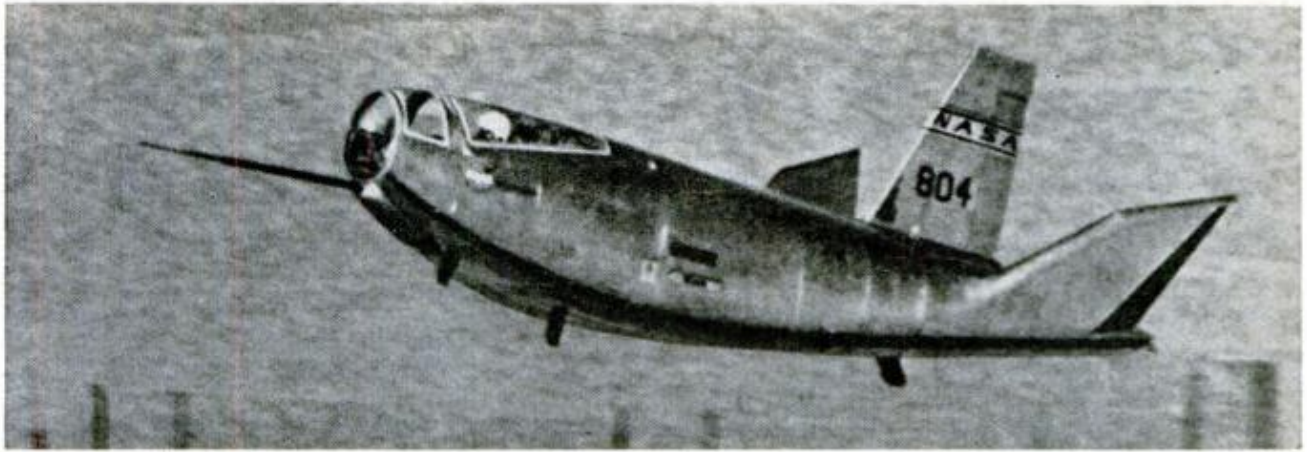
What options/accessories?

Power steering95.5%
 Power brakes71.5
 Radio54.6
 Power antenna 4.5
 Airconditioning41.5
 Power deck-lid release12.7
 Tinted windshield25.1
 Wheel covers/spoke wheel covers19.3
 White-wall tires18.4
 Vinyl roof13.0
 Sports console10.6
 Door guards10.1
 Rear speaker10.1
 Bucket seats 8.7
 Light group 8.7

Age distribution of owners:

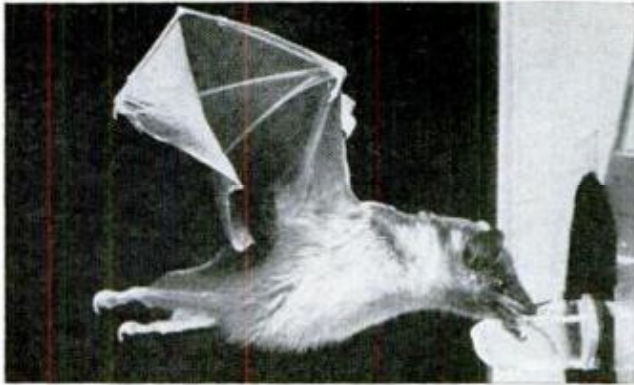
15-2924.8%
 30-5041.4
 50+33.8

*Where applicable percentages may not equal 100 percent due to rounding and/or insufficient sample.



Half airplane, half spacecraft passes first tests

Called a lifting body, a new space vehicle that can fly aerodynamically through the atmosphere and land itself is being tested by the National Aeronautics and Space Administration. Its use would eliminate one of the most cumbersome—and costly—of the current aspects of space flight, the recovery forces necessary for retrieving space capsules at sea.



Not-so-blind bats

When given a visual target of a certain shape that contained food, presumably "blind" bats learned to choose it in preference to a target of similar size but different shape in tests at Indiana University.



Privet pets

A topiary gardener in Wolverhampton, England, has trained and trimmed his privet hedges into dog and cat shapes. He has 13 Scotch terriers and two cats—all with collars—plus one rat.



Disc-braked cycle

English-made, the Rickman-Matisse motorbike is the first to furnish disc brakes as standard equipment. An integral part of the forward wheel and telescopic front fork, the brakes have been used on professional tracks.



Beginner's racer

Made from components of Citroen and Panhard automobiles, so parts will be easily replaceable, this 125-mph French racer will be sold at cost to novice drivers by the maker, an auto dealer and racing buff.



TYPICAL TAPE-PLAYER INSTALLATION shows Motorola 8-track unit under the dashboard of a Buick Skylark

THE FACTS ABOUT CAR STEREO

Look before you buy. Know what's available in the booming tape-cartridge market, what you'll have to spend and how many holes will riddle your car for a proper installation

By **BILL HARTFORD**, *PM Electronics Editor*

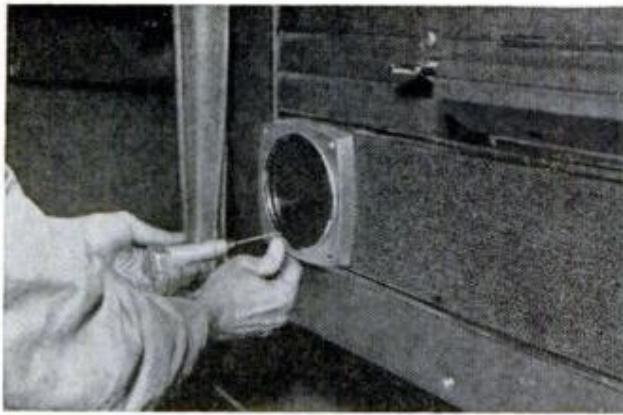
AS I TURNED into 54th Street on New York's West Side, I almost passed right by the sign that reads "Wally's Stereo Tape City." If I had arrived a little later in the day, I couldn't have missed the small garage sandwiched in the middle of the block: The cars jammed out front would have been the clue to something new happening behind the old facade.

What's "happening" is a constant stream of cars and tape-cartridge buyers getting outfitted for taped music on the move. Most of the clientele are

barely above driving age, and they often pick up the latest hits during a Saturday afternoon "Tape-O-Techque."

But the tape market isn't restricted to kids. On the day I arranged to photograph the installation shown in the accompanying photos, a limousine used by a Roman Catholic cardinal was being examined for the best tape player installation. If his eminence doesn't keep tabs on the Top Ten, he may enjoy the fast-growing classical selections available on 4 and 8-track tape, or study one of the many foreign

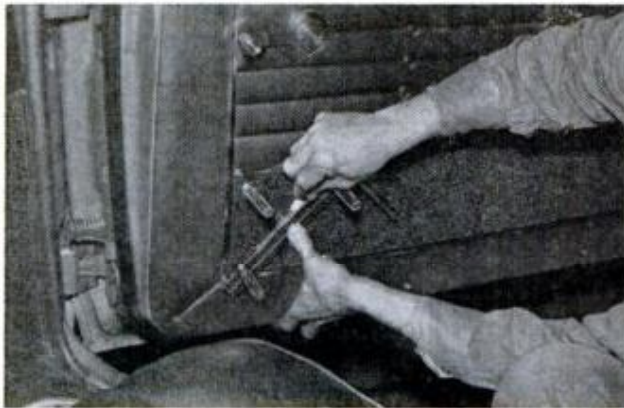
TYPICAL CAR-DOOR SPEAKER INSTALLATION



STEP 1 in door installation of Motorola speakers is marking and punching corner screw holes with an awl



STEP 4 is snaking speaker lead through car body into the door near speaker. Be sure to use grommets



STEP 2 is locating center of speaker. Do not drill through carpeted kickboard since material will ravel



STEP 5 is connecting lead to speaker terminals. Rain shield over cone deflects water from window slot



STEP 3 is cutting speaker hole with toothless cutting mandrel for clean hole without snagging carpet



STEP 6 is securing speaker. Quick dealer installation shown in these photos, often beats doing it yourself

languages available on cartridge tape, or use tape playback to assist in his church duties—just as more and more businessmen and salesmen are keeping in touch with the home office via cartridge tape.

This is the scene in New York where the tape market is just beginning to gather momentum. In California, drive-in stereo-tape dealers are as thick as drive-in hamburger stands.

The west coast is the base of operations of "Madman" Muntz whose "Stereo-Pak" operation is selling cartridge players at a fantastic rate and setting a highly competitive pace for the industry. The competition is causing some manufacturers to leave the field, others to try their hand; changing the conservatism among tape and record companies into a race to get titles onto acetate; and, all in all,

creating a kaleidoscopic market where player models change almost overnight and prices are constantly cut.

Before purchasing a car stereo, there are a few things to consider about your present car: How long do you anticipate keeping it? Does it now have a radio? Remember, if you sell the car, you can keep the tape player, but you'll have to install a new set of speakers in your new car. You just can't pull them out of the doors and leave two gaping holes. Secondly, if you don't have a radio now, it's worth considering a combination tape player and radio. They're available in both AM and FM.

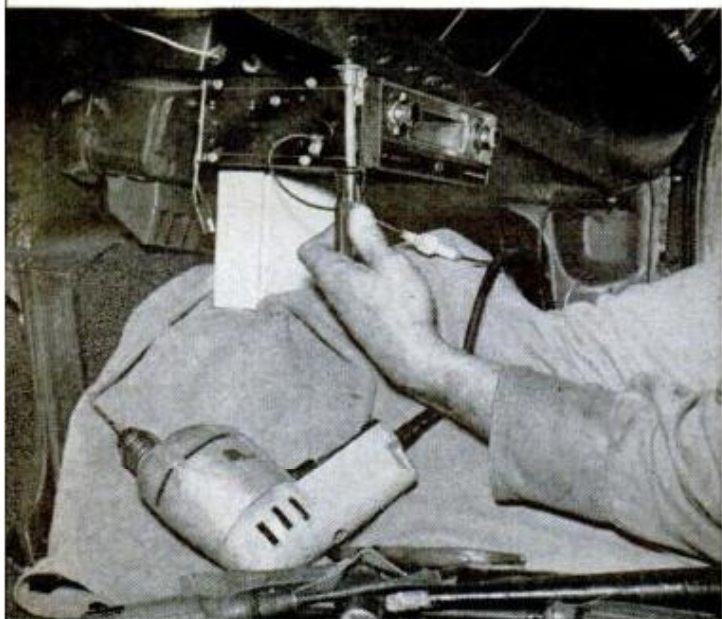
When deciding on a tape player, the first thing to consider is the tape cartridge that it was designed to play—not all tape cartridges can be played on all tape players. The rest of the add-on features, such as reject bars and lighted channel selectors, are secondary.

Since there is no standard tape cartridge design in the industry, you'll have to face the fact that the machine you purchase will only play cartridges designed for it. Omitting the particulars of cartridge design, it's sufficient to say that you must decide between a 4-track and an 8-track tape player.

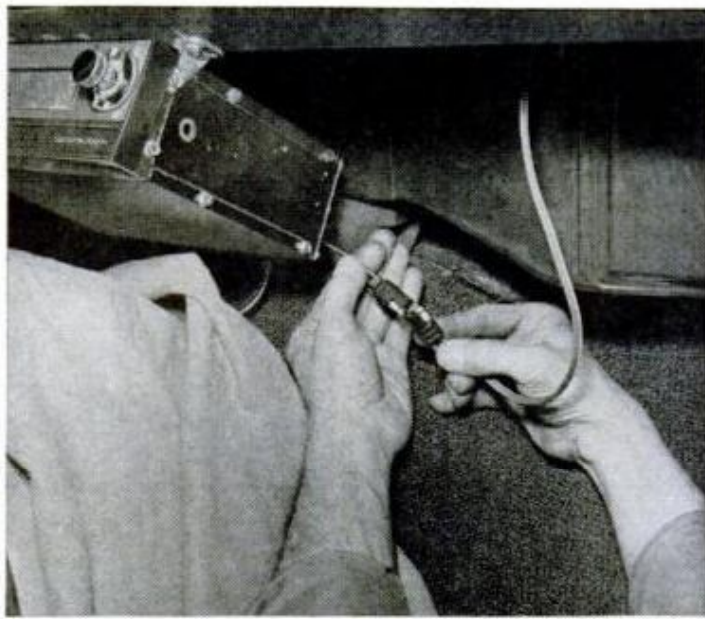
A few years ago, this decision was complicated by the fact—or the fear—that either the 4 or the 8-track might become a standard of the industry and render the other units worthless. But the industry hasn't standardized and, at this late date, can't very well do so. The lists of tape cartridges available for either 4 or 8-track machines are ever-growing and offer a broad selection for all musical tastes.

A further development in tape player design and one that promises to capture an ever-increasing slice of the market is the 12-track or compatible machine. It accepts either 4 or 8-track cartridges and gives you greater latitude in selecting your tapes.

The owner of a new stereo tape system very soon questions his tape cartridge dealer as to what he does with the cartridges piling up on his dashboard and slowly but surely obscuring his vision. The answer is invariably a sales pitch. You can start with any one of several types of cartridge holders and containers, but they're soon filled. That's when the sales pitch turns to home units. Every tape player manufacturer who makes a car unit also makes a playback unit for the home. They are decorator-styled and operate on 115 v.a.c. directly or with a con-



TAPE PLAYER IS MOUNTED under the dash in a position that provides best support surface and allows the easiest access to controls from the driver's seat



FINAL INSTALLATION STEP is connecting left and right channel speaker leads and wiring the fused power lead into high side of the car's accessories circuit

CAR STEREO TAPE PLAYERS

Manufacturer	Model(s)	Tracks	Speakers Included In List Price	Integral Radio	Integral Radio Available Model No.	Power Requirement	Retail List Price**	Compatible Units and Accessories
Automatic Radio	EST-5460	4	Yes	No	No	12V	\$79.95	115-vac converter and home speaker enclosures.
	CEE-6701	8	Yes	No	No	12V	89.95	
	CSE-6381 "TapeDek-8"	8	Yes	No	No	12V	109.95	
Craig Panorama	C-503	4	No	No	No	12V	99.95	Home record and playback units.
	C-505	4	No	No	No	12V	79.95	
Lear Jet	"Stereo 8" No. AS-830-H	8	No	No	AM: ASR-830-H FM: ASFM-830-H	12V	124.95	Home & portable players; 80-watt stereo amplifier with tape player; 80-watt AM/FM stereo receiver with tape player.
Motorola	TM706S	8	Yes	No	No	12V	129.95	Home playback units.
Muntz Stereo-Pak	Mad Mini M-30	4	No	No	No	12V	39.95	Home record and playback units.
	M-40	4	No	No	No	12V	49.95	
	M-50	4	No	No	No	12V	59.95	
	M-12	4 & 8	No	No	No	12V	89.95	
Orrtronic	No. 622100	8	No	No	No	12V	109.95	Monaural and stereo home playback units.
SJB, Inc. (Auto-Sonic)	ST-100	4	Yes	No	No	All 12V; 115-vac Converter Optional For All Units	59.95	4- and 8-track home players; 4- and 8-track portable players; combination record/playback unit including 8-track player, AM/FM/FM-MPX and Garrard changer.
	ST-300	4	Yes	No	FM: ST-30/FM		79.95	
	ST-308	4 & 8	Yes	No	FM: ST-308/FM		99.95	
	ST-408	4 & 8	Yes	No	FM: ST-408/FM		129.95	
	ST-808	8	Yes	No	No		139.95	
	ST-1008	8	Yes	Yes, FM&FM/MPX	—		299.95	
	603M	4	Yes*	No	FM: 603FM		109.95	
	603M/48	4 & 8	Yes*	No	FM: 603M/48/FM		129.95	
Ranger Radio (The Tenna Mfg. Corp.)	"Dimension 48"	4 & 8	Yes	No	No	12V	89.95	Introduction of home tape players anticipated.

*Speakers attached to sides of unit for console mounting. **Speaker selection, dealer installation and discounting affect price.

verter in the case of the few that can be used in either car or living room.

The accompanying chart lists the stereo cartridge tape players that are currently available for your car. Not listed are cartridge tape systems that are monaural units, those that play back only through an existing radio, those that are home units only, or those that are basically hand-carried portable units.

Most stereo cartridge systems designed for your car are best installed with permanent speakers. There are as many ways to install tape player speakers as there are models on the market. The best installation acousti-

cally, but the most time-consuming and difficult, is to put the left and right speakers in the kick pads of the two front doors. Sometimes two speakers are installed in each door—one at the front and the other at the rear for the benefit of rear-seat passengers.

The second pair hardly seems necessary, however. The sound from a single pair is enough to give your teeth an ultrasonic cleaning. The door of your car becomes a speaker enclosure and consequently, with doors and windows closed, the entire passenger compartment becomes a resonant chamber. Other installations put the speak-

(Please turn to page 210)



MAN THE PUMPS, batten down the hatches—the author prepares for his first dive in a strange undersea craft

I BECAME AN AQUANAUT— THIRD CLASS

By DANIEL C. FALES

What's it like the first time down? Here's the tale of PM's outdoor editor, who took his maiden undersea voyage in General Dynamics' newest baby research sub

THE WORDS "Clear to dive!" shoot out at me as I stare at the hydrophone inches from my nose.

"Roger," intones Al Stover, pilot of *Star III*. I'm in a research submarine preparing to dive to the bottom.

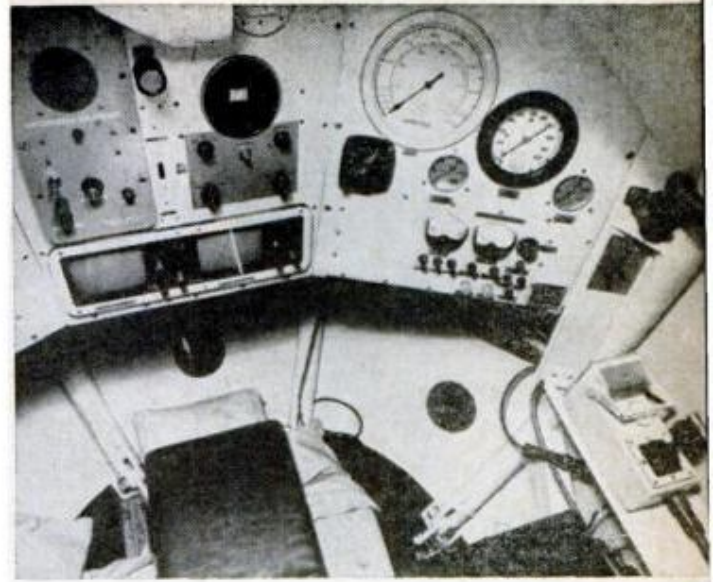
This is my first undersea adventure. And I am not prepared for the eerie sights and sounds to come.

Star III is the newest mini-sub built

by Electric Boat Div. of General Dynamics. She's a sophisticated 23-foot version of two smaller subs in the Star class. She is 10 tons of exterior hull and pressurized cabin. Electric motors drive her at 4.5 knots underwater and 5 knots surfaced. She can carry 1300 pounds of "payload"—research instruments not designed as permanent fixtures. Other baby subs carry payloads



SWINGING FROM A CRANE, *Star III* is lifted from her support barge and swung overboard. Her pilot stands on the mini-sub during launch operations.



COCKPIT INTERIOR shows hand-held control box at lower right. Large dials are depth gauges. Small round openings near floor are bottom-viewing ports.

of only 300 pounds. (Editor's Note: The Russians say they want to buy *Star III* for research in the Black Sea.)

It was a bitter day when I arrived at EBD's dock in Groton, Conn. Ocean waves swept Long Island Sound, slapping against a huge barge that is the support "fleet" for *Star III*.

At first sight, *Star III* resembles a beamy orange and silver torpedo with a conning tower. This tower is called a sail, and is flooded when submerged.

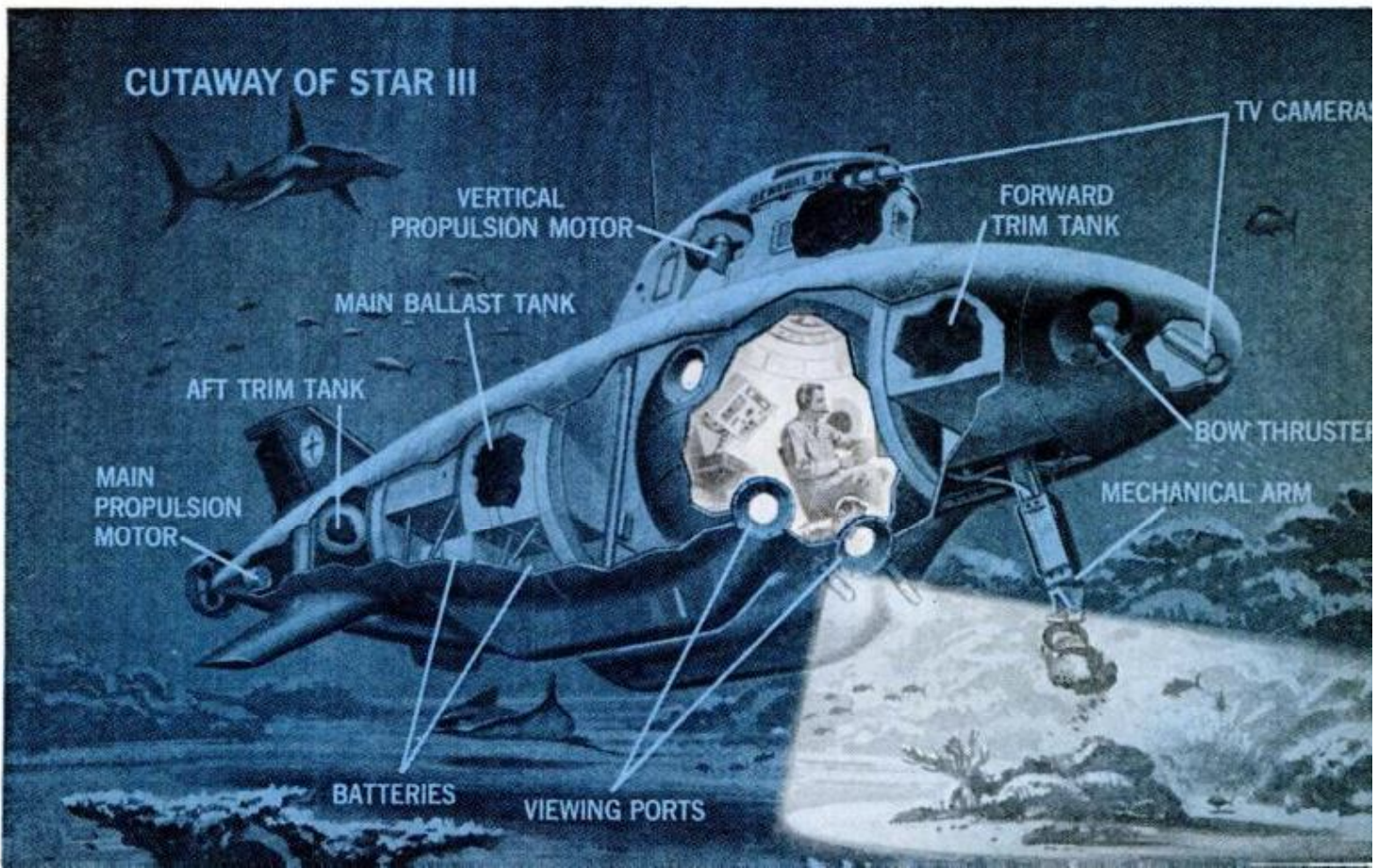
The water in the sail covers the only hatch into the cabin. Through this hatch I'd descended into the small, tight world of the pressurized hull.

I'd dropped into the cabin like a circus performer loads himself into the muzzle of his cannon. Finally, I'd managed to adjust my body to the tight, cushioned seat on the port side.

My eyes are now scanning long banks of dials, toggle switches, meters and

(Please turn to page 198)

DRAWING shows interior compartments of craft. Mechanical arm can pick up samples or operate equipment



MAKE YOUR OWN FISHING 'SPOONS'

An expert fisherman tells how to make these sure-fire bass and steelhead lures. All you need is a kitchen spoon, tin snips, a file, a drill and some paint

By C. L. HOWARD

MOST FISHERMEN have a sizable investment in fishing lures. Many of these lures are of the spoon variety costing a dollar or more apiece. When a lure is lost—especially if it's a favorite—a rather pained expression crosses the angler's face.

But now you can have all the "spoons" you want for less than 10 cents each. No need to fret if some are lost in the weeds or high branches of trees.

Fishing spoons are easy to make and exceptionally cheap.

The raw material is spoons—the kind you eat with. To keep harmony in your family, it's best not to raid your wife's silver drawer. It's true that silver fishing lures can be a prestige item with your buddies, but it's not

worth the expense or furor on the home front.

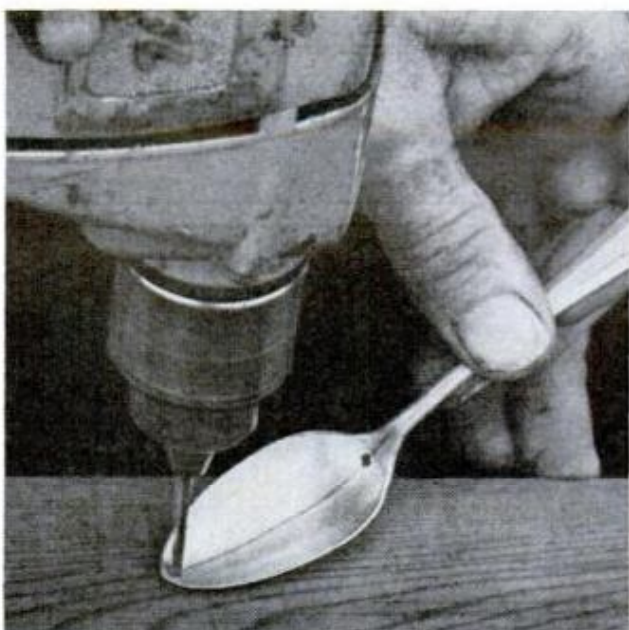
So your best bet is cheap metal spoons. You can get a bagful at your local five-and-dime or discount store. Better yet, check junk yards, surplus stores or rummage sales.

Select a variety of shapes and sizes. Different shapes can be made into lures that have different actions in the water. Different sizes affect the overall cost of each lure. You can get two lures from most spoons—one lure from the bowl, another from the handle. But you can make three lures just from the handles of other spoons, such as ice-tea spoons or soup spoons.

From whatever spoons you select, you can make four different types of lures. There's the oval lure, the arrow-



STEP 1. Mark center line and hole locations with a dark pencil or crayon on spoons. Dent hole location with a center punch so the drilling will be accurate

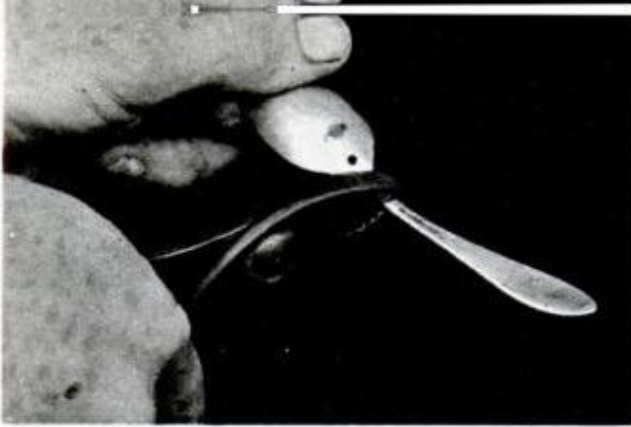


STEP 2. Drill two holes in each spoon with a $\frac{1}{64}$ -inch bit. In thicker spoons, countersink holes with $\frac{1}{4}$ -in. bit to make it easier to attach clip and hook

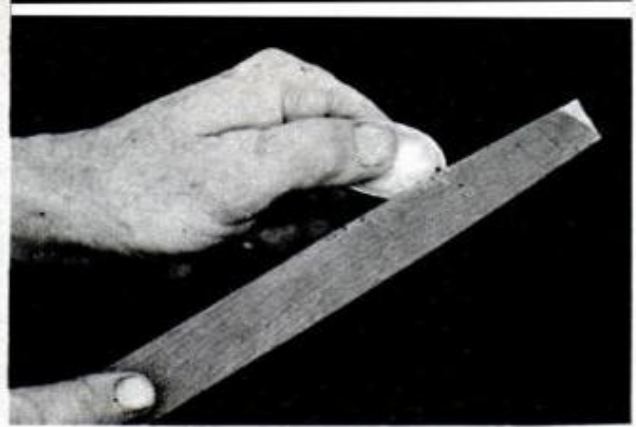


'Spoon' Lures You Can Make

Finished products can be painted with any designs you think will entice fish from the bottom. Try new ideas not only in designs, but in spoon configurations. Several can be right for you.



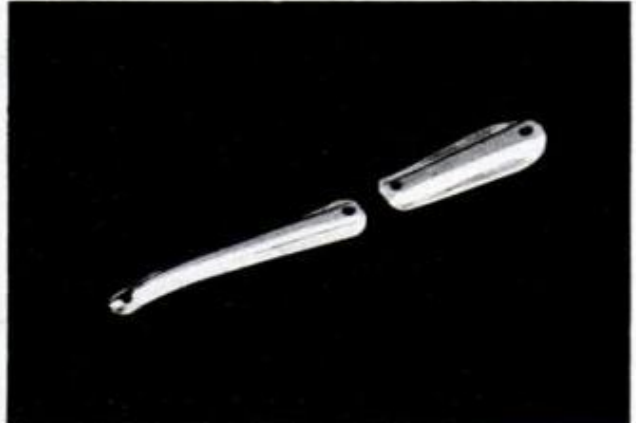
STEP 3. Use pliers or vise to break handle away from spoon. Make sure rear hole is so located that the handle breaking point is not right at the hole



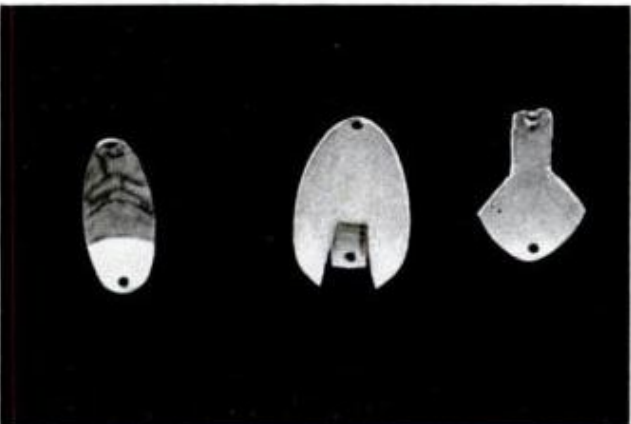
STEP 4. Smooth ragged edges with a file or an electric grinder. At this point, you can also file spoon so configuration of the lure is any width desired



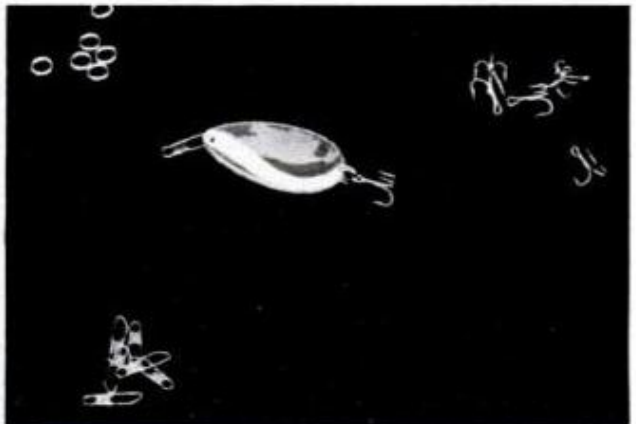
STEP 5. Cut handle to any length. Using 10-inch snips, round off the ends. Then file edges smooth. Mark and dent spots for holes. Use $\frac{1}{4}$ -inch drill bit



STEP 6. Only two lures were cut from this handle, but it's large enough to cut three small lures. Note handle shape. Some bend is needed for lure action



STEP 7. Here are three possible shapes. The center lure is of the bent-tail variety which permits wobbling when trolling. So does the arrow-shape lure



STEP 8. Attach hook to lure with split ring. Add snap or swivel snap. When painting lures, use a metal touch-up enamel found in auto-parts shops

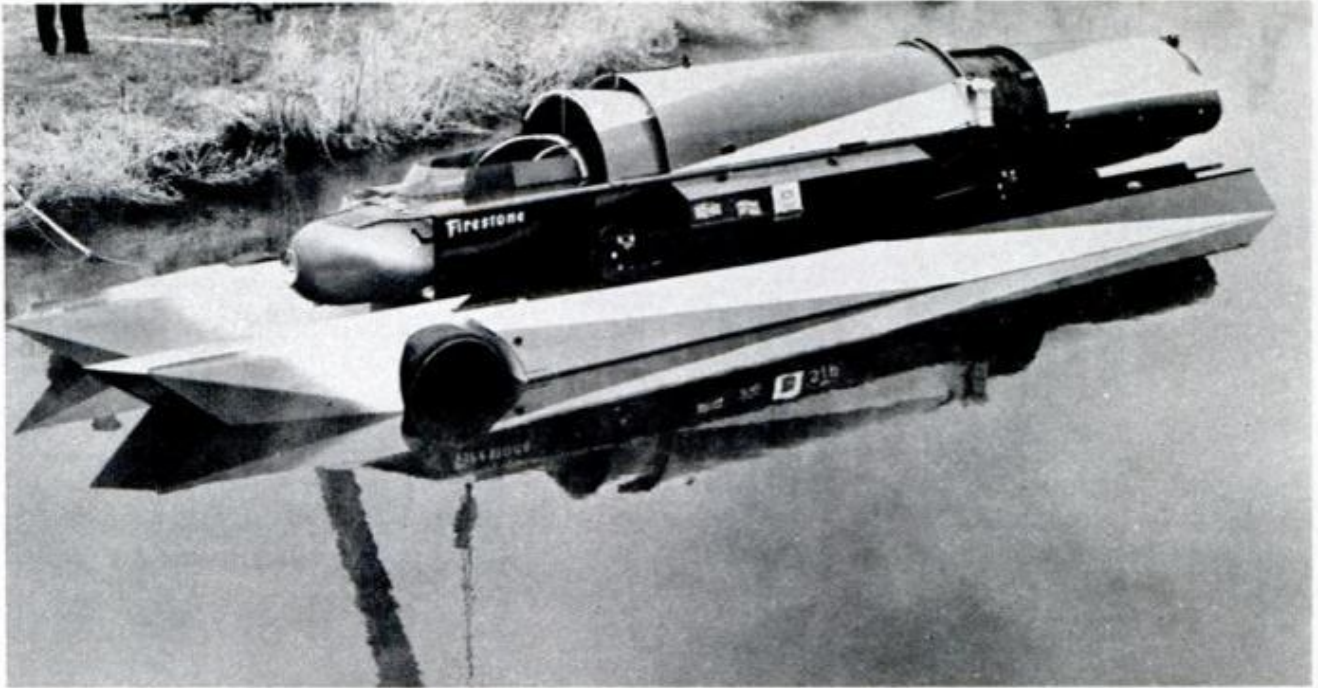
shaped lure, the bent-tail lure and the handle lure.

The oval lure, made from the spoon itself, is great for casting. This is the best design for slow-speed, bottom-bouncing retrieves. The slightest jerk on the line will send this lure into erratic gyrations. The arrow design and the bent-tail design, both made from the spoon section, are good trolling lures. These two types will wob-

ble instead of making complete revolutions that hopelessly twist your line.

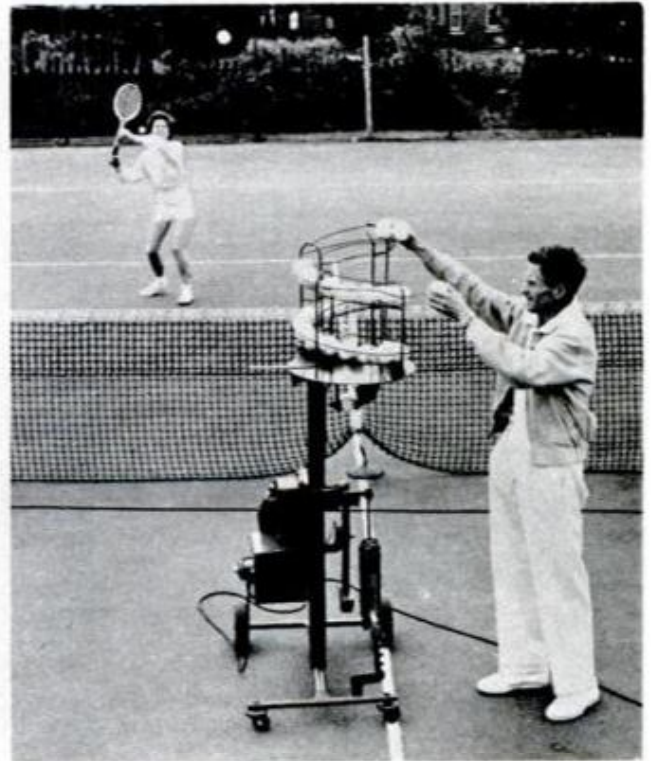
Lures made from spoon handles can be used for either casting or trolling.

You can make all the spoon lures you want by following the simple instructions below the how-to pictures on this and the preceding pages. The designs shown here have been tried and proven. But don't hesitate to experiment with other designs. ★ ★ ★



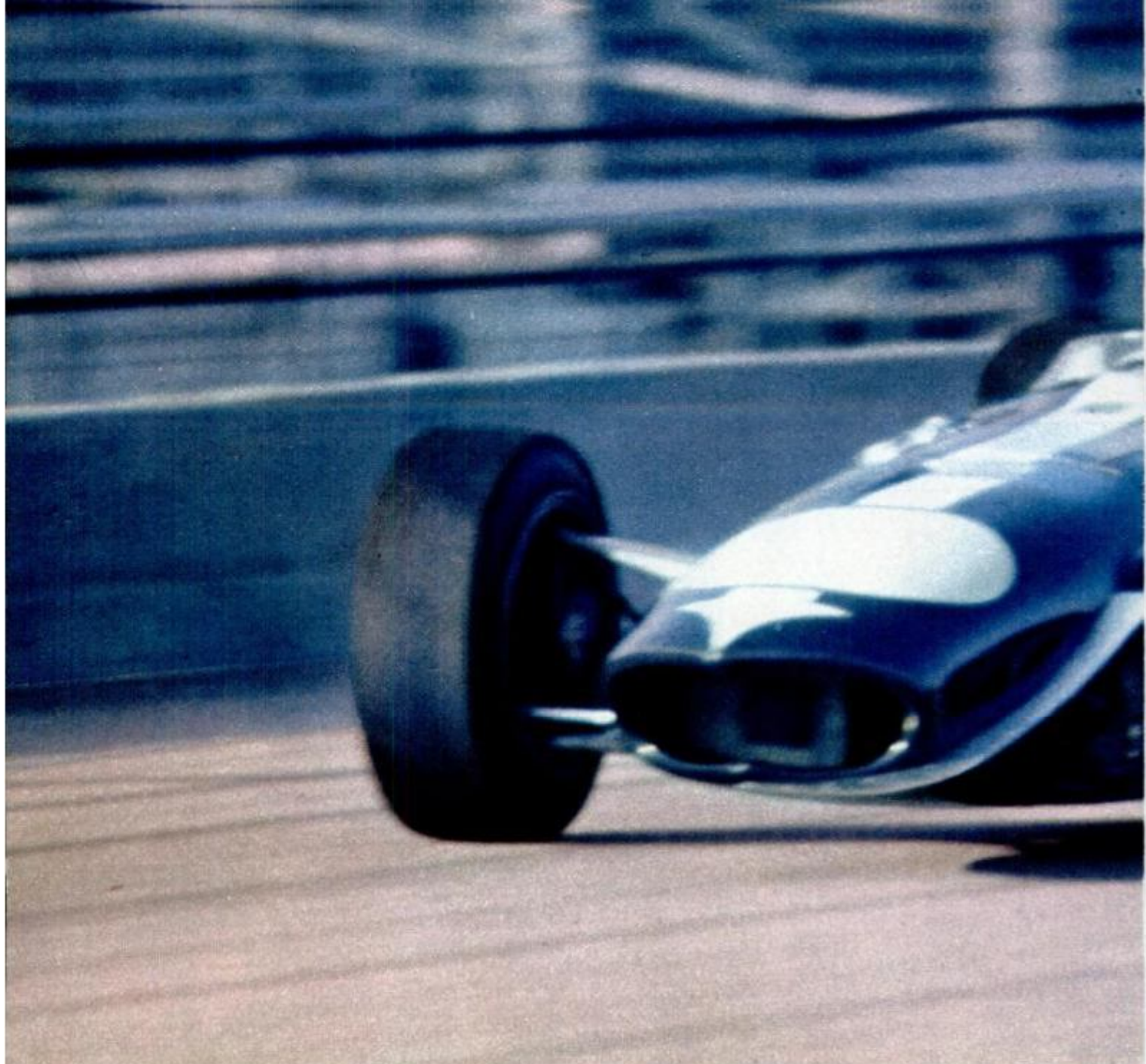
Arfons aims for world water record—on wheels

A jet racing car that once hit 342 mph on land has been converted into a boat that will ride on rubber tires—to a new world water-speed record, hopes the builder, Art Arfons. Arfons, three-time holder of the world land-speed record, hopes to break the late Donald Campbell's water record of 276 mph; he plans to make the attempt on Lake Mead, Nev., in June. Arfons calls his 27-foot catamaran the *Green Monster Cyclops*. To convert his car to a boat, Arfons added two stepped pontoons, each with a tire in its forward part. At 200 mph, Arfons figures, the boat will plane on just the tires. The Cyclops cost \$7000 to build. It's powered by a J-47 jet engine taken from an F-86 Sabre Jet.



Versatile machine is a tireless tennis teacher

Lobs, volleys, backhand and forehand shots—in fact, almost everything a human tennis player can do except retrieve balls—are within the abilities of a new tennis coaching machine. The electrically powered machine, an Australian invention, is shown in use at a British tennis school. Specially cut blocks fitted to the end of the hitting arm (left) vary the type of strokes. Forty balls can be loaded into it at one time (right).



DAN GURNEY unlimbers a newly hatched American Eagle at the Speedway. Running tire tests for Goodyear

Rodger Ward's Indianapolis Preview

Can We Beat the British

No one knows Indy like two-time-winner Rodger Ward, who retired after driving in last year's 500



TAKE IT FROM ME, it's the Big One, the Main Event. When the green flag drops and you're gunning all-out for a fast shot through the first turn, you just *know* you and 32 other guys add up to one of the most thrilling spectacles in sports—the start of the annual Indianapolis 500-mile auto race.

But let's hope the start this year isn't quite as "thrilling" as last year's, a start that saw 16 cars pile up within seconds after the green flag was dropped.

POPULAR MECHANICS

Материал защищен авторским правом



and without special tuning, car turned laps at 167 mph. This year Dan is preparing 11 cars for Indianapolis

at the Brickyard? **By RODGER WARD** *Winner of Indianapolis 500, 1959 and 1962*

Eleven were so badly damaged they couldn't race.

Despite last year's horrendous mess, however, the 1967 Indy 500 will go off in the traditional manner—the 33 fastest qualifiers in 11 rows, three cars abreast. And you can bet I'll miss not being in the pack, not only because I won't be out there wrestling for racing room, but because this year's race has all the earmarks of being one of the best in the Brickyard's long, gaudy history.

MAY 1967

For one thing, the entry list is larger than ever. Speedway Director of Racing Sam Hanks, winner of the 1957 500 and slated to drive this year's Camaro pace car, will try to "shape up" an outstanding field of international driving talent.

For another—assuming they can be qualified—the race will be spiced by several cars of unique (even far-out) design.

Finally, underlying the drama of the

117

Материал, защищенный авторским правом



ENGINE PRECISION, reliability are keys to Indy victory. Three-time winner Lou Meyer, now a builder of Ford racing engines, and son check a DOHC block

"MYSTERY" RADIO DEVICE is housed in front end of Mickey Thompson's radical Wynn's Spit-Fire Special. I asked around, but no one would say what it's for

race itself, will be the question of whether or not Americans can wrest dominance of the 500 away from the British, whose cars and drivers won in 1965 (Scotland's Jim Clark) and 1966 (England's Graham Hill).

Since 1963, when Gasoline Alley eyebrows were lifted by Clark's second-place finish in a Ford-powered Lotus, the imported-from-Britain rear-engine design concept has held sway at Indy. Even though hard-charging A. J. Foyt won in 1964 in a "traditional" front-engine car, the 1965 field consisted of 27 rear-engine entries, two Novi Specials, and only four roadsters. In 1966, only one roadster was included in the 33 starters.

If only in numbers entered, rear-engine cars will be top dogs this year, too.

Foyt, for example, has built four new Sheraton—Thompson Specials. He'll drive one, and Joey Leonard a second. The other two will be back-ups. Although all-new, the cars are Ford-powered rear-enders, one of which will

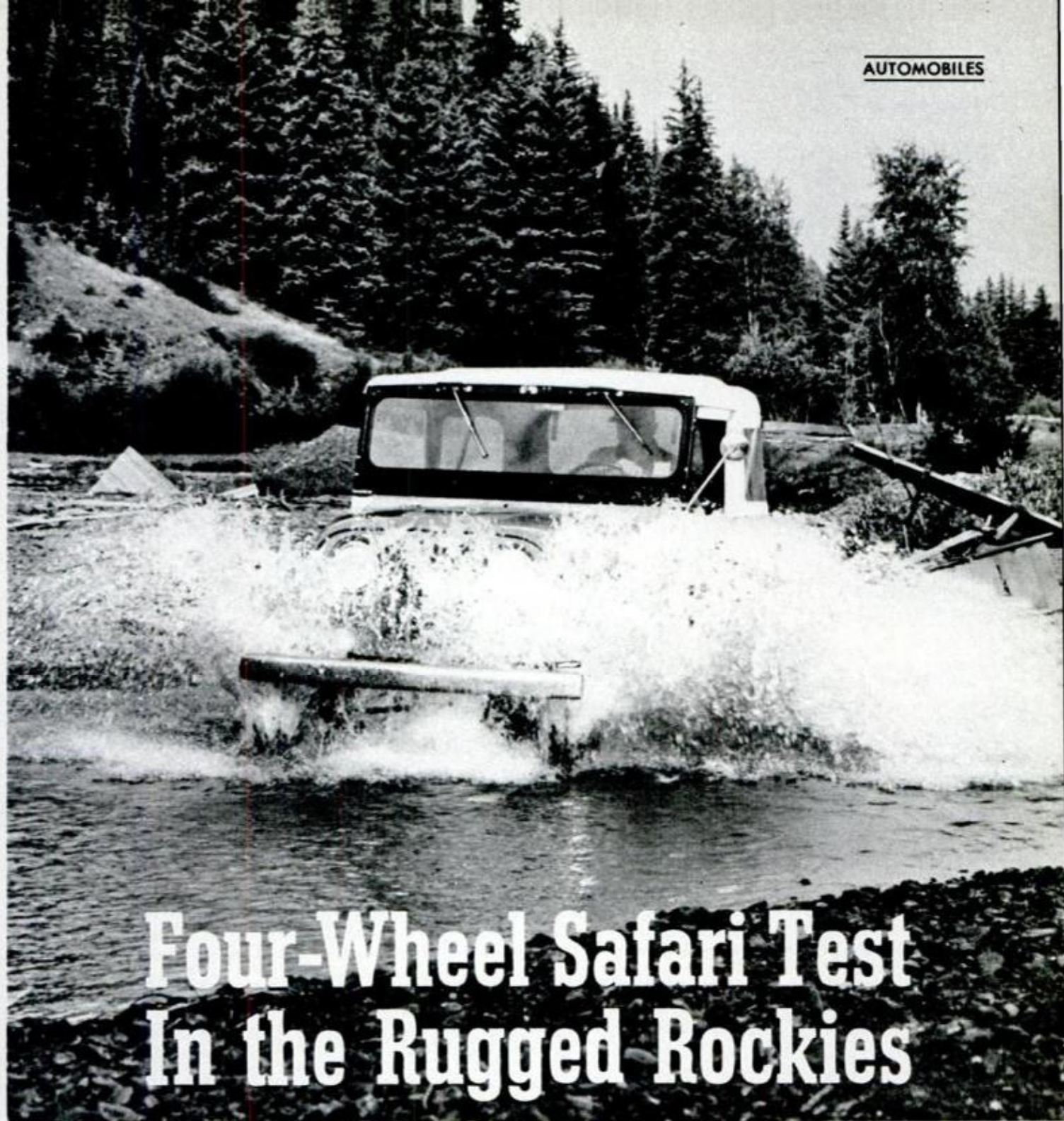
be backed by astronaut Wally Schirra.

Parnelli Jones, 1963 500-winner, will have his pick of two Ted Halibrand rear-engine cars, one powered by Ford, the other by a turbo- or supercharged Offy. Lloyd Ruby will be behind the wheel of a Ford-powered Dave Laycock chassis of the rear-engine type. So will NASCAR star Lee Roy Yarbrough.

The Mecom team, this year doing without the services of 1966-winner Graham Hill, who signed with STP, will field new British-built, Ford-powered Lolas, all of which have the engine aft. The cars will be driven by Jackie Stewart, John Surtees and Al Unser.

The most formidable effort at Indy this year is being made by Dan Gurney's All-American Racers. In addition to rebuilding all six of last year's Eagles, Gurney has built five new cars. One of the new cars will be driven by Dan himself, a second by Ritchie Gin-

(Please turn to page 226)



Four-Wheel Safari Test In the Rugged Rockies

A rugged torture test along dirt trails in Colorado's tough high country. Here's how three four-wheel-drive vehicles held up on a grueling two-day trip

By Stuart James

Photos by Eugene Colangelo

RON GIBSON had just come humping up a steep grade in his Ford Bronco, made a spectacular sliding turn into a tight switchback, dug six inches of mud out of an embankment, bounced over some boulders, and was fishtailing on up the far grade.

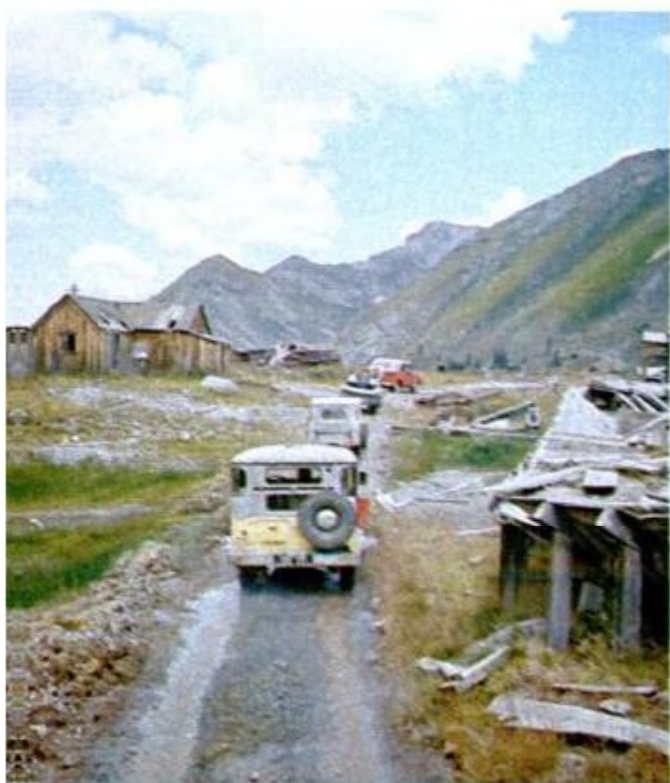
Maybe it was because Ron was whooping it up, waving his straw sombrero and mugging it for laughs, but the Jeep owners

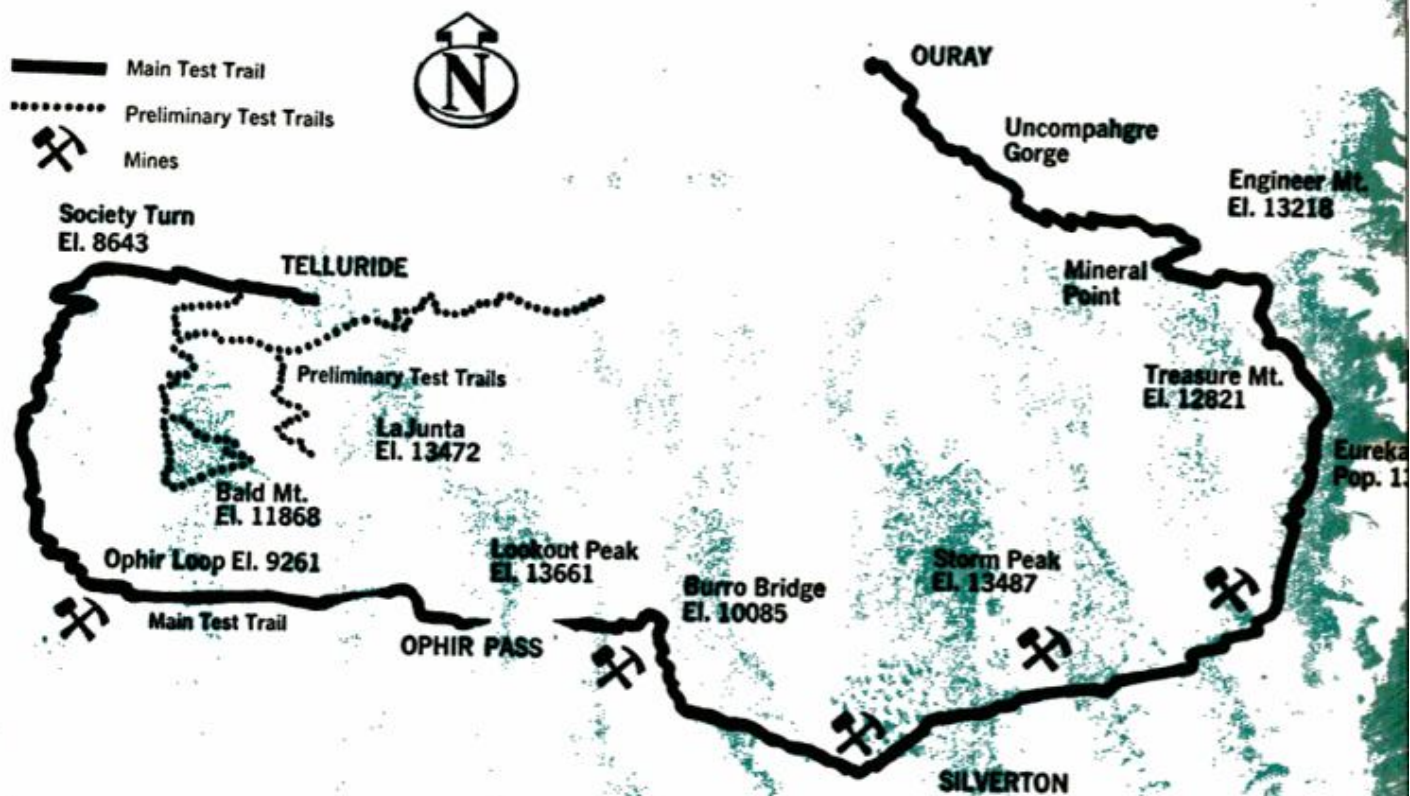


RACING UP TRAIL to Bald Mountain, Ron Gibson and Jim Starr make Ford Bronco do everything but stand on end. Despite its suburban look, the Bronco took the most rugged terrain as though it were a paved highway, displaying amazing speed and maneuverability that made it the most surprising car in the test

GHOST TOWNS are spread throughout the San Juan Mountains. Here the Jeep-Bronco-Scout safari winds through abandoned mining camp

GATHERING AT THE SUMMIT for a close view of the mountains is one of the pleasures of four-wheeling, a family sport that brings together many devotees of off-trail vehicles





STARTING AT TELLURIDE and finishing at Ouray, the four-wheel-drive caravan covered some of the toughest country in Colorado. The first day the caravan made some preliminary runs around Telluride. The second day the group drove to Ouray. Only four-wheel-drive vehicles are permitted on most of these trails

were unimpressed—and said so.

“Looks good,” Al Morris said, “but I’d like to see how that rig holds up. If it can do that after a year of such treatment, maybe I’d come around. But I’ll just stick to the Jeep until then.”

The rest of the caravan pulled up to the switchback one at a time, backed off twice to make the turn, then labored up the grade at a leisurely pace. High in the distance, Ron was standing on the hood of the Bronco, taking in the view, waving that crazy hat.

This was the first morning of a two-day safari over the rugged trails of the San Juan Mountains in southwest Colorado, a trip arranged for our benefit by the Telluride Jeep Club.

We went to Colorado looking for trouble. Our objective, frankly, was to find out if the Ford Bronco and the International Scout would equal (or surpass) the proven performance of the Kaiser Jeep.

Arriving in Montrose, Colo., I picked up a standard Jeep V6 with just 12 miles on the odometer. A new Scout

was driven from Denver by PM Midwest Editor Cliff Hicks and photographer Gene Colangelo. It was a standard four-cylinder Sportop that had been carefully checked out by International mechanics. Ron Gibson would be driving the Bronco. A Ford dealer in Montrose, Ron had a six-cylinder Bronco shipped from Denver, then had his mechanics equip it with a 4.57-1 rear locking axle. All three vehicles were tuned for high-altitude driving and were equipped with mud and snow tires.

By the time Cliff arrived from Denver, I had already become possessive of the Jeep. It was fun to drive, responding like a frisky colt with that V6 under the hood—much more machine than the four-cylinder Jeep I had owned and driven in New Mexico years before. Cliff was disappointed in the Scout at this point.

“You spend half your time shifting gears,” he said. He had come through the Rocky Mountains on Route 50. “It’s not a real highway car in

this kind of country. It doesn't have the power in fourth gear, so you have to shift down on any kind of a grade, and you can't get any speed. It's exhausting on a long haul."

Ron Gibson is an experienced mountain driver, so we gave ourselves a full day of practice driving on the mountain roads outside of Montrose. Both the Jeep and the Scout performed well here, and we finished the day confident of our driving ability. We were totally unprepared for the terrifying terrain that was yet to come.

On the road before dawn, we raced south on Route 550 for an early rendezvous with the Telluride Jeep Club. We turned west at Ridgway and headed up into the mountains. The Jeep sails along at an easy 60 mph on the highway, and the ride is comfortable. But one thing hasn't changed over the years. When it's a chilly morning and you haven't bothered to put on the side curtains, you freeze. The Scout has the comfort of roll-up windows.

From Montrose to Ridgway, a flat, straight highway, the Scout stayed out in front. But once faced with long grades to climb, it could not keep up with the Jeep, which went up and over the passes in high gear with ease.

A line of "four-wheelers" were parked along Telluride's main street when we arrived. There were a num-

FOUR WHEELERS rally before the false-fronted stores of Telluride's main street. Still active as a mining town, Telluride was once a booming metropolis that earned the name "The City of Gold." A restored opera house attracts summer visitors with old-time melodramas. The town is a hub for high-country safaris



OPHIR PASS was once a toll station for trains of burros hauling supplies to the mines in the 1870s. Cliff Hicks adds his name to the guest register

ber of Jeeps, one of them an elegant pink job with a striped and fringed canvas top. There were a couple of Toyotas, a Land Rover, two Broncos besides Ron Gibson's, and we had the only Scout.

This first day the caravan would ride over the rugged country around Telluride. Tomorrow it would hit the trail for Ouray.

Don O'Rourke, a weathered, soft-spoken man in his 60s, was the caravan leader. A native of Telluride, he knows every pothole in every trail in the San Juan Mountains, and he drives with the finesse of a mountain goat on a shale slide.

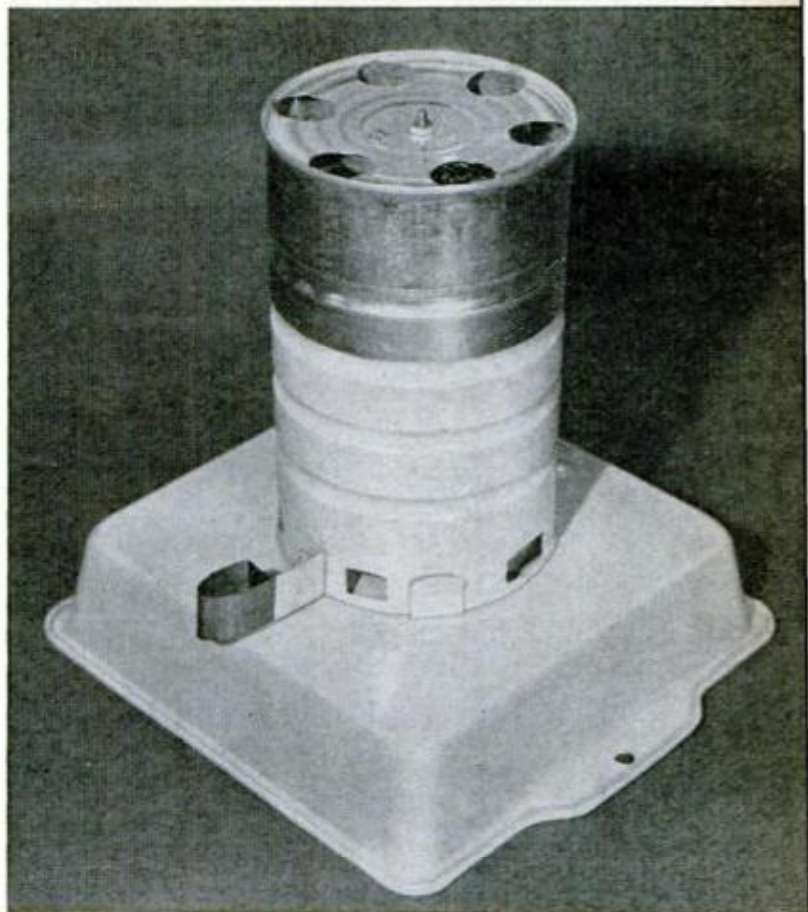
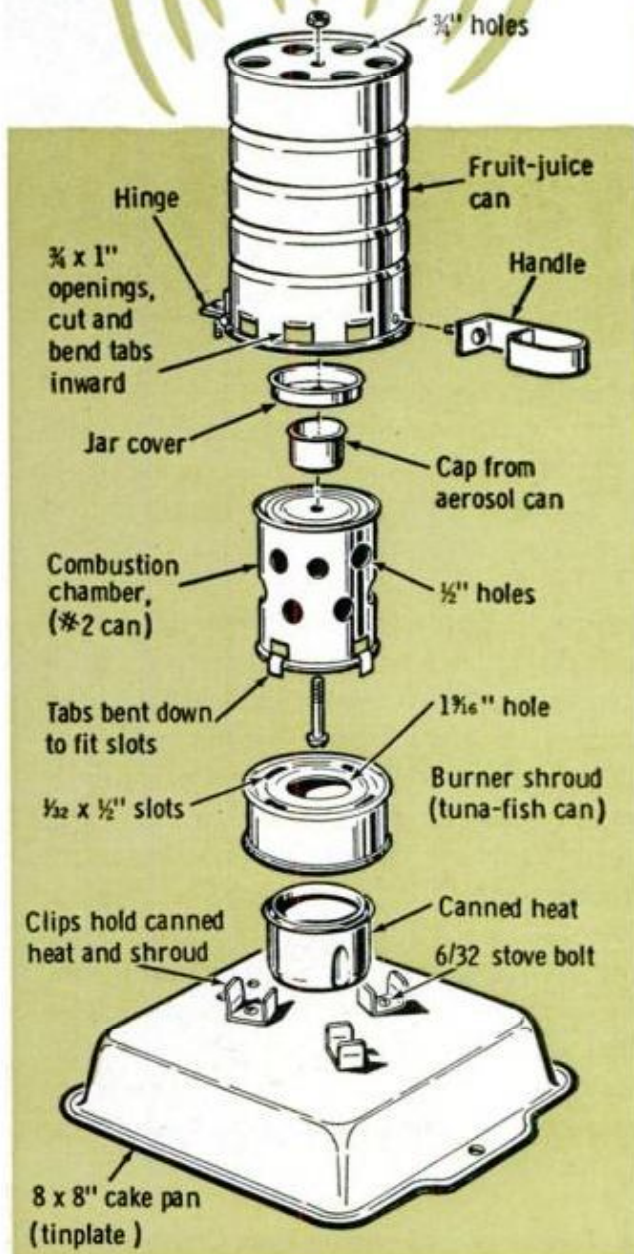
"We'll take it easy this morning," he

(Please turn to page 194)



For those chill
nights in the woods..

Build a tin-can space heater



By ROY L. CLOUGH JR.

YOU'LL BE AMAZED at the blast of heat you get from a can of plain old Sterno when placed in this pint-size space heater. Hardly more than a collection of odd tin cans and pressed-steel cake pan, it is just the ticket for taking the chill from a boat cabin, tent or small trailer.

The key features of the burner are a tuna-can shroud which insures a steady supply of air over the fuel to keep it from overheating and sputtering, and a burner pot which stabilizes the flame and insures that no unburned fumes escape. It's important that you follow the vent-hole sizes fairly closely. The cake-pan base never gets hot, it can be set down anywhere, and it makes the burner practically tip-proof.

The pull-apart drawing shows how the cans stack inside the hinged outer jacket, which is a large fruit-juice can. The round holes can be neatly cut with a circle cutter, the square ones with an old wood chisel. In both cases, the metal should be backed up with a hardwood block to assure clean-cut holes. The clips on the base, plus the handle, are bent from short lengths of steel strapping.



Campers: 12 Ways to Add

Fit out a pickup camper for easier living. Here are a dozen

SAVVY CAMPERS make rig changes every season. They're always finding new places to store equipment. They build for better accommodation. They buy and install better gear.

What follows are a dozen tips for easier living from some of the most experienced rig owners.

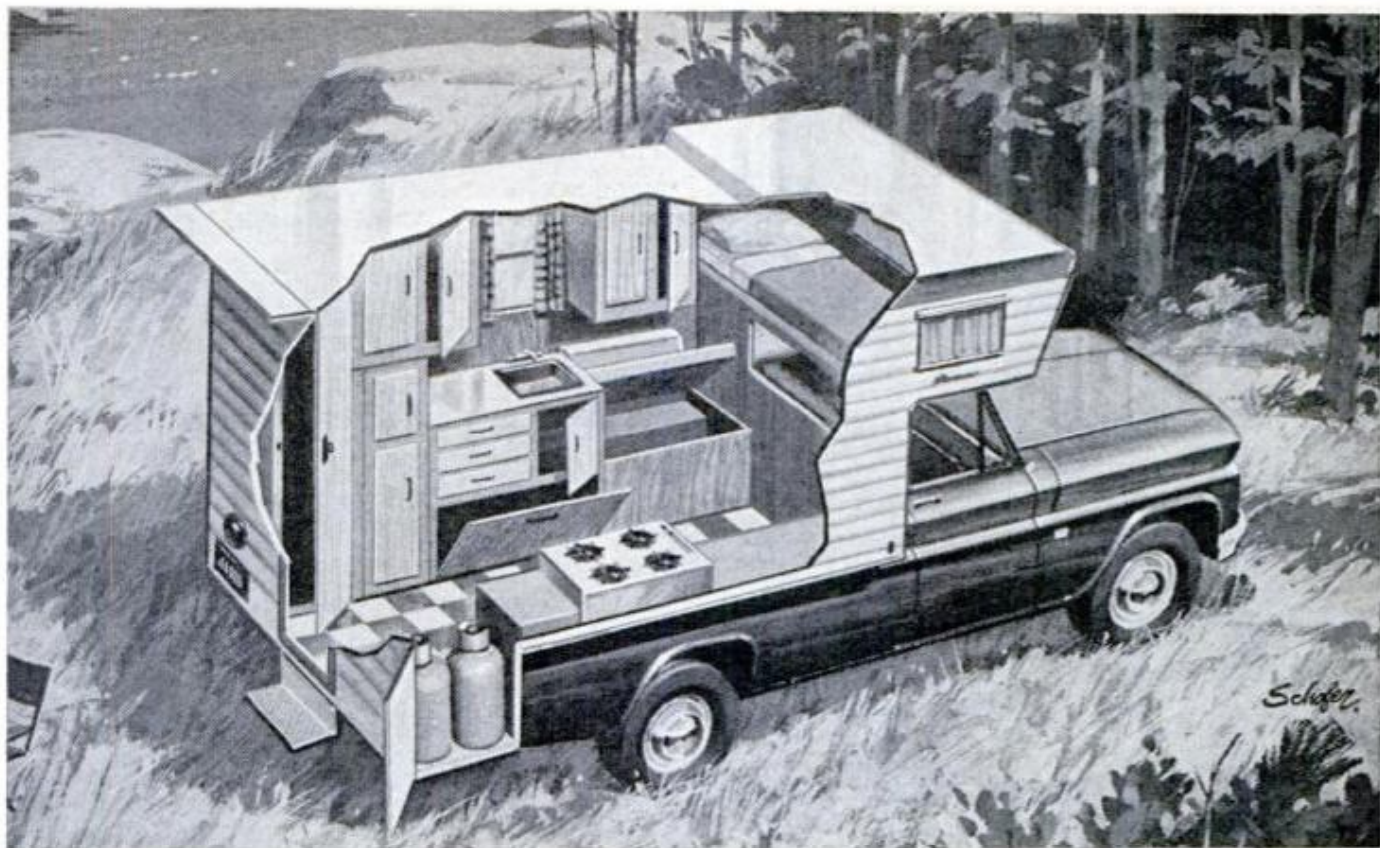
- **Add wheel-storage spaces.** The typical camper shell is undercut along its sides so it can slide in between the wheel wells of the pickup truck. This leaves valuable storage space (about 30 by 10 by 16 inches) forward of the wheel well on each side of the camper. George M. White of Yorba Linda, Calif., cut a trap door through the overhang on each side of his Alaskan camper to reach this wasted space. Auxiliary fuel tanks can be installed in these spaces. Note: These spaces are outside the camper shell and may become wet during bad weather. Store

canned goods, tow ropes and the like in them, but not such items as blankets or paper goods.

- **Build a pass-through.** Remove the glass from the pickup's rear window and the glass from the camper's front window. Enlarge the openings if desired. Install a weatherproof boot between the two openings. Most good automotive upholstery shops will install a padded boot and also provide a snap-in plastic rear window for the pickup (for use when the camper body is detached). Cost: about \$50.

Instead of buying a custom boot, some owners enclose the opening between camper and cab with an inner tube, partially inflated to form a tight, waterproof seal. If camper construction permits, a sliding glass panel can be installed in the camper's front window.

- **Install a water purifier.** Water from



CUTAWAY VIEW of camper shows access to wheel-storage areas by cutting through at seats or under sink

Comfort and Convenience

great ideas for customizing any rig

By TOM STIMSON

Illustration by Howard Schafer

different sources away from home can cause stomach upset, aside from objectionable differences in odor or taste. Some water, as in Mexico, may cause dysentery. These troubles can be avoided by installing a water purifier, such as an Ogden used in most airliners, even on domestic routes. The purifier removes bacteria, algae, nematodes, invisible suspended matter, detergents, tastes and odors, even radioactive solids from the water supply.

A small unit is available for mounting below the sink or for counter-top installation. These units work with either pressure or nonpressure systems. Filter cartridges are replaced after some 400 gallons.

New on the market is a 15-ounce portable unit with squeeze bulb that purifies 20 gallons of water on a replaceable cartridge. Designed primarily for hikers and small camping parties,

it's ideal for emergency use in small recreational vehicles. The portable unit lists at \$14.95. Ogden Filter Co., 4214 Santa Monica Blvd., Los Angeles, Calif. 90029, is the maker.

- **Remove the "bounce" when you're parked.** Some recreational vehicles with soft springs are bouncy when parked. Some owners stiffen the vehicle by putting a jack under each rear corner (also used to help level a vehicle). Fold-up jacks that attach permanently to the rear corners are faster and easier to use. (About \$3 at any trailer supply store or from Bernard & Morgan, 8924 Lankershim, Sun Valley, Calif.) Some campers have built-in jacks that can also be used to take out the bounce.

- **Add an overhead bunk.** If you need another bed, an overhead bunk of the Pullman type can be installed easily. The bunk is out of the way except



AN ADDITIONAL BED is always handy. During the day, the bed is lifted to the position shown above. At night, it's lowered to brackets shown by the arrows



THERE'S ALWAYS A USE for an outside outlet. It's better to have it as high as you can easily reach. Low outlets could be fouled by water from wet roads

STORAGE SPACE for hunting and fishing gear can be made available by sectioning closets. Note the inclinometers on the wall for leveling the camper



when lowered for use and is a good place for daytime stowage of bedding.

The frame consists of two lengths of one-inch chrome moly tubing No. 4130 (ordinary pipe is too weak) that drop into sockets on the adjacent bulkheads. Sleeved to the tubing is a double layer of double-stitched high-strength canvas sailcloth. A layer of quilted vinyl may be added to the bottom to improve appearance.

- **Add external electric outlets.** One or more 12-volt outlets installed in the camper shell with waterproof caps are always useful for out-of-doors light and power. An example is a table lamp for meals outside after dark. Owners who have made this improvement find many uses for it.

- **Level your camper like an airplane.** Cooking, eating and sleeping are much more comfortable when a vehicle is level. Install a pair of airplane bank and turn inclinometers handy to the driver's vision. One should show the lengthwise level of the camper, the other the crosswise level. (Airborne Sales, 8501 Stellar Drive, Culver City, Calif., has these for \$2.95 each.) Make sure the camper is level when you make the installation. The inclinometers should be set when the vehicle is on a smooth road with a normal load.

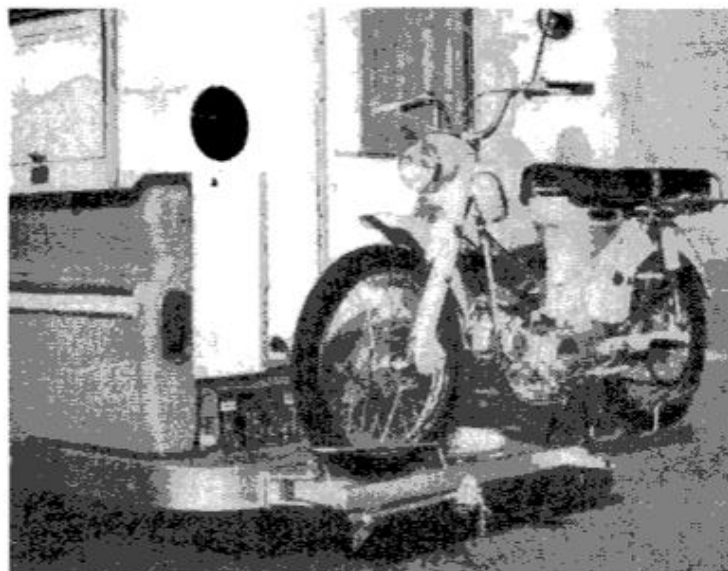
- **Install a dual electrical system.** Most camper electrical systems are unhappy compromises. Some lamps are connected to the ignition battery, while others use an external source of 115-volt current when available. In some installations, a switch delivers either source of power to all lighting fixtures, and this requires switching lamp bulbs each time.

To solve this and other problems, an integrated electrical system has been designed by Paul H. White of Los Angeles. He's used it successfully in his camper for five years. He uses two batteries—a main one for the truck and an auxiliary one for camper equipment. Both these batteries can be charged by the engine alternator or by a rectifier that changes incoming 115-volt a.c. to

12-volt d.c. current. (Special 115-volt outlets may be installed in the camper for electric blankets, television, mixers and the like.) The accompanying wiring diagram shows how a pair of single-pole, double-throw switches are used for the various hookups.

Specifications: the single-pole, double-throw switches must be of heavy capacity. All wiring between the batteries, switches and ground should be heavy 200-amp. welding cable, as short as possible. All other wiring should be No. 8 gauge to avoid voltage drop in the 12-volt system. The rectifier should be of the flat-voltage, self-regulating type. It should be set to deliver 14.2 volts into a 12-volt d.c. system. Heavy 30-amp. fuses should be installed between each switch and battery.

● **Tail-end storage.** A light motorcycle or a trail bike can be carried at the rear of a camper if you build brackets and tie-downs for it. Orday Tool & Engineering, 4213 W. Burbank, Burbank, Calif., lists such a bike rack at \$67.95. The rack is hinged at one side



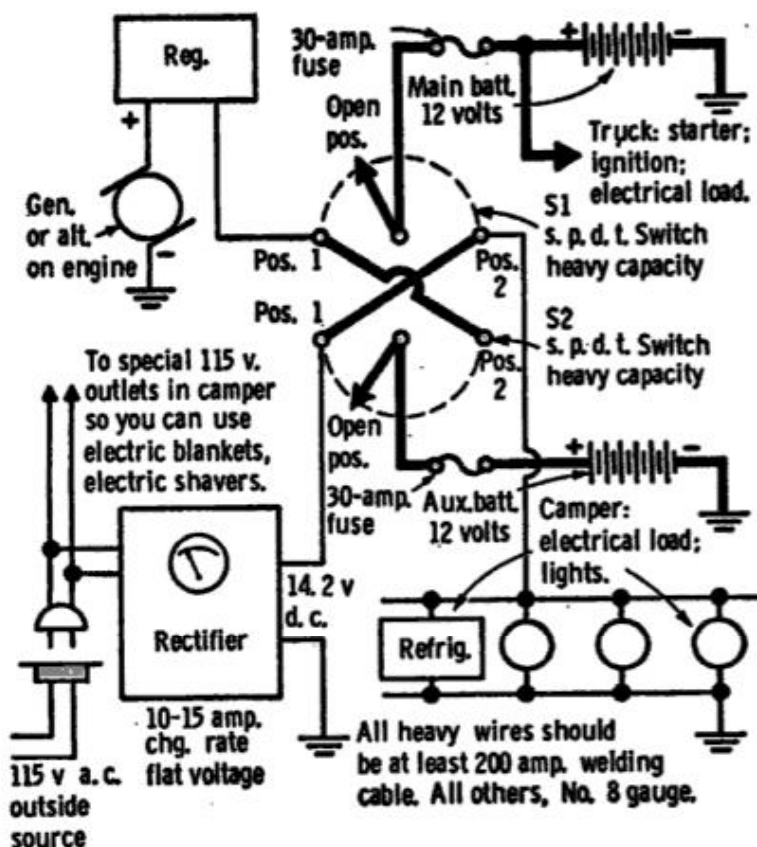
SMALL MOTORCYCLES or trail bikes are very popular with camper owners. A rear-end bracket for this auxiliary transportation is easy to install on frame

so it can be swung away, allowing access to the camper's rear door. Some camper enthusiasts carry an outboard motor on the rack.

● **Install an outside water drain.** The drain plug at the bottom of a freshwater tank is hard to reach and a nuisance to operate, yet it's necessary for

(Please turn to page 228)

DUAL ELECTRICAL SYSTEM is diagrammed below. The chart at right shows the switch positions and the results



IMPORTANT SWITCH POSITIONS

S1	S2	CONDITION*
Open	Open	Neither engine nor accessories will operate.
Open	Pos. 1	Auxiliary battery operates accessories. Rectifier can be used to charge auxiliary battery and operate accessories.
Pos. 1	Open	Engine will operate.
Pos. 1	Pos. 1	Engine will operate. Auxiliary battery runs accessories while under way.
Pos. 1	Pos. 2	Engine will operate. Both batteries can be charged while under way.
Pos. 2	Pos. 1	Rectifier can be used to charge both batteries. Engine will not operate.
Pos. 2	Open	Main battery operates accessories (use only in emergency). Rectifier can be used to charge main battery. Engine will not operate.

*NOTE: Accessories will always run when rectifier is operating regardless of S1-S2 position.

CAMPING

THIS SECONDHAND BUS, 35-foot long, provides a roomy, road-going vacation home for the roving Weestrand family. Cost of Greyhound was \$3500



They Made a Camper Out of a Greyhound

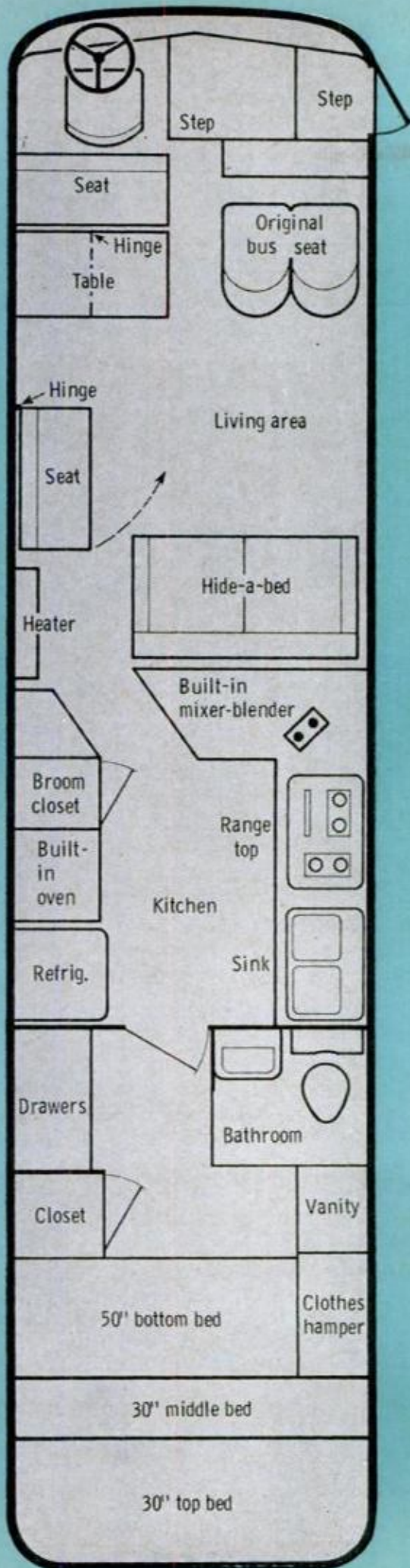
Here's how an enterprising couple in Minneapolis turned a 40-passenger bus into a luxurious vacation home on wheels

By JOHN INGERSOLL *Photos by Michael Myers*

LOOKING TOWARD THE REAR, you can see the camper's spacious living quarters, including a comfortable sofa. Behind sofa are kitchen and built-in bunks. Twin bus seats in foreground are all that remain of original bus interior. Guard rail is at entrance door



INTERIOR PLAN



ALMOST EVERYONE has thought about converting a bus to a camper. Well, Dennis Westrand did it. He bought a surplus bus from the Greyhound Bus Co. and converted it into a spacious traveling home.

It took a bit of doing, but the Weestrands think it's worth it.

The bus cost \$3500 and was in need of repairs. Some of the mechanical parts were replaced, and the entire engine and transmission needed overhauling. The cost of putting the bus into topnotch running order was about \$2600.

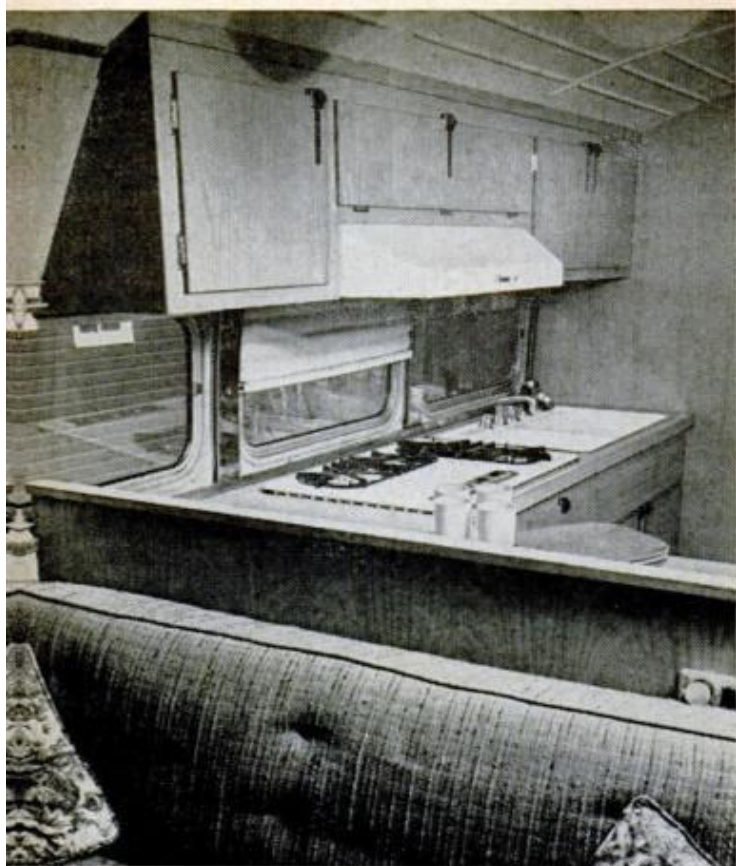
Next they tackled the interior. First, the seats were taken out and sold to a local bus line. Second, the overhead luggage rack was removed. This really opened up the interior. It gave full six-foot headroom all across the eight-foot width of the vehicle.

With the interior of the 35-foot bus completely bare, the Weestrands started fitting it out to their own design.

The sides of the bus were paneled with oak. The paneling was secured to the interior walls with screws fastened



LADY OF THE "HOUSE," Mrs. Westrand, pours coffee on the foldaway dining table. The hinged table drops down to make a large play area for the kids



SPLIT KITCHEN has built-in range and sink on one side. Overhead cupboards conform to sloping bus roof, are easy to reach as top shelves are shallow

to the aluminum ribs of the bus. Next, the floor was covered with inlaid linoleum.

Then came the beds way back in the rear of the bus. Three beds were built—one on top of the other. The top two bunks are 30-inch single beds—the bottom is a 50-inch double bed.

At this point, a thermostatically controlled heater and airconditioner were installed. A full-size trailer bathroom came next, followed by a kitchen that took both sides of the bus. A built-in oven and a gas-operated refrigerator were installed on the left-hand side, while a range and sink went on the right. Cabinets and counters completed the kitchen installation.

In the "living room," the Weestrands put a small sofa, which folds out into a bed at night. There're seven in the Weestrand family, so they need all the sleeping space they can get.

A dining table and two bench-seats round out the living area. One of the seats is hinged so it can be moved back against the side when not in use. The



TRIPLE-DECKER BUNKS, above, built across rear end of bus, provide a lot of sleeping room for the Weestrands. By day, doors close them off from view



table is also hinged so it can be collapsed. When the furniture is folded up, the children have a good play area.

One of the ingenious ideas developed by the Weestrands is the "riding seats." These are two original bus seats that had been reconditioned and installed right up front. From these seats, there's an excellent view of the countryside as it passes by.

To top off the luxury of this vacation bus, the Weestrands installed a stereo set so they have music wherever they go.

Finishing the interior to their liking cost the Weestrands about \$2800. Dennis Weestrand, who is a contractor in Minneapolis, did the work himself.

So the entire job of converting the bus cost the family about \$8900. They feel this is quite inexpensive considering the amount of space and luxury they have for family trips and vacations. One big advantage of the bus arrangement is that the family can occupy the living quarters while the camper is rolling—not legally permissible in the case of a house trailer.

To round out the specifications of the bus, Dennis Weestrand installed a 100-gallon water tank, a 120-gallon

TRAILING A CANOE, Weestrand heads for wild country on his motorcycle (below and at left). Canoe and cycle stow in Jeep, which, in turn, is towed by bus



OPPOSITE SIDE OF KITCHEN houses a full-size oven and refrigerator, built-in cabinets, and work counter—all tucked neatly into the bus's curving walls

septic tank and a 120-gallon fuel tank. He finds that he gets about 6.5 miles per gallon from the diesel engine.

The Weestrands' bus is truly a vacation home. Dennis Weestrand not only converted the interior of the bus for camping life, but devised a system for getting into isolated areas where he can't take the 11-ton bus. He's attached a hitch to the rear of the bus and pulls a Jeep. On the Jeep, he has a rack that will hold several canoes. He also carries a small motorcycle in the Jeep.

His plan works like this: He drives the bus as far as he can. Then he drives the Jeep farther back into the woods. When the Jeep road ends, he puts the canoe on a trailer and tows it with the motorcycle even farther back into the wilderness. Many's the time he's gone fishing in spots that other campers have missed because of inaccessibility.

For family canoe trips, Dennis Weestrand has a rack that will fit on the bus, so he can carry canoes for all the members. ★ ★ ★

Add this boat rack to your

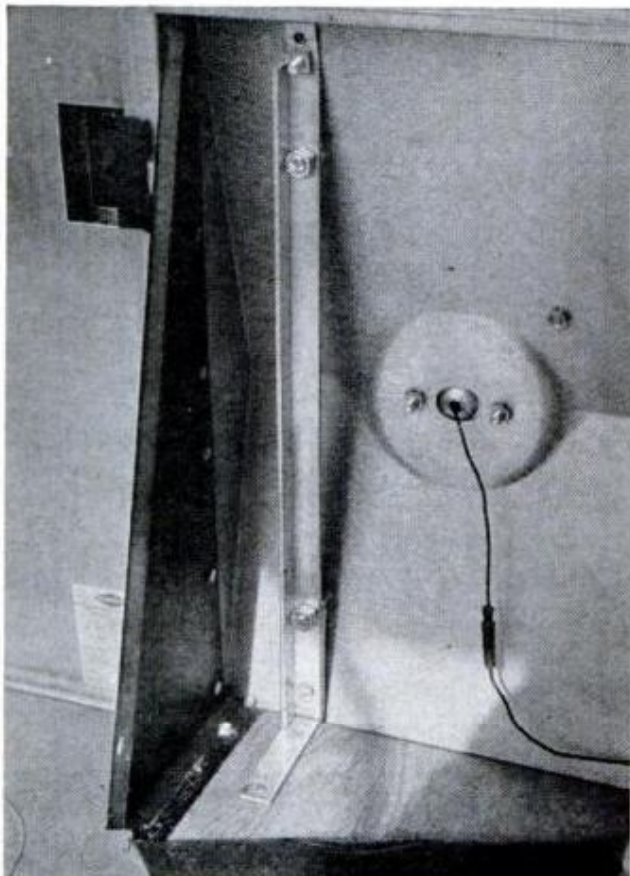


FRONT PEDESTAL is supported at the proper height by 1-in. adjustable hose clamps located above the top eyebolts. Be sure you turn the clamps up tight



REAR PEDESTAL is mounted in the same way as the front one. However, location of legs must permit free door access and not hide the license or lights

tent trailer



INTERIOR BRACING for pedestal legs transmits weight directly to floor instead of bearing on the molded fiberglass body. Dimensions will vary with camper

IT COST ONLY \$15 to build, yet this simple trailertop rack solved one of my biggest camping problems—how to take a tent trailer, a boat and a cartop luggage carrier on my camping trips. After thousands of miles with the rig, I wouldn't change a thing. It's been a jewel.

Specific dimensions will depend on your boat and trailer. First, determine the boat's center of gravity (roll the hull back and forth on a long dowel until it balances) and mark this location on the gunnels so you can position the load directly over the trailer wheels. The 1x6 pedestals should be 4 in. longer than the width of the boat at the support locations.

I used 1-in. DIY aluminum tubing and aluminum flanges to take the pedestal legs, attaching them directly under the gunnel contact points. Most hardware stores sell such tubing in 6-ft. lengths and the flanges to fit. In the rear, you may have to spread them slightly farther apart to provide trailer-door access.

The legs are mounted on the trailer in such a way that the load is transmitted directly to the floor rather than to the fiberglass body. I used a combination of $\frac{3}{8}$ -in. eyebolts, 1-in. aluminum angle and 90° angle brackets. The eyebolts should extend far enough outside to allow the legs to clear the body. Use 1-in. adjustable hose clamps to locate the legs at the proper height. (Be sure to leave a couple of inches of daylight between the boat and the top of the trailer.)

Mating the boat to the pedestals is next. Side-to-side shifting is controlled by 1-in. retainer blocks screwed to the pedestals, plus regular boat tie-down straps anchored to the eyebolts with S-hooks. Fore-and-aft stability can be achieved by lashing the boat to the pedestals, utilizing the thwarts, bow ring, corner braces or other hull features.

Once you've tried the rack on the trailer to make sure that everything fits properly, sand the pedestals and give them a couple of coats of spar varnish. (For a sharp-looking rack, make these from mahogany.) Strips of carpeting can be glued to the pedestals where they contact the gunnels, but be sure to allow sufficient space for them when locating the retainer blocks.

Use liquid rubber to seal the holes through which the eyebolts pass. Once this is done, you're all set to hit the road. Happy camping and smooth sailing!

—John Mudrock

New Hardware For Campers

There's an amazing array of camper extras available this year—all designed to better your outdoor living.



NEW REAR-VIEW MIRROR stays with your camper, not your truck. It gives a full rear view instead of a partial view from the truck-mounted mirror



FIREFLY is a new type of bellows that will quickly fan a dying fire into a hot cooking fire. It is also good for starting wood and charcoal fires

NO MATTER how cramped your camper, you can always find room for worksaving devices. And manufacturers of camper accessories are booming the market with products that do just that.

This summer, you'll be seeing more rear-view mirrors attached to the camper instead of the truck. Velvac has introduced its Model B-1, which hangs from the overhead section of the camper. It's so positioned that the driver can get a full view of what's behind him. This mirror stays with the camper when you "unload." No longer do you need wing mirrors that seem to stick out into the oncoming lane.

The big 5½-by-8½-inch mirrors cost \$12 a pair for a white plastic-backed model; \$16 a pair for stainless steel. Nonvibrating braces are optional. For more information write Velvac, Milwaukee, Wis., 53219.

Now you can buy a small portable "bellows." It's the newest thing for making a roaring fire from embers. It's also good for quickly starting charcoal fires. This 11-ounce, hand-operated airblower is called "FireFly." By turning the handle, you can produce an air stream of varying intensity. FireFly costs \$4.95, plus 50 cents for handling and postage from Holiday Products, P.O. Box 62, Kansas City, Mo.

Also new on the market is a modern flush toilet introduced by Monogram Industries. Its operating design is taken from jet-plane facilities. The Monomatic, as it's called, is completely self-contained. It requires no holding tank, no water tank, no complicated plumbing and no venting. It can be installed in a new or used camper in minutes.

With a chemical called Monochem T-5, this facility will accommodate 80 usages without a holding tank. Four gallons of water and the chemical is all you need. Monomatic operates on a 12-volt d.c. battery. A built-in drain at the base makes emptying and recharging a simple procedure. If there's a holding tank in your camper now, this

unit can be attached, giving a capacity for months or even the entire season.

Monomatic costs \$195. For more information write Monogram Industries, 10131 National Blvd., Los Angeles.

Just out this spring is a solution to that old problem of emptying your holding tank. Here again Monogram Industries has come to the rescue. They're marketing a Monopump. This pump, similar to a garbage-disposal unit, will quickly discharge any conventional holding tank through an ordinary 3/4-inch garden hose. This means that you can discharge your

tank right into your home sewage system. It operates on a 12-volt d.c. battery. Cost is \$79.95.

Two convenience items are on the market. One is a table and chair set that folds into a "briefcase" 15 by 24 by 3 inches. This compact unit weighs 25 pounds, costs \$27.50 and is available from Gloy's, Inc., 11 Addison St., Larchmont, N.Y. The other item is a four-foot flexible band of hooks for hanging clothes and equipment that can be strung up anywhere. This useful item costs \$1.98 from the Washburn Co., Worcester, Mass., 91608. ★ ★ ★



▲ **PACK-AWAY TABLE** and chairs (above) fit into a handy folding carrying case. This outdoor dining set includes a plastic-covered table, two backed chairs, two stools and a case

▲ **ALL YOU NEED IS WHAT YOU SEE** at left. This is the new monomatic flush toilet which requires no holding tank, no water, no venting, and no complicated plumbing. Easy to install



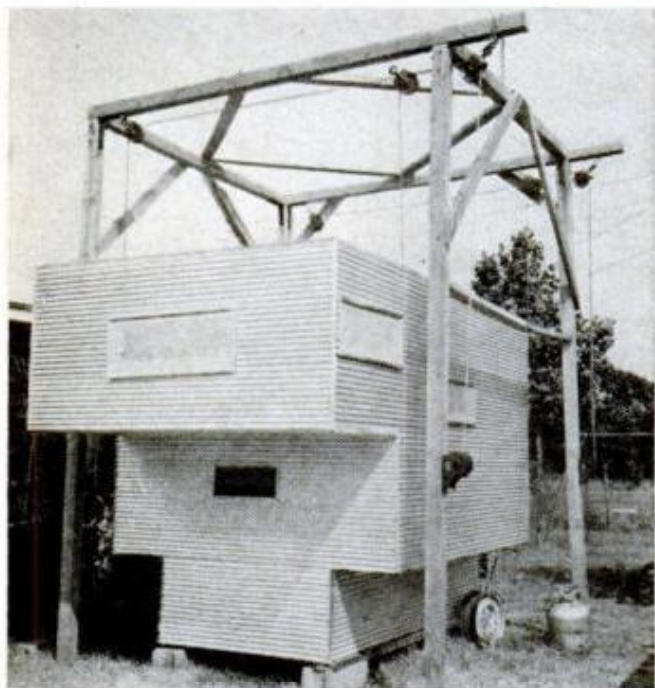
▲ **MONOPUMP** is just entering the market. It lets you empty your holding tank through a garden hose into your home sewage system. No longer do you have to hunt for a place to empty tank

▶ **YOU CAN HANG** almost anything almost anywhere with this strap that has 12 zinc-finished hooks. The ends can be nailed around a tree or between camper and a tree or in your camper



CAMPING HINTS

FROM READERS



One-man camper hoist

If your pickup camper serves as just a camper and there's no need to make use of the truck itself, you don't have the problem of lifting it on and off like one reader. But this was not the case of Henry Bostick; the vehicle had to earn its keep as a truck between camping trips. To solve the problem, he built a hoist of 4x4s and rigged it with blocks and tackle. Cables hooked to the sides of the camper and to crank winches mounted on the legs of the hoist let him lift the camper enough for him to drive out from under, after which the camper is gently lowered to the ground, single-handed.

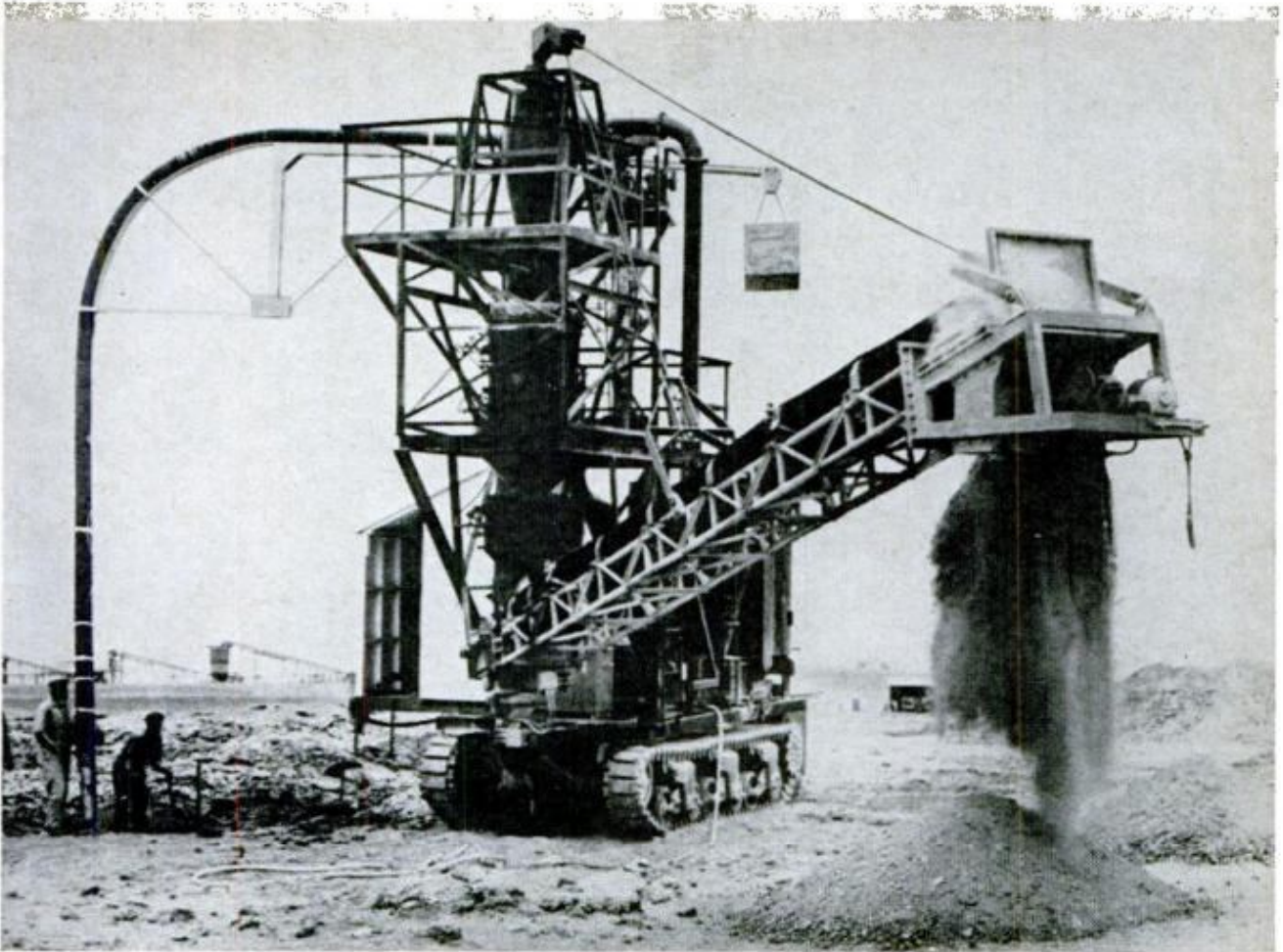
Safe paint for Styrofoam

Popularity of the Styrofoam picnic cooler makes it a problem sometimes to keep track of it when your family is a part of a large church picnic group or other gathering. Identifying it with your initials is the answer, but you just can't use any paint to do it since regular paint will dissolve the foam. One safe spray paint is Plasti-Kote's Bon Bon. A stencil of wrapping paper pinned to the cooler lets you do a neat personalizing job with a couple passes of the spray.



Disposable camp stool

You'll have less gear to lug and less to bring back from a weekend camping trip if you let your six packs provide camp-fire stools as the empties accumulate. Nine cans, for example, lashed together with string will provide a fairly comfortable seat to sit on around a fire. When breaking camp, the cans can be tossed in the trash barrel.—William Swallow



The biggest vacuum cleaner in the world

Instead of collecting dust, this mammoth cleaner gathers diamonds. Called a Vacu-Veyor, it's mounted on a Sherman tank chassis and sucks diamonds out of the rocks at a diamond mine near Oranjemund, South-West Africa. Gobbling up a heavy mixture of gravel from inaccessible rock crevices, it spits the load out into a neat pile where it is scooped up by a front-end loader and hauled away for mechanical processing. The machine, which needs only two operators, sucks up about four cubic yards per hour.



Four-wheel armchair

Bought by a car dealer at a furniture auction, a huge armchair was mounted on a car chassis and may now be the world's largest, motorized, four-wheel armchair. It is driven around London to attract attention and raise money for various charities.



Beetle-powered GEM

Claimed to have a 40-mph speed, a new ground-effect machine seats two and rides on a 14-inch cushion of air. Designed by Air Cars, Inc., to sell at \$3000, the vehicle is powered by a Volkswagen engine and weighs less than 500 pounds empty.



the ABCs of BRAKES

In the long, frustrating transition from Dobbin's reins to disc brakes, engineers have tried about everything to stop a car quickly and smoothly

By ROBERT W. TEMPLE

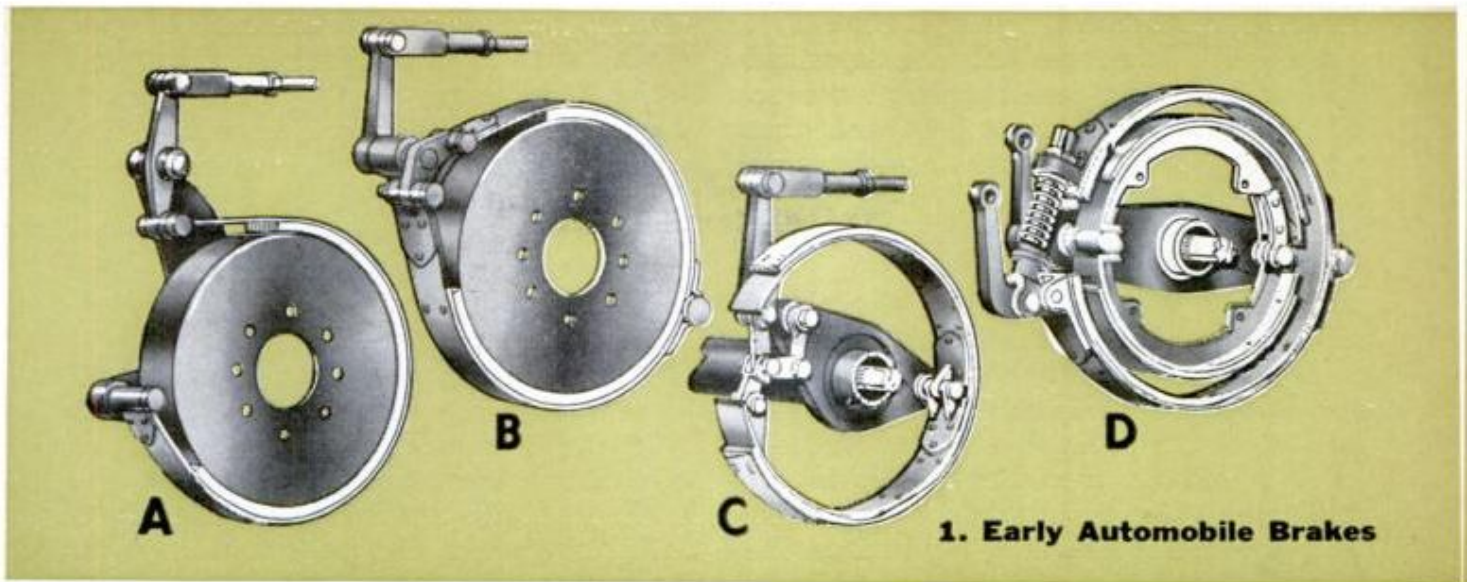
ASIDE FROM PARTS that make a car go, safe arrival at your destination depends primarily upon the proper functioning of the braking system.

Like everything else about a car, brakes have been steadily improved since the arrival of the first "horseless carriage." It might be easier to understand our modern braking systems, however, if we take a look at some of the history between dobbin and discs.

The earliest automotive brakes were "strap" brakes (Figure 1A). They consisted of a simple, flexible steel band

with a leather lining. The band assembly was anchored at one end and curved around a flat pulley, or drum. Tightening the band around the drum by means of a lever at the other end of the band resulted in frictional retardation of the drum and the wheel or shaft to which it was attached.

Braking action is the same as that achieved by snubbing a rope around a pole, but the braking action is directional. As long as rotation is away from the anchor, snubbing action is fine. Resistance to rotation in the opposite



1. Early Automobile Brakes

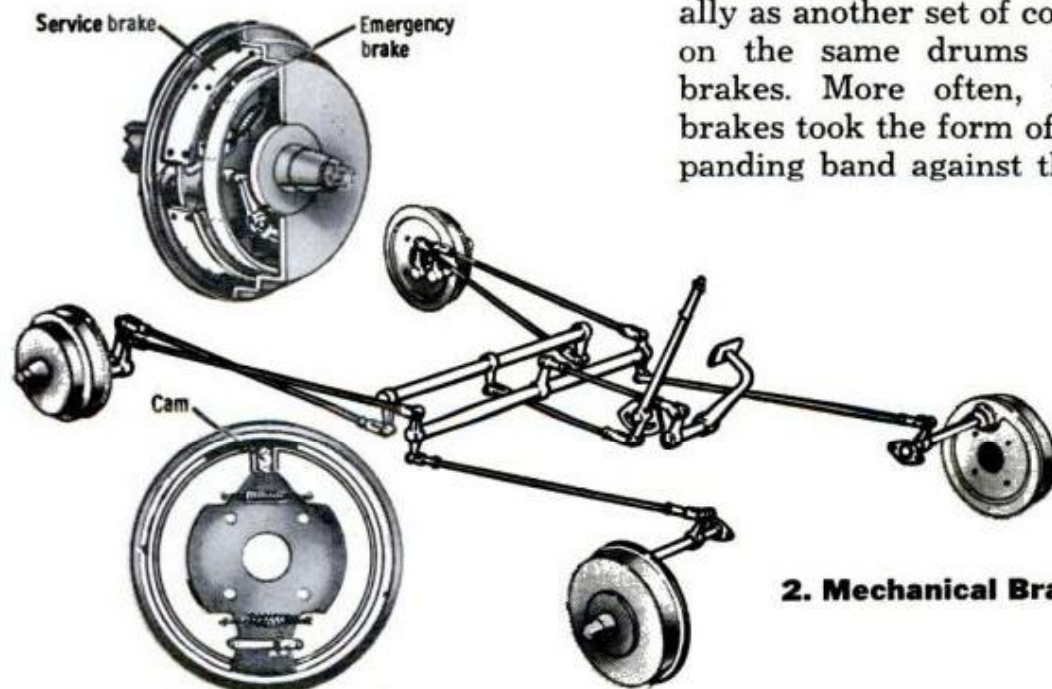
direction, however, is dependent upon the muscle of the driver; this single-acting band brake was soon superseded for obvious reasons.

In the double-acting band brake (Figure 1B), the band was divided into two segments with the anchor placed approximately halfway around the perimeter of the band. The band was wrapped around the drum in opposing directions from the anchor point. This brake provided more or less equal resistance to rotation in both directions.

Early brake-lining materials left a lot to be desired. If the driver didn't use extreme caution with the application of the brakes, they soon burned out.

Although leather was the most popular lining material until just prior to the first World War, many other substances were tried—including camel hair. The heat-resistant qualities of asbestos were well known, but the technology of fabricating a nonshredding brake-lining material hadn't been developed.

Due to the delicate nature of the brakes of the period, an auxiliary system was mandatory. This was called, appropriately enough, the emergency-brake system. Emergency brakes were sometimes mounted on the rear of the transmission main-shaft as a contracting band on a drum; sometimes on the differential pinion shaft, and occasionally as another set of contracting bands on the same drums as the service brakes. More often, the emergency brakes took the form of an internal expanding band against the inside of the



2. Mechanical Brakes Circa 1929

service brake drums (Figure 1C, page 139).

A flexible band can only be expanded inside a drum to a certain point, however. When pressure is applied beyond that point, the band will relieve the pressure by deflecting inward. This type of emergency brake would handle emergencies only up to a point.

In order to stiffen the internal band brake to prevent its "retiring" when the going got rough, the band was backed by a stiffening web of metal (Figure 1D). The band, being no longer flexible, was divided in order to retain the ability to expand against the inner surface of a drum, the result being the early version of the "shoe" brake.

The brake shoes were pivoted to an axle-housing bracket at the anchor end. Brake actuation was achieved by rotating a cam between the other ends of the shoes to wedge them out against the brake drum. Tension springs retracted the shoes when the brake lever was released.

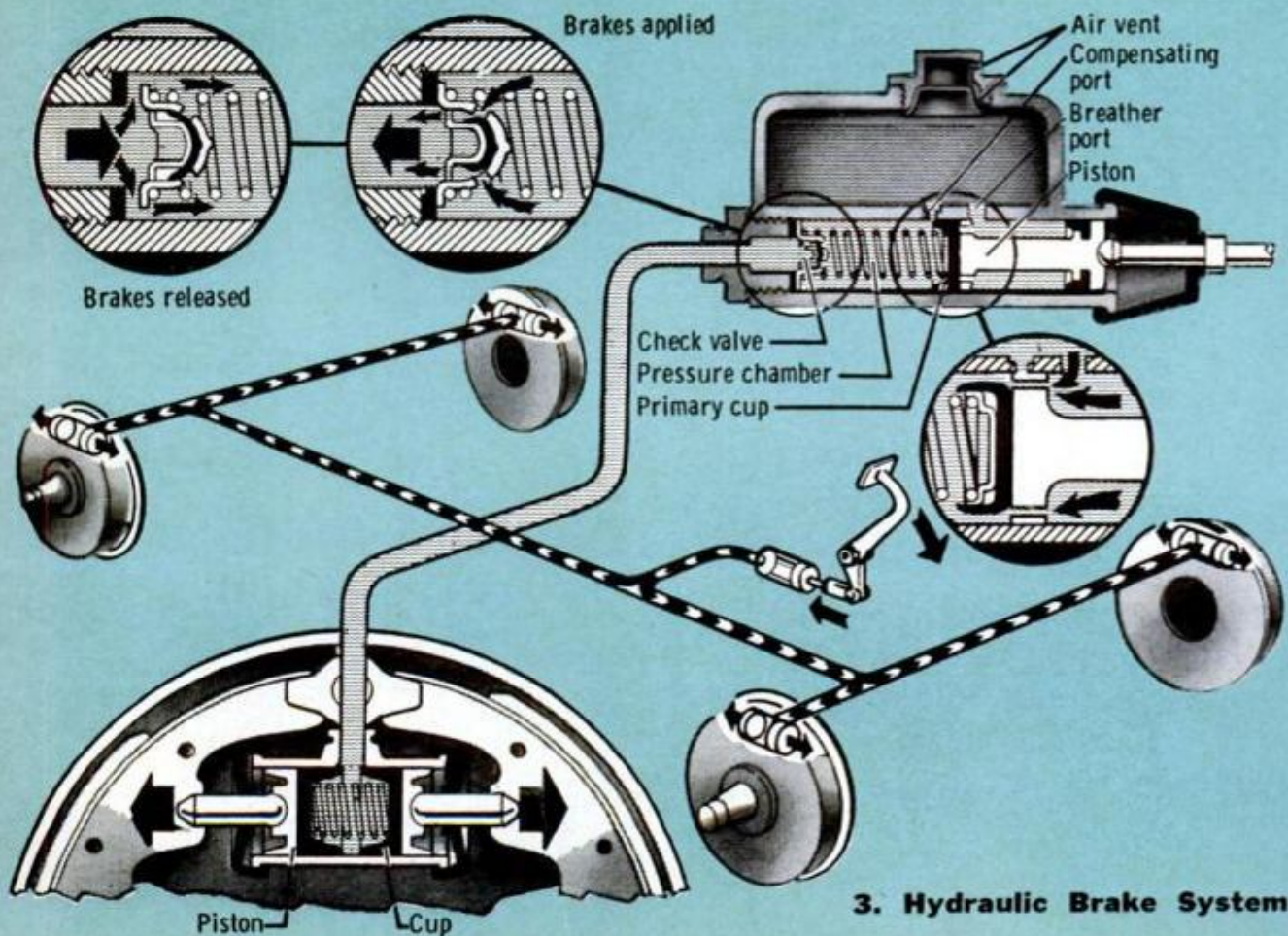
Around 1920 it was becoming apparent that two-wheel brakes couldn't cope with traffic conditions much longer. A few manufacturers were experimenting with four-wheel brakes, but these didn't come into universal acceptance until 1928.

Putting a frictional brake on a wheel was no particular problem by this time, but putting them on the front wheels where they had to function while the wheels were being turned in steering action while bouncing over the bumps, was something else. With mechanical actuation of the brakes, a minor malfunction in the mechanism could result in steering action also applying one of the front brakes.

Furthermore, exposed brake linings of the period were subject to contamination by dirt, grease and water, so the logical solution was to move everything possible inside the brake drum in order to protect the braking action and make it as uniform as possible over the widely varying road and weather situations.

Figure 2 shows a typical mechanical brake system as it appeared about 1929, with cam-operated brake shoes shielded inside the brake drums by the brake backing plates. Compensation for wear of the linings was achieved by means of an adjustment at the anchor end of the brake shoes.

For an emergency brake, the Model A Ford used a smaller expanding-band type brake on a second braking surface within the rear drums. Other manufacturers used



either the contracting-band type brake, mounted on the transmission, or on the outside surface of the rear drums.

Besides the problem of equalizing and constantly adjusting four-wheel mechanical brakes, there was the complication of myriad rods, levers, and clevises that rattled and wore out. The advent of the hydraulic brake system was a feather in the cap of brake designer engineers.

Hydraulics is a branch of applied science which concerns itself with fluid in motion, and with how to put it to work. The aspect of hydraulics of the most interest to us here is Pascal's principle, which states: "Any change of pressure in an enclosed fluid at rest is transmitted undiminished to all parts of the fluid."

The simplified brake system diagram of Figure 3 shows how pressure applied to the master cylinder piston by the foot pedal is transmitted through the brake lines to each wheel brake, where the fluid transmits the pressure to the opposing pistons in each of the brake cylinders.

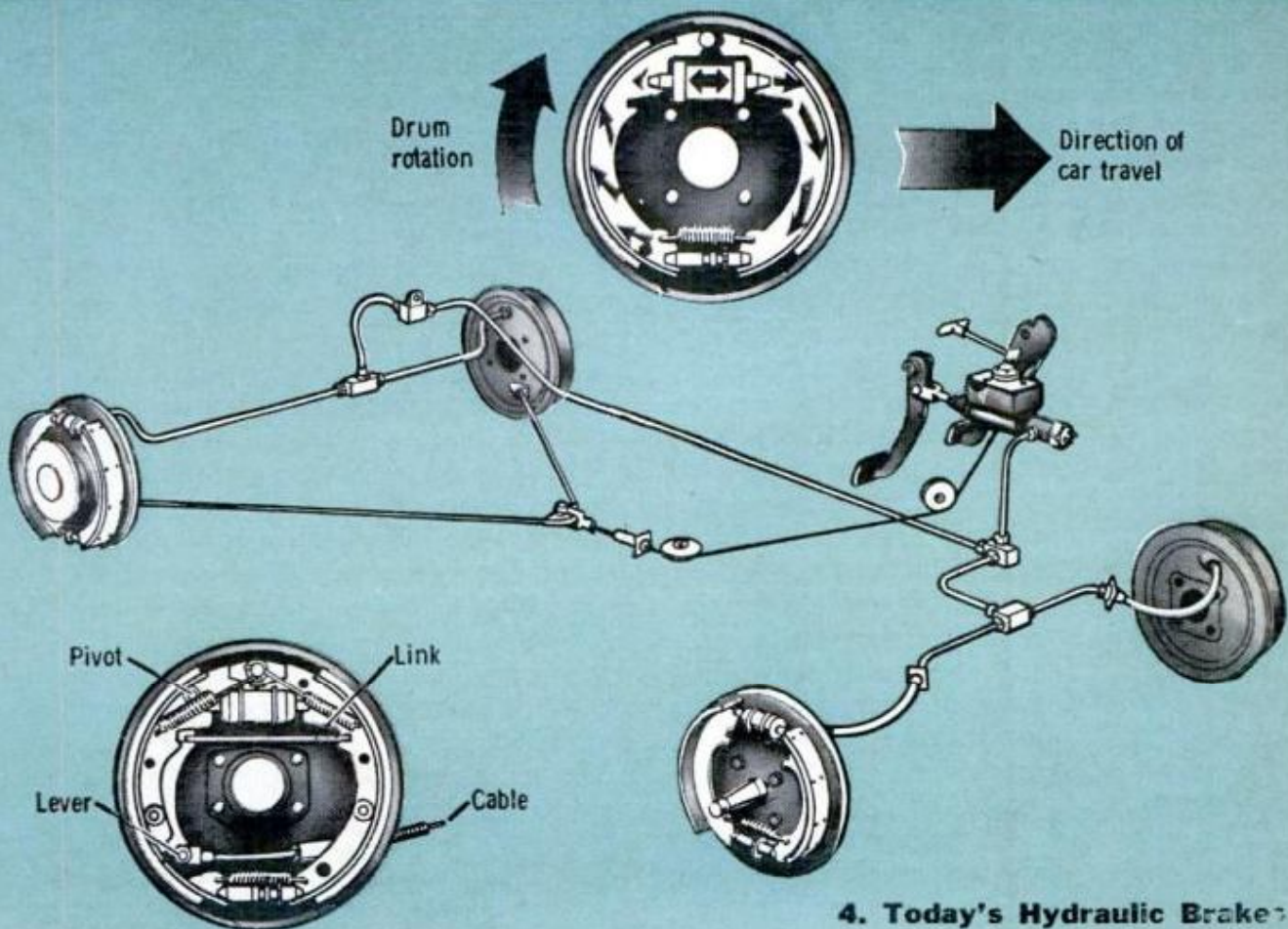
Because of forward weight transfer during braking, it is desirable to have the front brakes do a proportionally higher amount of the braking. Consequently, you'll find that the front brakes are usu-

ally larger than the rear brakes, and that the front-brake cylinders are also larger.

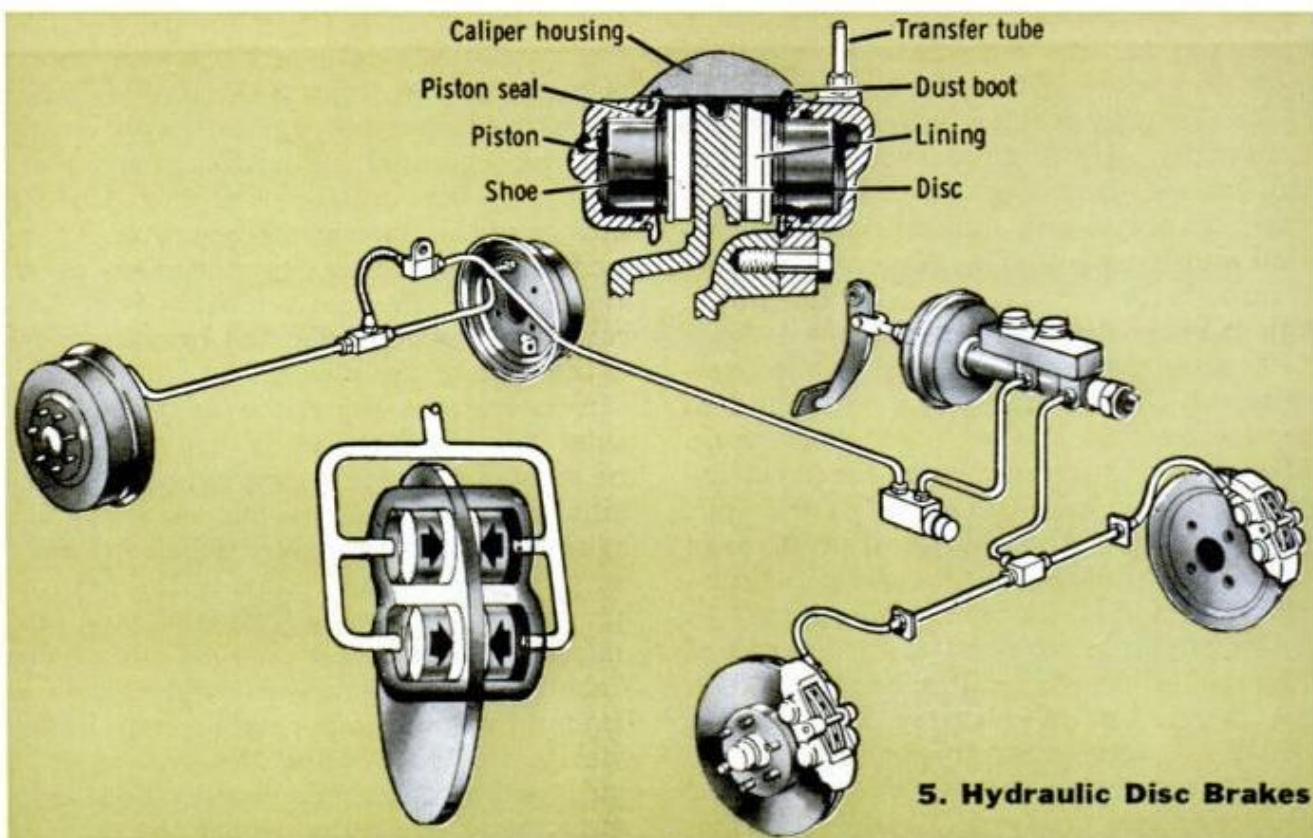
It can be seen that the master cylinder has a fluid reservoir on top with an air vent incorporated in the filler cap so atmospheric air pressure may act on the surface of the fluid in the reservoir. There are two ports leading from the reservoir to the cylinder; the compensating port forward of the piston, and the breather port to the rear of the piston.

In operation, the force of the brake pedal being depressed is transmitted to the master cylinder piston by a push-rod. Initial movement of the piston moves the lip of the primary cup over the compensating port, preventing return of the fluid to the reservoir. As the primary cup advances, fluid pressure is built up in the brake lines leading to the wheel cylinders. The fluid works against similar cups in the wheel cylinders, forcing the pistons outward and pushing the brake shoes into contact with the brake drums. Pressure in all parts of a hydraulic brake system being equal, braking pressure cannot be applied to any one brake until all of the brake shoes are in contact with their respective drums.

Referring to the enlarged views of the



4. Today's Hydraulic Brake



master cylinder in Figure 3, it can be seen that when the brakes are being applied, the fluid deflects the membrane of the check-valve to allow the fluid to enter the brake lines under pressure. Some static pressure is desirable in the lines to keep the wheel cylinder cups in firm contact with the cylinders for the exclusion of dirt and air. The piston return spring also keeps the check-valve assembly in contact with its seat sufficiently to maintain a line pressure of from eight to sixteen pounds.

When the brake is released, the piston moves rearward in the cylinder faster than the fluid can follow. To compensate for this, fluid flowing through bleeder holes from behind the piston head and around the primary cup, fills the void. When the primary cup uncovers the compensating port, surplus fluid returns to the reservoir. The breather port keeps the area behind the piston head filled with fluid.

Figure 4 shows a typical hydraulic brake system as used by most of the cars on the road today. It consists of self-energized two-shoe drum brakes on all four wheels, with alternate mechanical actuation of the shoes in the rear brakes to serve as parking brakes.

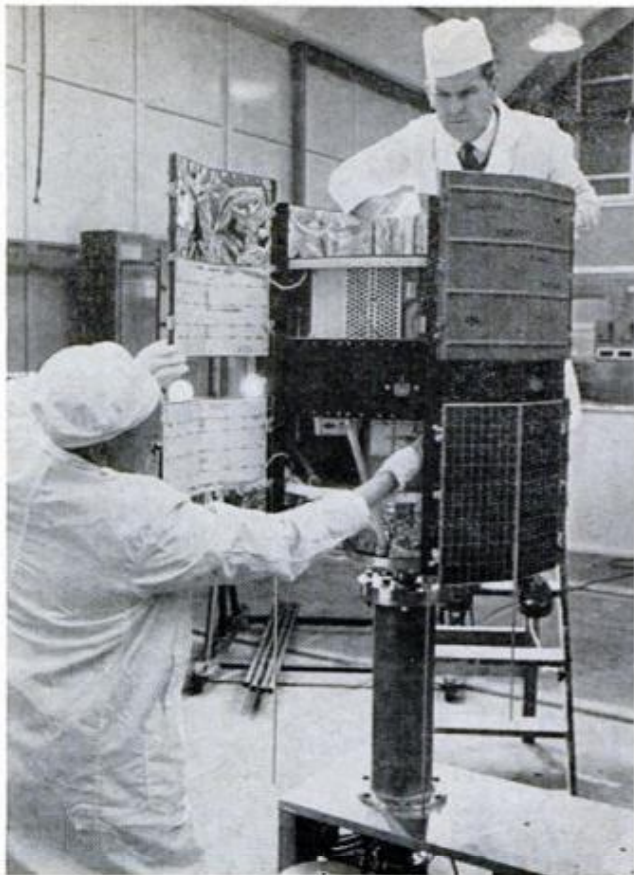
The upper detail illustrates a self-energized brake. Application of the brake pushes both brake shoes outward, but as

the forward shoe contacts the brake drum, frictional resistance against the rotating drum carries the shoe along with it. The link at the bottom between the two shoes is floating rather than fixed, so this rotational force is transmitted to the lower end of the rear brake shoe. The upper end of this secondary brake shoe anchors against a fixed pin at the top so that the entire energized force is applied to the brake drum.

The parking brake in this system is merely an alternate mechanical means of actuating the existing rear brake shoes. In operation the brake handle pulls a cable. The cable pulls a lever which is pivoted to the upper end of the rear brake secondary shoe. A link is mounted between the lever and the opposing primary brake shoe. A pull on the cable levers the shoes apart against the drums to set the rear brakes.

Recently hydraulically operated disc brakes have become quite popular. This type of brake system, shown in Figure 5, has advantages such as reduced heat fading, which is caused in drum brakes by the drum expanding beyond the reach of the brake shoes. Less susceptibility to moisture and dirt is another attribute; these contaminants can't stick to the rotating disc.

The disc brake has the braking elements
(Please turn to page 217)



First British satellite

Built to stay in sunlight at least one year, the first British-made satellite, ESRO 2, is prepared for shipment to the United States where it will be launched. The research satellite cost about \$3½ million and will gather information on solar radiation.



Motorized broomstick

It looks great for Halloween, but the St. Petersburg, Fla., inventor hopes this rig will be used for year-around sport. A one-hp engine drives a single wheel at the end of a pole. The operator, wearing roller skates, sits on the pole, and away he goes. Rubber skids on a roll bar serve as brakes.

MAY 1967



One-man U-boat

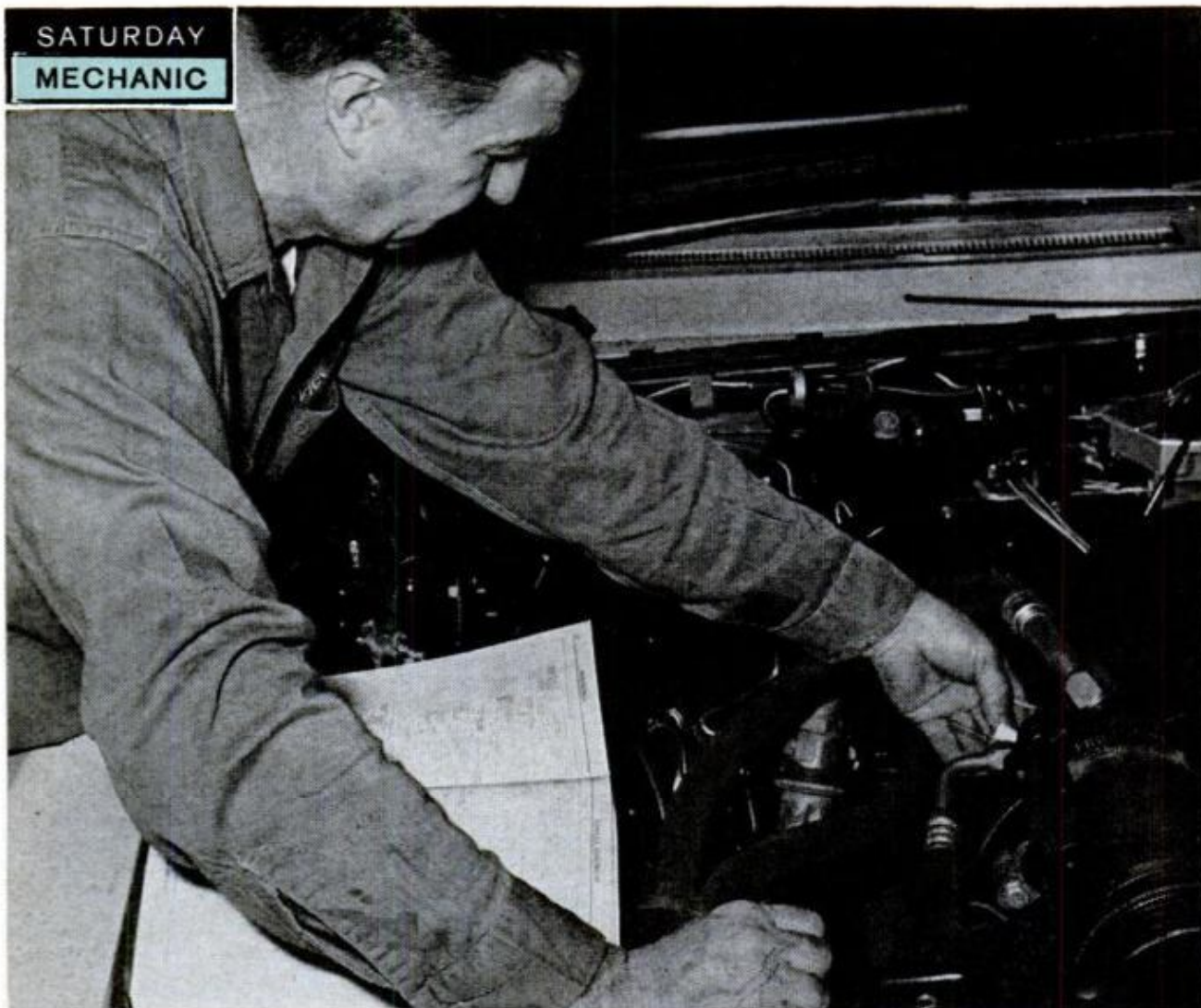
With a range of about 4000 miles, a home-made British submarine may become the smallest powered craft to cross the Atlantic. A diesel engine gives it a speed of five knots, and a snorkel provides air when the craft travels just below the surface where it will spend most of its time.



For adults only

Pint-sized sleds without runners are being used on Swiss bobsled runs. Designed to be used either in a sitting position or "belly whopping," the minibobs break in future bobsledders on specially laid-out runs. Made of fiberglass, a sled can easily be carried by one man to the top of a bobsled run.

143



TYPICAL AIRCONDITIONING CIRCUIT is protected by two fuses—one in the firewall fuse block and the other under the hood. It can be difficult to locate the latter without consulting the car's wiring diagram

Solving Electrical

The fine art of troubleshooting is often

YOU LEARN by experience: If you're lucky, by someone else's. The woeful tales I'm about to relate are intended to help you avert similar fates. Like what happened to me on the way to Florida in heat that would make the devil sweat. The air conditioner suddenly pooped out.

"Fix it, please," I told the man at the roadside garage somewhere in the heart of Georgia. He couldn't do it. Yet it cost me \$6.75 for "nothing" labor, and, needless to say, the last 300 miles of our trip were pure agony.

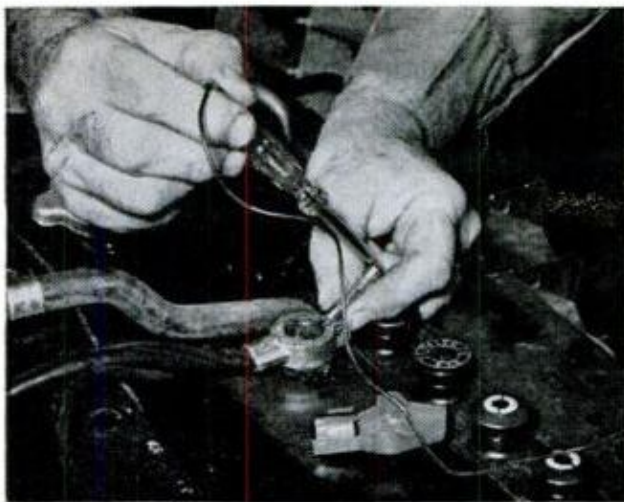
The trouble, found later by a hotshot in Miami, was a bad fuse. Why didn't the first guy check fuses? He did, but visually. Finding nothing wrong by looking at the

fuses, he put them back into the circuit.

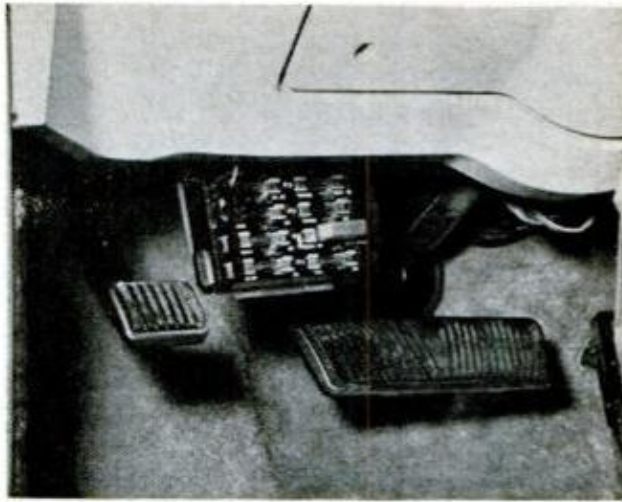
So, never again will I (or should you) take it for granted that a fuse is in working order. If there is any reason to suspect a fuse—and that's the first thing to suspect when an electrical accessory fails to operate—replace it.

True, you can use an ohmmeter or voltmeter to test a fuse. But when you're on the road, you can't always be a technician. A new fuse costs maybe 10 cents, and for a dime I can be a sport and keep some spares on board.

A fuse often looks okay, but can actually be defective. Many times, ordinary vibration causes a soldered segment to break beneath an end cap where you can't see it.



CHECKING FUSE with a trouble light is done by placing fuse in series with light across battery



FUSE BLOCK here is located under the dash. Always use correct ampere ratings when replacing fuses



BATTERY POSTS are most easily cleaned using wire brushes specially designed for the purpose



BATTERY CABLES can be tricky. Tighten securely, but take care not to overtighten or twist the post

and Ignition Problems

as simple as checking first things first

By MORT SCHULTZ

Although the main element appears to be in one piece, the fuse is worthless.

There are dozens of fuses in your car—how many depends on how many electrical accessories you have in the vehicle. For example, I counted 39 fuses in a 1966 Pontiac, which, I admit, was fully loaded with equipment.

These circuit-protecting devices, just as their bigger brothers in your house, are needed to keep electrical equipment from being damaged if a short circuit or electrical overload occurs. Their only purpose is to break the circuit, quickly disrupting the flow of electricity in case of trouble.

When that circuit is broken, no electricity flows, and the equipment on that cir-

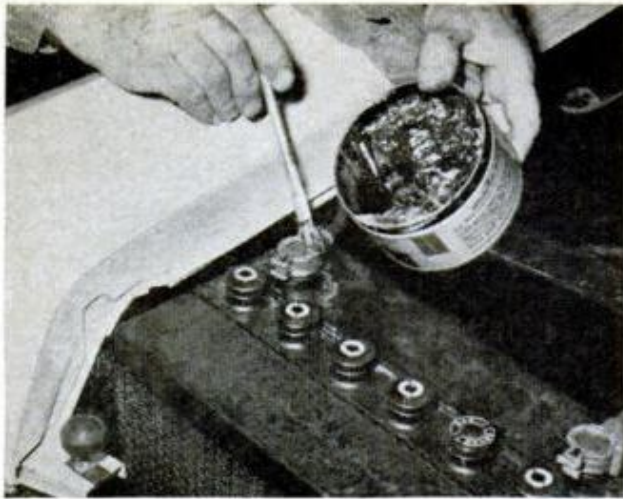
cuit won't operate. Troubleshooting a car's fuses, therefore, takes on at least two aspects and often three:

1. Finding the fuse(s) that's causing the trouble.

2. Replacing it.

3. If the fuse blew because of an electrical malfunction and not because of vibration, finding and fixing the malfunction. The element of a fuse that blows because of an electrical problem will be broken—you can see it. It then becomes a matter of troubleshooting the entire circuit.

Many cars have a fuse block somewhere beneath the dash on the driver's side that holds fuses that control such equipment as the radio, cigaret lighter, heater, tail and



PROTECTIVE LUBRICANT should be applied only with the cable secured to post, never on post alone

dome lights and accessories such as power windows, power seats, convertible top and airconditioner. What each fuse controls is indicated on the block next to the fuse, or in a keyed diagram in an owner's manual.

But don't get the idea that those six or seven or more fuses you find in the block are the extent of it. In many cases, more than one fuse is used to protect a circuit.

Second fuse in motor

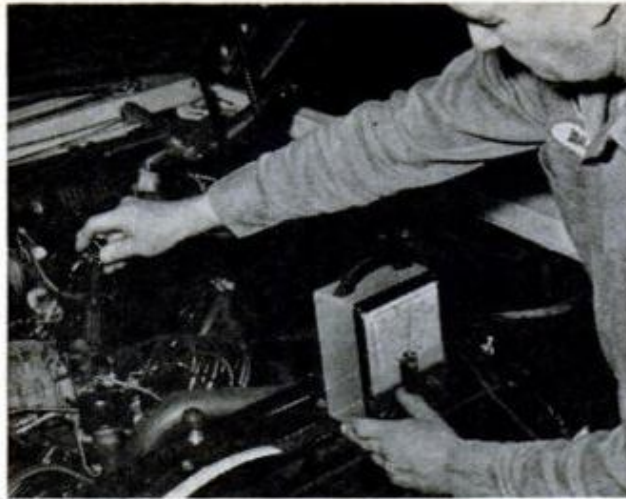
For instance, circuits of electrically operated windows, seats and convertible tops are often protected by one high-current-rating fuse found in the fuse block. In addition, each motor that operates each separate accessory may be protected by a smaller-capacity fuse found within the motor itself.

In the event of a failure, if you check the large circuit protector and overlook or don't know about the smaller one, you may be stumped for weeks as to why a power accessory isn't working.

Finding a bad fuse can be a snap or a nightmare. Past experience is no guide in the matter. Being familiar with fuse locations in previous models won't mean a thing with present models. Changes in location are made from year to year.

So where do you find how many fuses are in a circuit and where they're located? In only one place—a schematic wiring diagram of the circuit. This diagram is usually provided in the car's service manual. Operating without it or having a mechanic who doesn't consult it is like traveling without a map. Don't do it.

If you think my problem with fuses was a rare occurrence, read what happened to Bernie, who finally wrote *PM's Auto Clinic*:



IDLING SPEED is first thing to check if you have dieseling condition. Fast idle is the chief cause

"After hearing for years how important it is to keep battery posts and cables clean and lubricated to prevent corrosion, I decided to do a real job on mine. I carefully cleaned the posts and terminals with a wire brush and put a nice layer of petroleum jelly over 'em. Then I hooked everything up."

Next morning, the car grunted, groaned and barely started. Bernie was fit to be tied. He never had trouble before he took this maintenance advice.

But there's one hitch. Unless you're careful about how you apply the corrosion inhibitor, you can affect battery operation, which is what happened to Bernie.

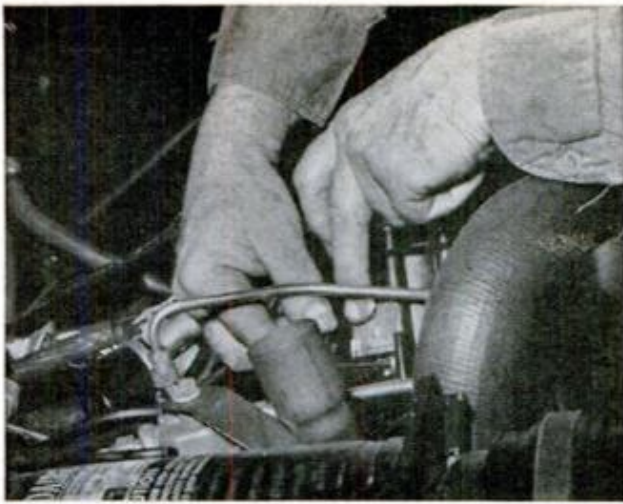
The right way to do this job is to wire-brush the battery posts and cables until they're clean. Then reconnect the cables tightly. And *only then* should you apply a *light* coating of corrosion inhibitor to the tops of posts and terminals.

In other words, don't let the inhibitor get between the battery post and cable terminal where it can restrict the flow of current.

Some theories that have been espoused for years are often nothing but hot air—"old mechanics' tales" if you will. And it cost young Hank S. about \$100 to find that out. His 1962 Buick "dieseled" (other people call this "after-run," "run-on," or "after-fire"). In short, the engine continued to run after the ignition was turned off.

Pulled motor apart

Hank believed the half-truth that an engine diesels because of junk inside it, usually carbon, that reaches red-hot temperatures and keeps firing fuel after ignition shutdown. So what did he do? He pulled the motor apart. Guess what? The



DISTRIBUTOR WINDOWS should not be left open after adjusting points to allow dirt and grease buildup

car did the same thing after it was put back together again.

Automotive engineers have generally come to the conclusion that dieseling is caused by one of four factors or a combination of them:

- Excessive idling speed.
- A lean fuel mixture.
- Retarded timing.
- Fuel octane that is too low for engine needs.

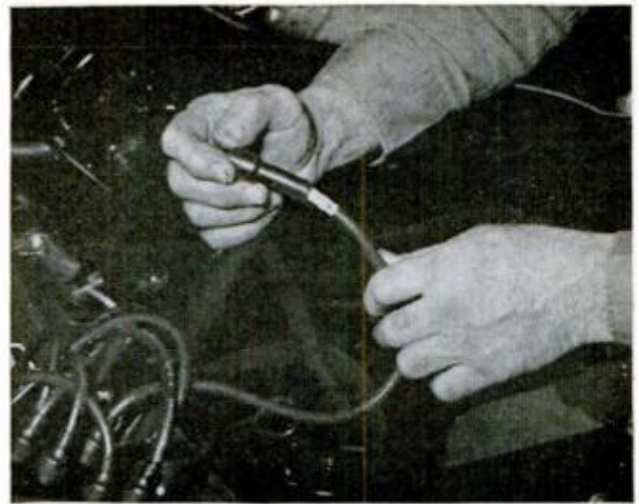
A series of tests recently conducted by a group of these engineers showed that excessive idling speed tops the list of dieseling causes, followed by too lean a fuel mixture and by retarded timing.

Reduce idling speed

What it all boils down to is this: If your car's engine begins to diesel, the corrective measure is to reduce idling speed and insure proper idling mixture and ignition timing. If dieseling persists, increase your gasoline octane. Use of a low octane fuel doesn't necessarily bring about a pinging engine. It could, though, lead to dieseling.

Another lesson illustrative of checking first things first in troubleshooting concerns the car's ignition system. Jack seemed to be having trouble with his distributor breaker points. He had a tune-up and then, only 2000 miles later, he started having trouble and was informed that he needed another new set of distributor points.

Jack's mechanic was Grade A in doing tune-up work, so Jack knew all adjustments had been carefully made. Was it some strange and exotic malady that caused the points to pit so badly? Not at all. The mechanic had accidentally left the window open. Jack's distributor in his



SPARKPLUG BOOTS should be replaced before they age and crack to prevent enigmatic engine misfiring

1966 Pontiac, as in many other cars, has a window in the distributor cap that has been a big help in adjusting points. The window permits making these adjustments with the engine running, something you can't do with a closed distributor because the cap has to come off for adjusting.

After adjusting the points, it's easy to leave the window open inadvertently. Many times, the window drops of its own weight. But many times, it doesn't. It hangs open and leaves the complete distributor breaker assembly wide open to deposits of dirt, dust and grease.

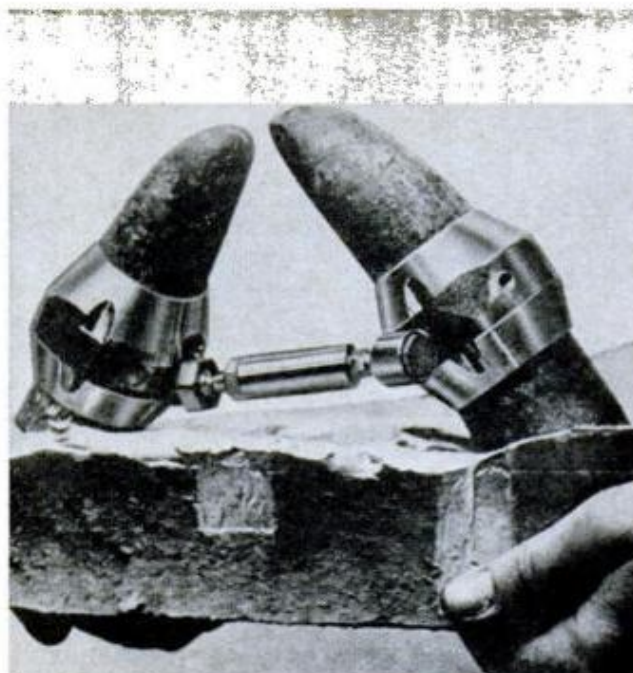
Two sneaky problems

Finally, here are two other sneaky problem areas of which you should be aware:

1. Some ignition system problems don't show themselves on the surface. Cracked insulation is a real tough dog. Sparkplug boots—those rubber shoes that cover plugs—are a good example. Old boots dry out and crack. Damage is usually invisible, but the trouble it causes isn't. Spark flashover or short circuiting along the outside of the plug's insulator occurs. And this results in misfiring.

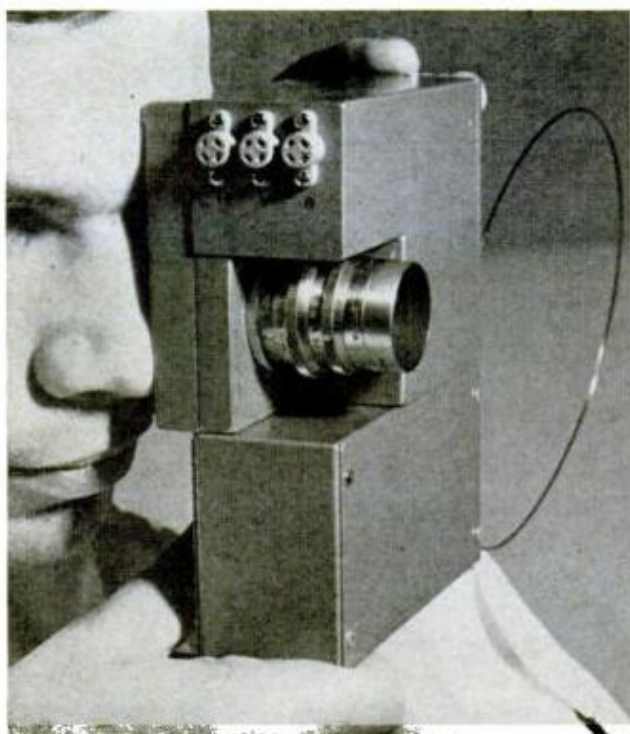
What do you do? Easy. Invest a few cents every 12,000 miles when replacing plugs and also replace the rubber boots that cover them.

2. In some engine compartments, sparkplug cables lie mighty close to hot exhaust manifolds. That heat can damage cable insulation, even increase the resistance of the leads, thereby cutting down the delivery of current. A good idea is to slide lengths of glass braided tubing, available at auto supply stores, over each cable. The tubing reflects heat and protects the insulator. ★ ★ ★



How to unlock a trunk

Dental scientists and engineers finally solved the pressing problem of Ashoka, a 16-year-old Indian bull elephant at the National Zoo in Washington, D.C. Instead of Ashoka's tusks growing parallel to his trunk, they curved over it. This all but prevented use of his trunk. It took a brace and bit, a wrench, a screwdriver and pliers to fit Ashoka with "braces" made of manganese and bronze (right). This device eventually straightened the tusks, freeing the pachyderm's provider. Dentists were required because elephant tusks are actually teeth.



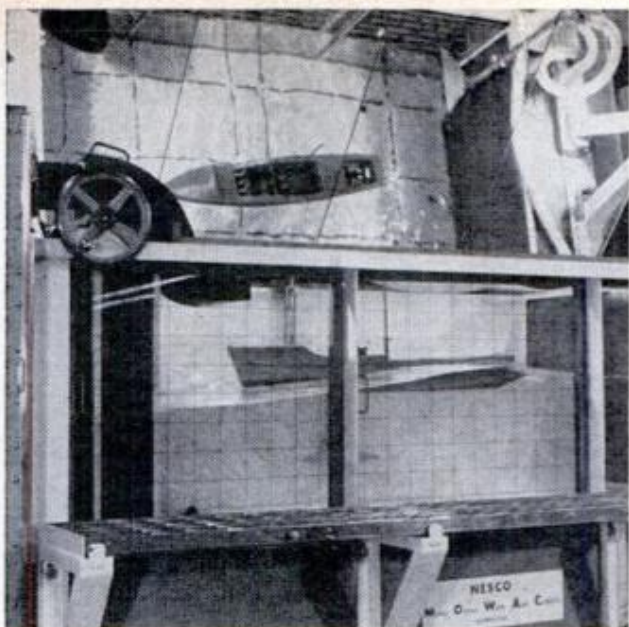
Tubeless TV

Tiny, tubeless and portable, a new RCA television camera uses arrays of 132,000 thin-film elements on four glass slides to function similarly to the pickup tube and picture-processing elements in a standard camera. It broadcasts signals directly to a receiver from a miniature transmitter in the camera's base.



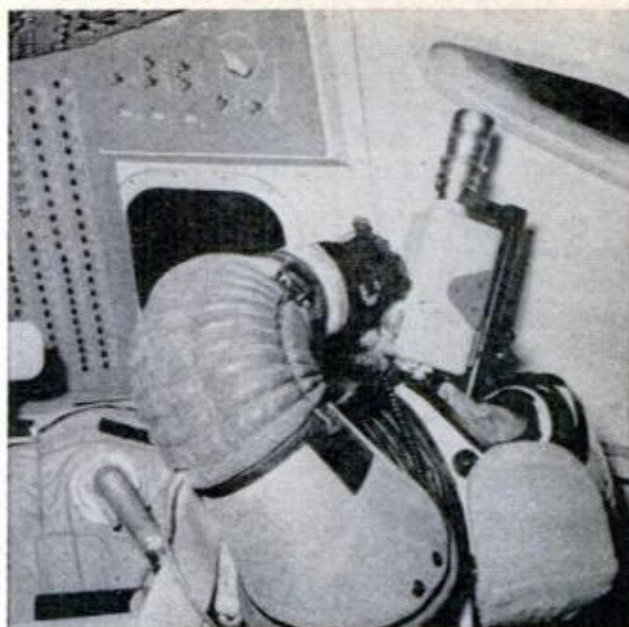
Overcoat for plants

Covering the soil around a potted plant—or even a small garden—with an "overcoat" promises to be an easy way to keep weeds under control. Developed by government scientists, the chemically treated, loosely woven cloth may be marketed after more tests are completed by the agricultural researchers.



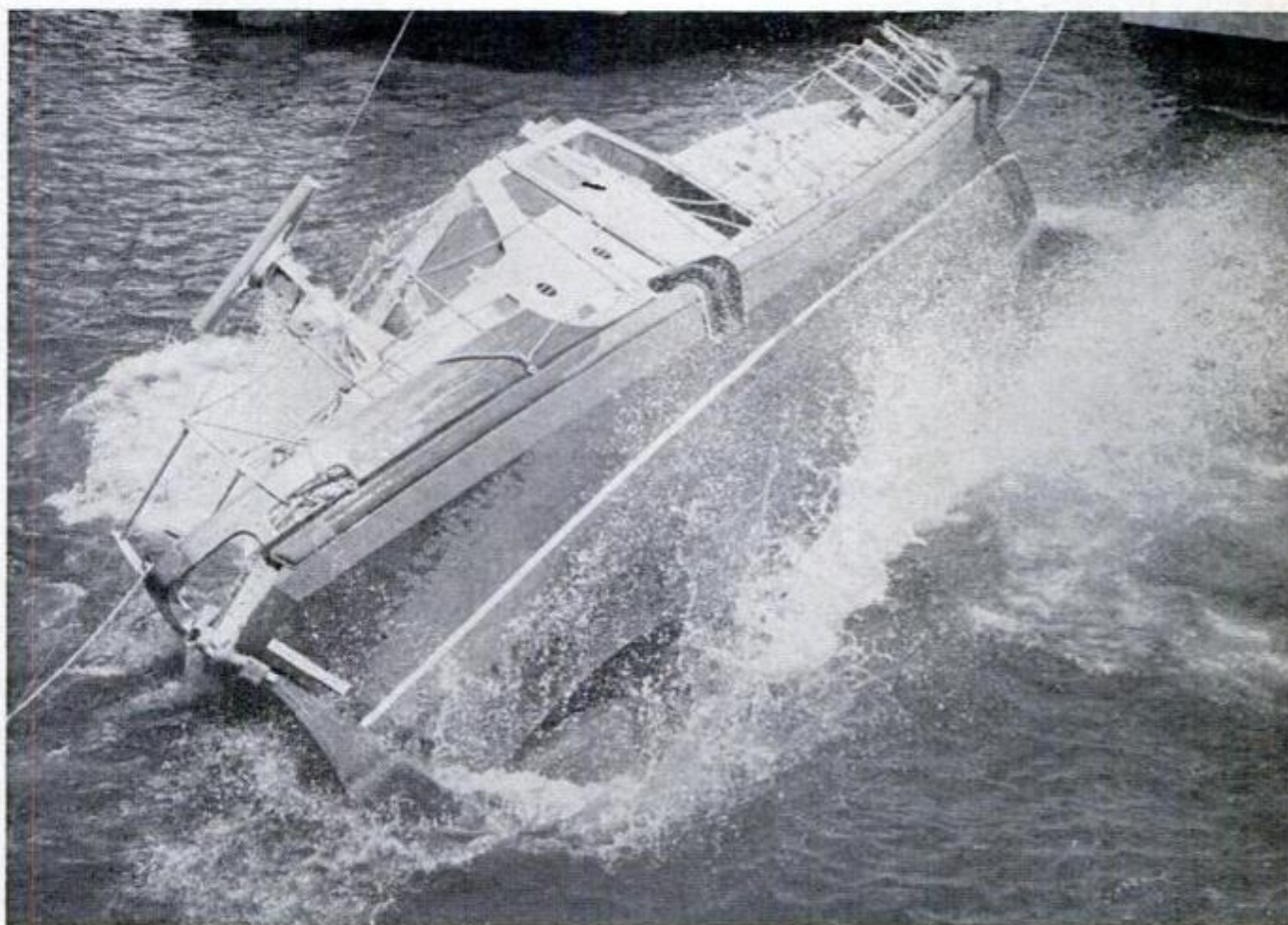
Scaled-down shakedown

Scale models of ships can be tested for seaworthiness in the waves, winds, currents and tides generated in a new wave tank developed by National Engineering Science Co.



Eye for Apollo

The first "live" look at an astronaut's view of Earth may come from a small, hand-held RCA camera that has been designed to travel to outer space in the Apollo capsule.

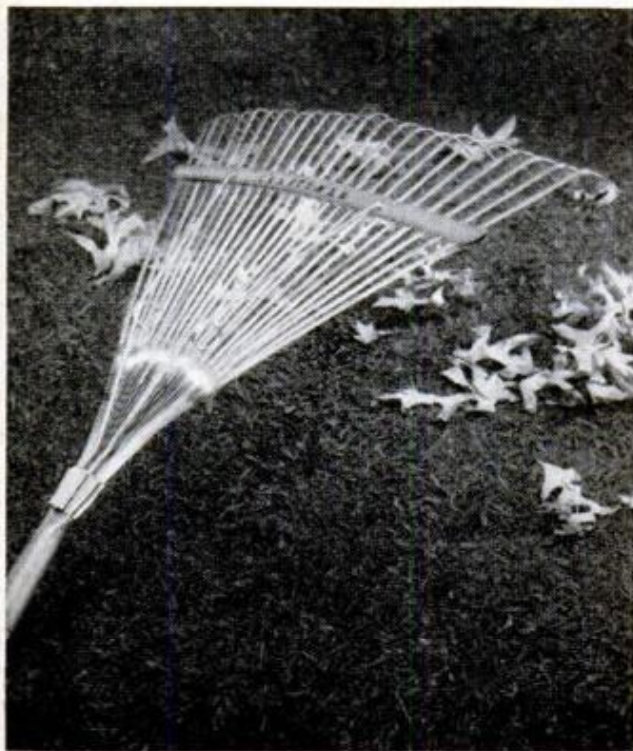


British lifeboat can do slow rolls

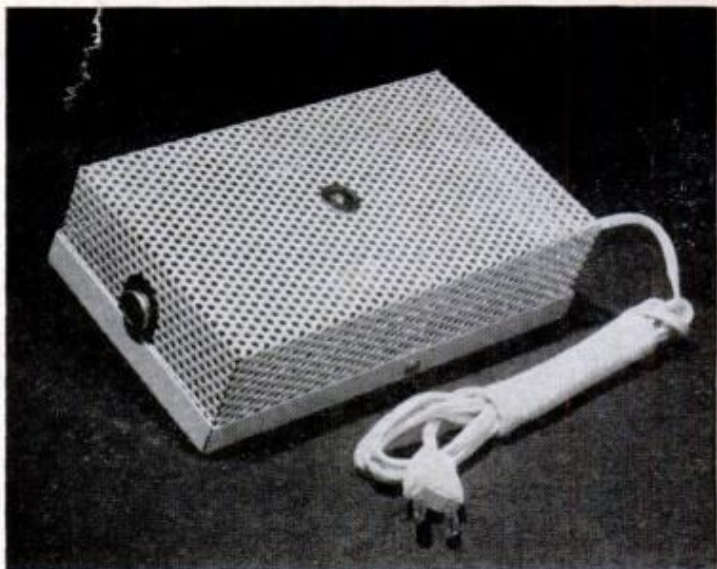
A new British lifeboat can right itself in seconds after capsizing. A ballast tank, holding 2¾ tons of water, is located between the boat's two engines. If the craft is tossed over by a wave, an automatic pump immediately forces water into an empty tank on the high side, righting the boat. This lifeboat is a prototype built by William Osborne, Ltd., of England at a cost of \$148,400. Studies are currently under way to determine the boat's usefulness in military and civilian operations. It's shown here righting itself after capsizing.

EXCITING
NEW PRODUCTS

By CAROL SCHULTZ



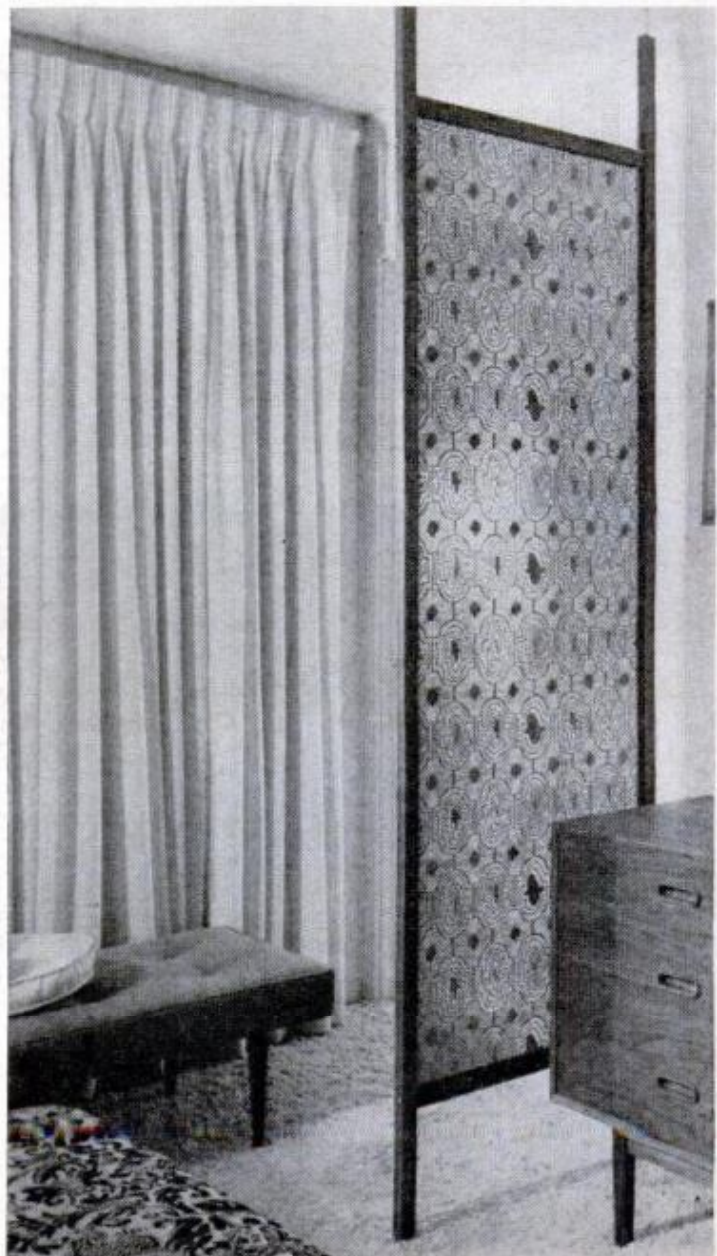
LAWN RAKE with stainless-steel tines inherently resists rust and corrosion. This fan-type garden tool is designed to allow complete tine flexibility while maintaining continuous ground contact. \$4.99. By Sears, Roebuck & Co.

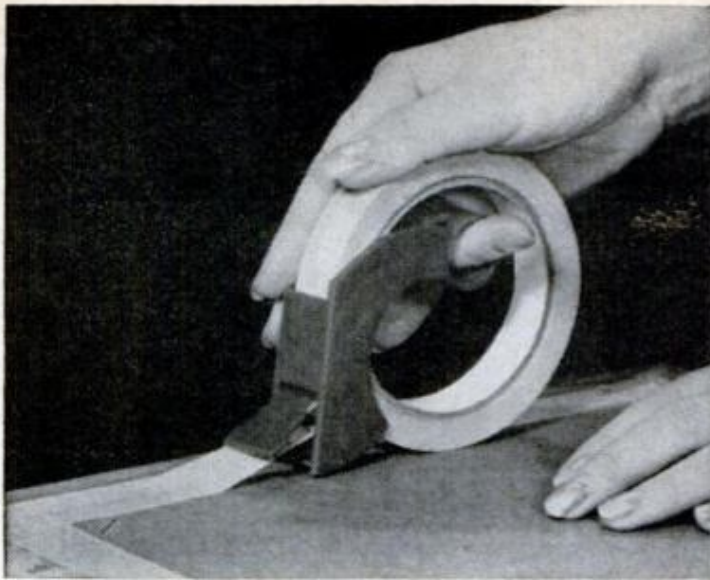


HOME FIRE ALARM needs no installation, simply plugs into any outlet. It is so sensitive that an audible alarm is sounded when temperature reaches 135° F. or more. About \$79. By Pyrotector, 349 Lincoln St., Hingham, Mass.

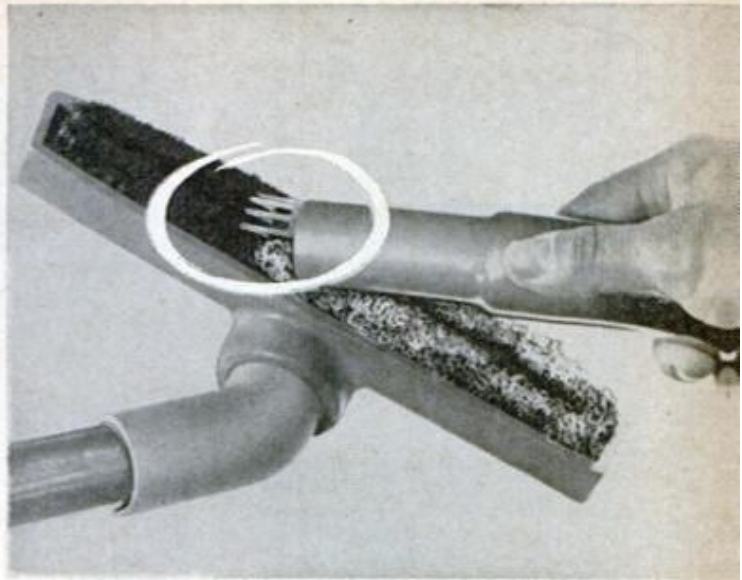


VINYL FLOOR TILE duplicates the look of a hand-laid brick floor, with perfect pattern matching between tiles. Offered in a choice of red or white "Weathered Brick"; sells for 40 cents a square foot. By Armstrong Cork Co.





MASKING-TAPE DISPENSER, called Zip-n-Clip, is lightweight, sturdy. Made of plastic, this hand-held dispenser is designed to take any brand of masking tape. \$1 by the Unipat Corp. of America, 38 S. Dearborn St., Chicago, Ill.



SUCTION COMB for your canister-type vacuum cleaner fits into hose to remove lint which gathers on the attachment's bristles. Available for 98 cents. Made by the Losten Co., 904½ S. Robertson Blvd., Los Angeles, Calif.



SOLID-STATE REFRIGERATOR incorporates a special moist-cold compartment in which temperature and humidity are controlled. Uncovered foods may be stored safely for days without drying out. Under \$700. By Frigidaire

◀ **DO-IT-YOURSELF ROOM DIVIDER** holds a translucent panel in walnut-finish frame. Available in 28 patterns and colors; three widths. The 24-inch panel costs \$16.99. K-S-H Plastics, Inc., 10091 Manchester, St. Louis, Mo.

World's Wettest Drydock



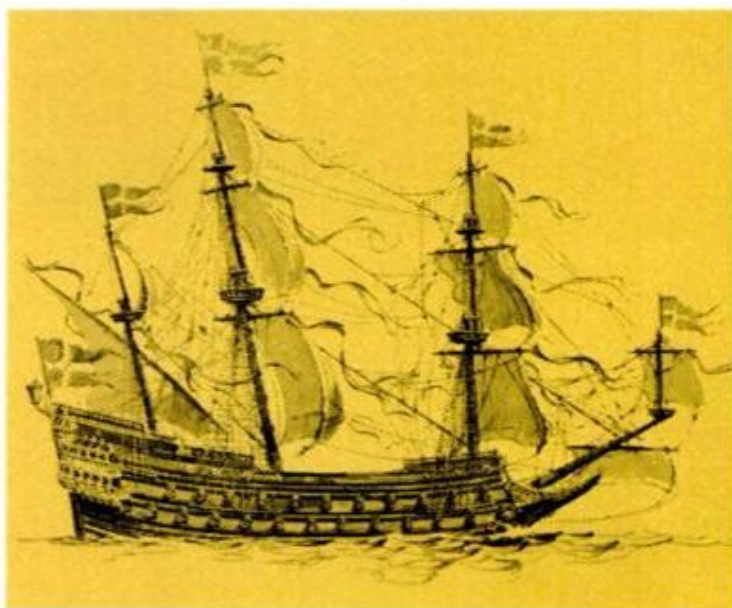
INSIDE THE HUGE SHED built around the recovered *Wasa*, spray jets keep the hull saturated day and night. A waxy chemical mixed with the water is gradually soaking into the wood to reinforce aging timbers

Raised from the bottom after 300 years, Sweden's great 17th century warship *Wasa* is getting a slow drying-out in a giant shower bath to keep her from crumbling to pieces

By ROBERT P. CROSSLEY

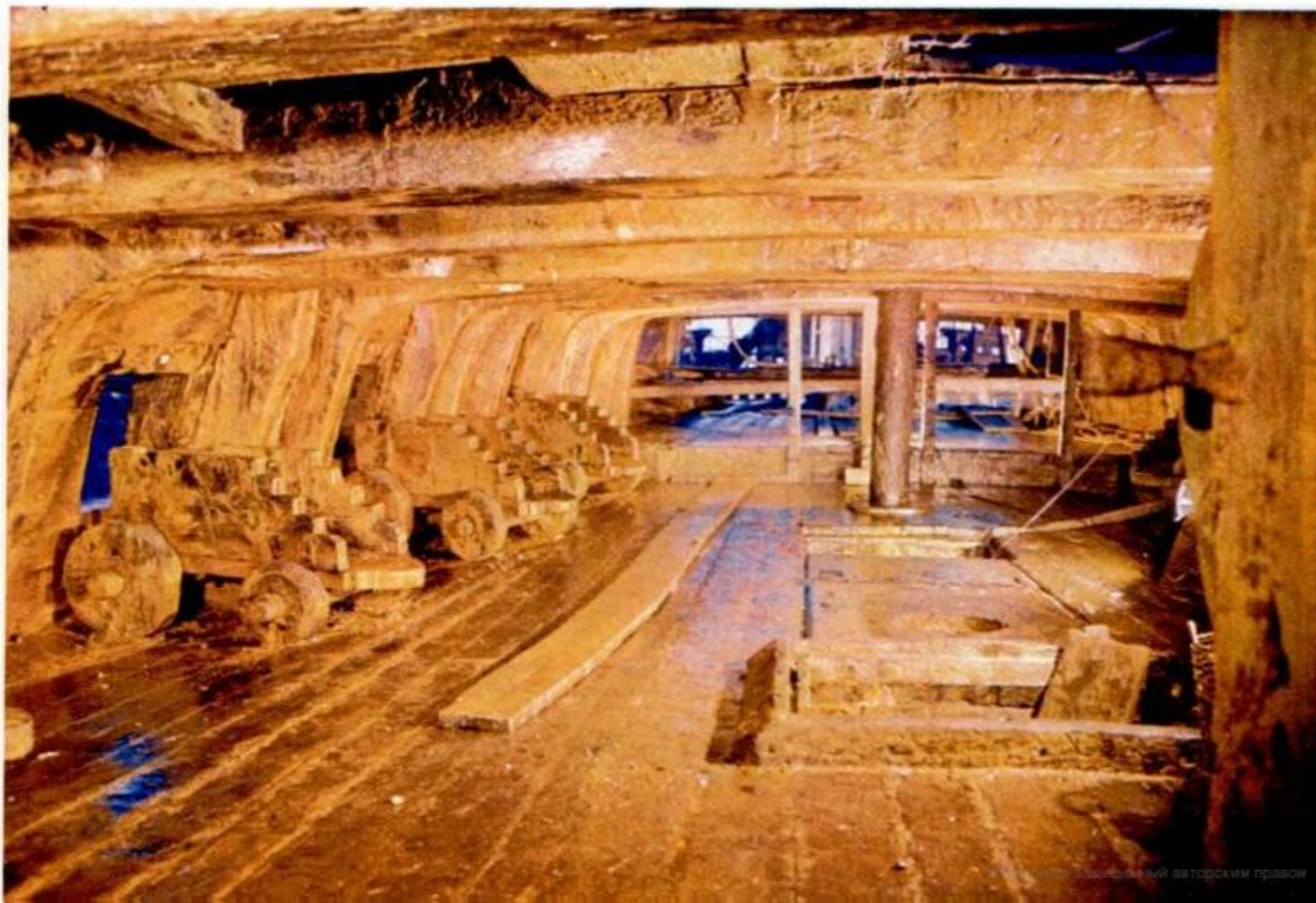
AUGUST 10, 1628, was a big day in Sweden. The nation's newest, largest warship, the *Wasa*, was sailing on her maiden voyage. Named after Sweden's ruling family, the *Wasa* was the most elaborate and heavily armed vessel ever built in Sweden. She carried 64 guns, including 48 24-pounders weighing over a ton apiece, 700 ornately carved wooden figures, and a crew of more than 400.

Between 3 and 4 in the afternoon the *Wasa* cast off from a dock near the Royal Palace, to be towed out into Stockholm Harbor. Once clear, her sails were set. When she had sailed only a few hundred yards, a sudden squall heeled her so far to port that water poured in through her lower gun ports. The pride of the Swedish Navy went to the bottom with flags flying. It was



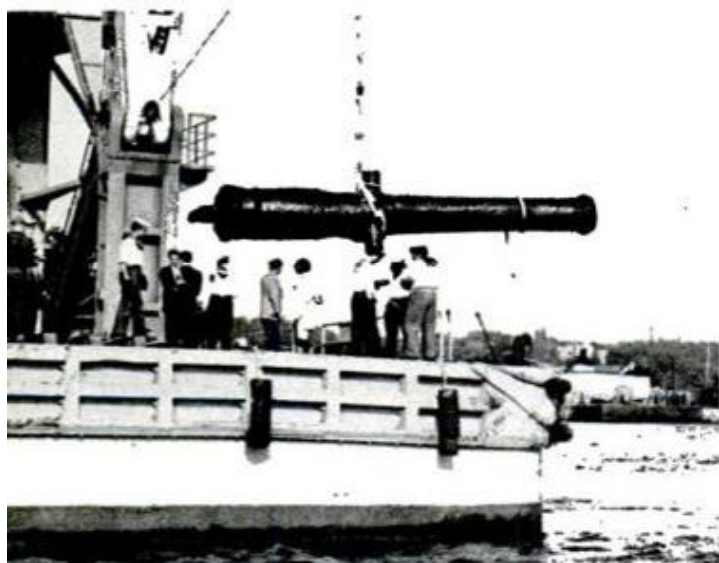
▲ **TOP-HEAVY WASA LOOKED LIKE THIS** in 1628 when a puff rolled her over and sank her in 100 feet of water in Stockholm Harbor

▼ **ORIGINAL GUN CARRIAGES** line lower gun deck, shown after mud was removed. Decks were originally painted red to hide blood





WASA FLOATED INTO DRYDOCK 10 days after she was first brought to the surface. Now she rests under a roof on a specially built concrete pontoon



SIZE OF WASA'S GUNS can be seen as one is hoisted ashore by a large pontoon crane. Incredibly, most of the 64 giant cannon were salvaged in 1668

WORKMEN CAREFULLY FIT woodcarvings together. After they've been impregnated with chemicals, all the carvings will be reattached in original positions

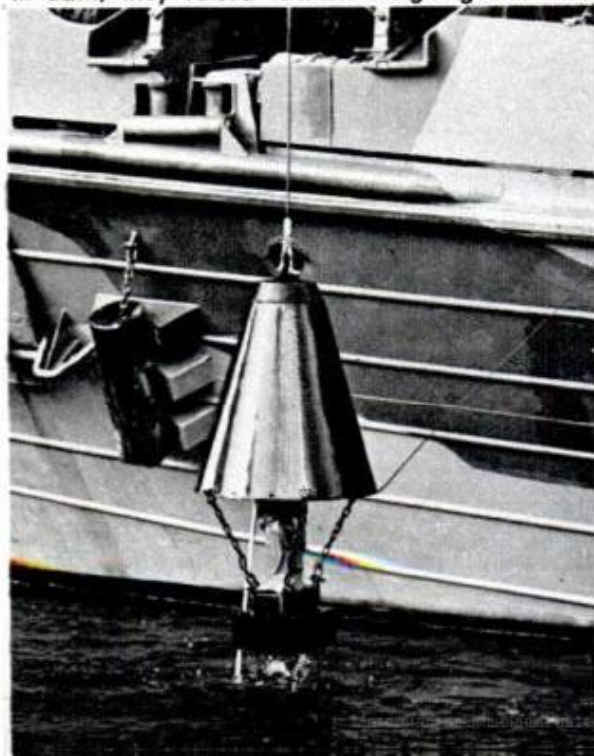


HUGE FIGUREHEAD WAS RECOVERED in 1959 before the whole ship was raised from the bottom. The ornate lion was one of 700 elaborate carvings



WASA MUSEUM IN STOCKHOLM HARBOR. Reclaimed vessel is now in covered drydock at far end. When fully restored, ship will need even larger building

IN DIVING BELLS LIKE THIS REPLICA, 17th century divers could stay down 15 minutes. Working in dark, they raised cannon weighing two tons

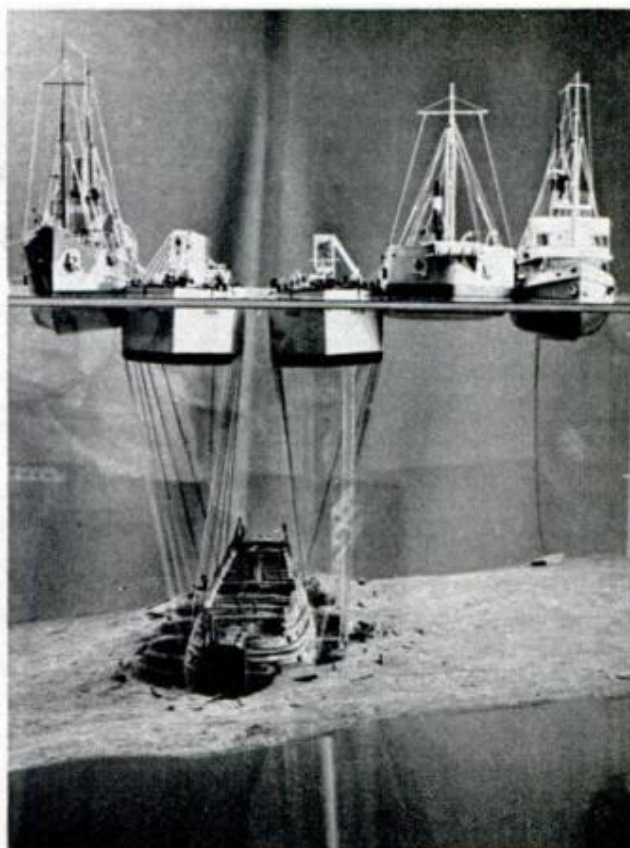


a national calamity. At least 30 were drowned, including members of the crew's families who had gone along for the ride to an island off Stockholm.

Today, 339 years later, the *Wasa* is the world's biggest single preservation object. The 155-foot hull, virtually intact, rests in an enclosed, airconditioned drydock, part of a fascinating new museum in which many of the 24,000 objects recovered with the *Wasa* are displayed amid scenes of shipboard life.

To prevent the *Wasa's* massive oak timbers, a foot and a half thick in some places, from shrinking and cracking during the drying-out process, a constant humidity of between 95 and 100 percent is maintained in the Quonset-like barn that has been built around the ship. An automatic sprinkler sprays the hull continuously during nonworking hours and at hourly intervals during the day. Mixed with the spray is a solution of polyethylene glycol, a waxy substance which is gradually replacing the water and reinforcing the wood cells. The sprinkling process will go on until at least 1970.

Fortunately the *Wasa* was well preserved during her three and one-third centuries on the bottom. The protected

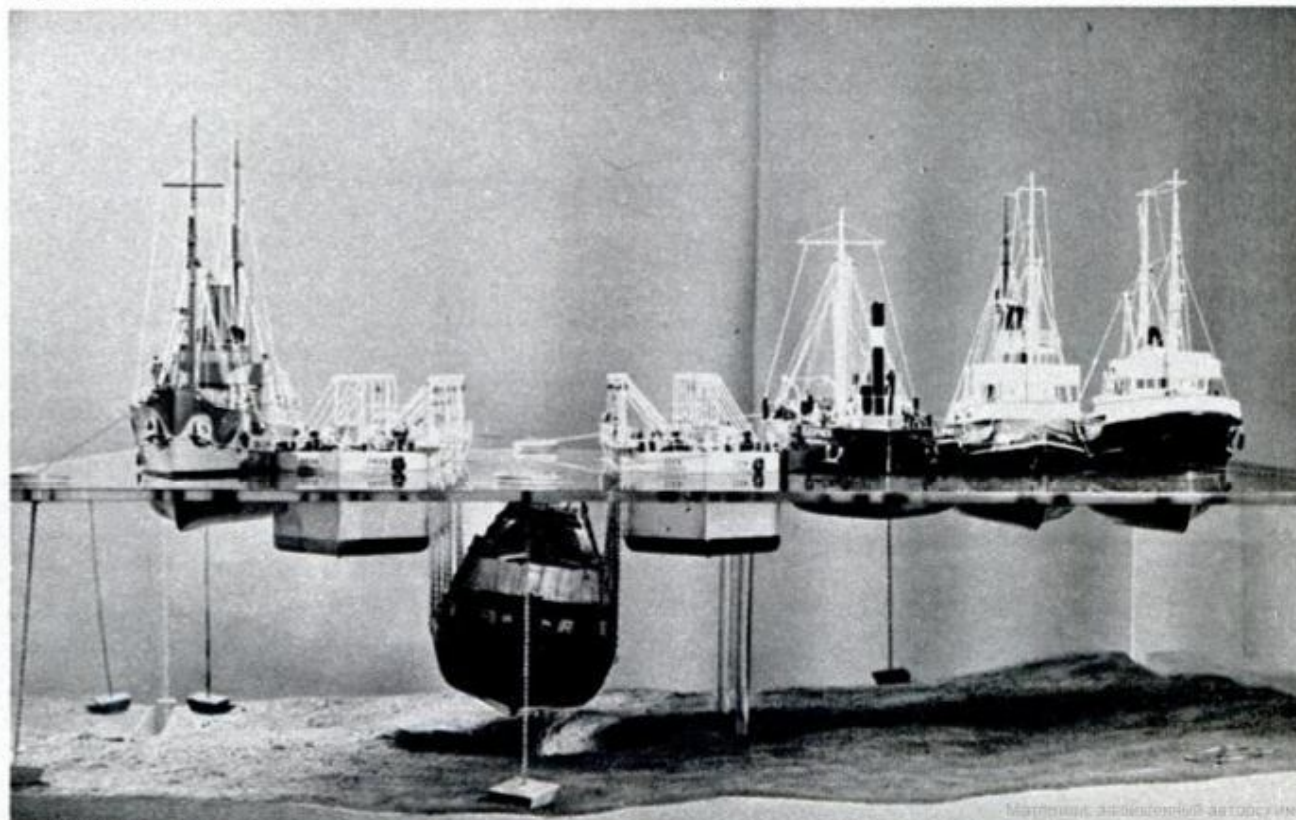


IN FIRST OF SALVAGE, *Wasa* was lifted from the bottom by pontoons and moved in 18 stages from its 100-foot depth to a more workable 50-foot depth

harbor, the mud, and Baltic Sea water, not salty enough to encourage shipworms, combined to keep her together. Iron bolts rusted and let decorations settle into the mud, but wooden pegs held the planking in place.

(Please turn to page 224)

FINAL LIFTING OF WASA WAS DONE BY HYDRAULIC JACKS attached to pontoons, rather than by flooding and pumping out the pontoons as in the initial stage. The *Wasa* broke surface on April 24, 1961

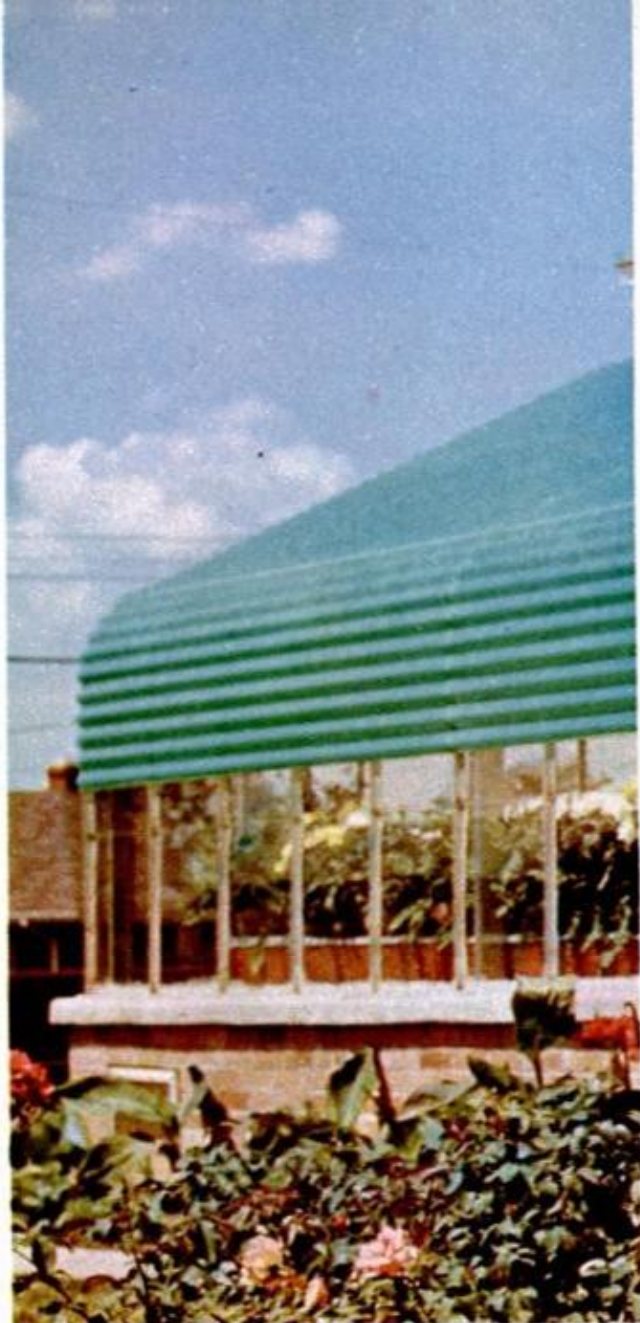


Now's the time to **BUILD A KIT GREENHOUSE**

There are dozens of models to drool over, all neatly packaged in kit form, which go together as easily as an Erector set to let you enjoy your green thumb year round

IF GARDENING IS YOUR HOBBY, there's nothing that will give you such year-round pleasure as a greenhouse. You become the master of all seasons when you're able to wrap your garden in glass and bring it inside for the winter.

You can hasten springtime with camellias, azaleas, daffodils, lilies and tulips, not to mention cuttings and seedlings by the hundreds for your outdoor garden. You can carry summertime deep into autumn with the blossoms of bromeliads, calendula, cyclamen and geraniums. And you can brighten winter with glorious carnations, snaps and mums.





A SOUTHERN EXPOSURE in which your greenhouse will be bathed in sun for at least three hours daily in winter, is the best spot to build it. This attached beauty (greenhouse) made by Aluminum Greenhouses, Inc. carries a basic price tag of \$867. Photos on following two pages show how this 10 x 21-ft. one goes together

THE CONVENIENCE of an attached greenhouse is well illustrated in the photo at left. In addition, the picture shows how your glass house can become a part of the room itself in the form of a flowering bay. Your home's heating and airconditioning make it easy to heat and cool it

BIG ENOUGH TO SUPPLY an abundance of year-round gardening pleasure, this pint-size 8-ft., 8-in. lean-to is made to order for the beginner and the do-it-yourselfer. This straight-sided one by Lord and Burnham sells for under \$300. Photos on page 220 show the main steps in erecting it. Door can be at either end





TRENCH FOR FOOTING is dug the width of a spade and to a depth below the frost line in your area. Uniform depth is assured with use of a T-shape gauge



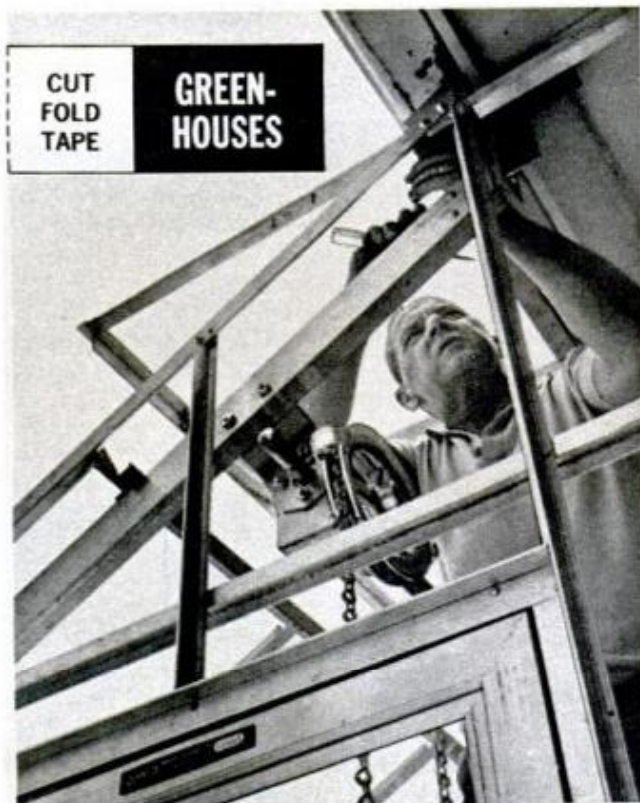
FOUNDATION VENTS are required to provide adequate circulation of air throughout greenhouse. Air enters through bottom vents, leaves through roof vents

Picking a greenhouse depends on what you want to grow, the space you have, the location in terms of sunlight and shade and the amount you want to spend.

As with any hobby, you can start out on a small scale, beginning with a greenhouse

that takes up no more than 6x10 ft. of ground and costs less than \$300. Or you can splurge on a fancy 20x30-ft. one that costs a pretty penny.

There are two basic styles to pick from: free-standing and attached. Of the two, an



VENTILATION MECHANISM can be operated manually by wheel or chain, or automatically controlled by a thermostat and motor. This part is installed last





SILL MEMBER IS ANCHORED to foundation with lag-screws and later sealed with glazing compound. The sill members are only parts that need drilling

attached greenhouse is the favorite of many home gardeners because, in being attached to your house or garage, it's accessible from indoors which makes it extra convenient in cold and rainy weather. It's also easy to heat and often is lower in



PREDRILLED AND FITTED sections go together easily with screwdriver and small wrench. All parts of the aluminum framework are keyed with the instructions

cost since an existing building provides either a side or an end.

The attached greenhouse can be a lean-to or what is called an even span. Each type has its advantages. A lean-to can be

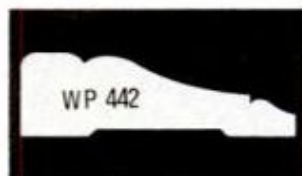
(Please turn to page 220)



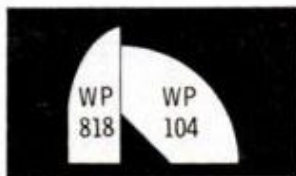
TINTED FIBERGLASS PANELS are used to shade your greenhouse in hot weather by reducing light transmission to 65 percent. The panels simply snap on

GLAZING IS DONE one vertical row at a time, from bottom up. Panes are lapped $\frac{3}{8}$ in. Stainless-steel clips are first snapped in under lip to hold glass

HOME IMPROVEMENT



WIDE CASING is used here for the three bold frames which are painted a contrasting color. A backset lock is centered in the middle door panel



DOORSTOP and quarter round are combined in this example, the stop molding being placed on the outside. Glue both together, then miter as one

New faces for your front door

Simple 'picture frames' of common molding can add a whole new look to your front door

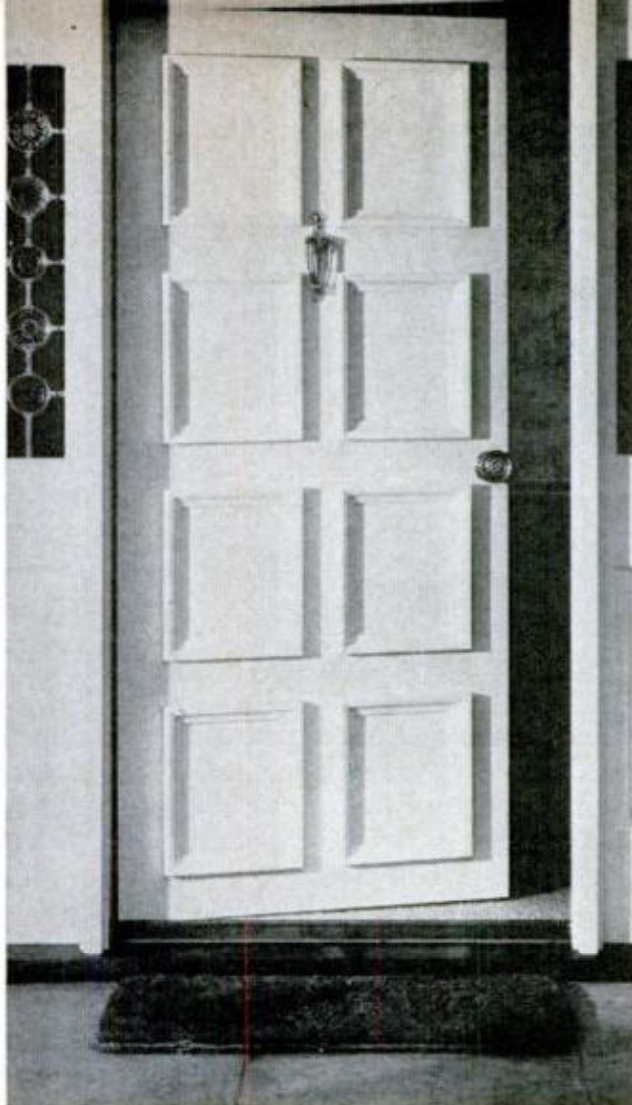
FIRST IMPRESSIONS are lasting impressions and that holds true when your front door greets a guest. When it's a plain, everyday kind of door, it hardly rates a second look. But give it a beauty treatment of fancy molding, a striking knob, plus lively color, and it will be a door your guests will whistle at.

Molding eye-appeal into an uninviting flush door is as simple as falling off a log. You merely apply a grouping of "picture frames" to the outside (and inside, too, if you wish) in any of a dozen different ways. You can add three large bold frames of equal size or eight small ones, or a combination of the two. They can be

painted a different color for contrast or the same color to match.

True, it takes a flush door to do it, but then if your home is still wearing the same old door it has for years, maybe it's time to treat it to a new one. A flush door is the least expensive and lets you create a design-it-yourself door you can't buy.

The sky's the limit, almost, when it comes to selecting the molding. A catalog from Western Wood Moulding Producers shows at least fifty different profiles, and while your lumber dealer might not stock them all, he'll have the popular ones. You can choose wide molding or narrow. To get fancy, you can build up each frame



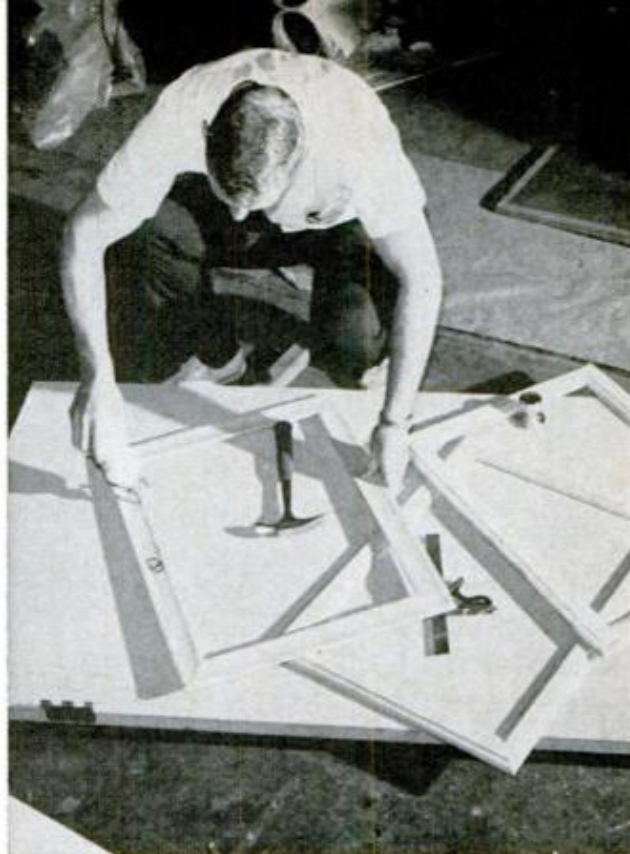
COVE MOLDING is combined with doorstop in creating these eight multiple frames. Again, both moldings are first glued together, then mitered

by combining two different moldings.

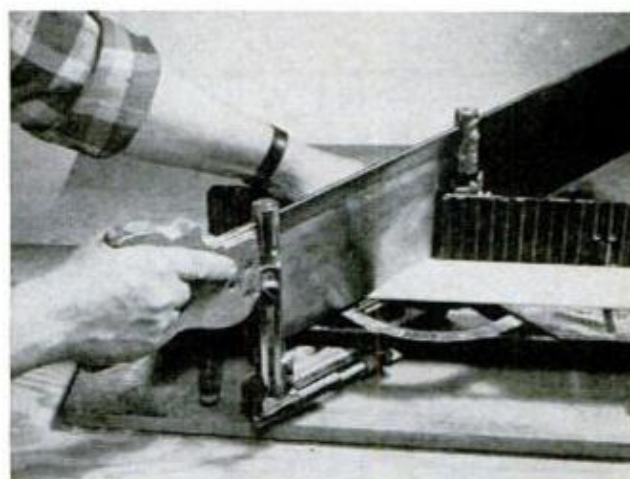
Mitering the molding into square or rectangular frames requires at least a miterbox. If you have a table saw, rather than use its miter gauge, it will pay you to make a mitering jig like the one detailed on page 157, Feb. '67 PM. It's nothing more than a board fitted with runners on the underside to ride in the table grooves. A right-angle block is fastened to the board in front of the blade to bisect it exactly so you can make right or left-hand miters fast and accurately.

Glue and nail all the frames together first as if you're making picture frames. Then, with the door removed from its hinges and lying flat, arrange the frames where you want them and mark lightly. Run a bead of glue on the backs of the frames and carefully position to align with the marks. Let them dry, then nail them with small brads for good measure. ★★ ★

MAY 1967



WHEN YOU HAVE the frames assembled and already marked for position on the door, run a bead of glue on the back of the molding and carefully set in place



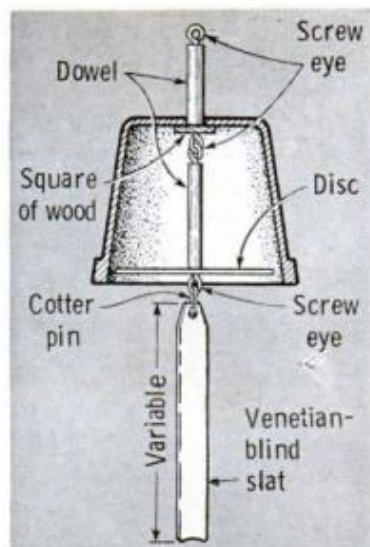
YOU MITER THE MOLDING as you would in making a picture frame, setting the miter box to make a 45° cut. Use the box's stop to assure identical lengths



AFTER GLUED FRAMES have set long enough to stay in place, go back and nail them to the door with short brads. Sink the heads, then putty over them

161

Make these flowerpot wind chimes for your patio



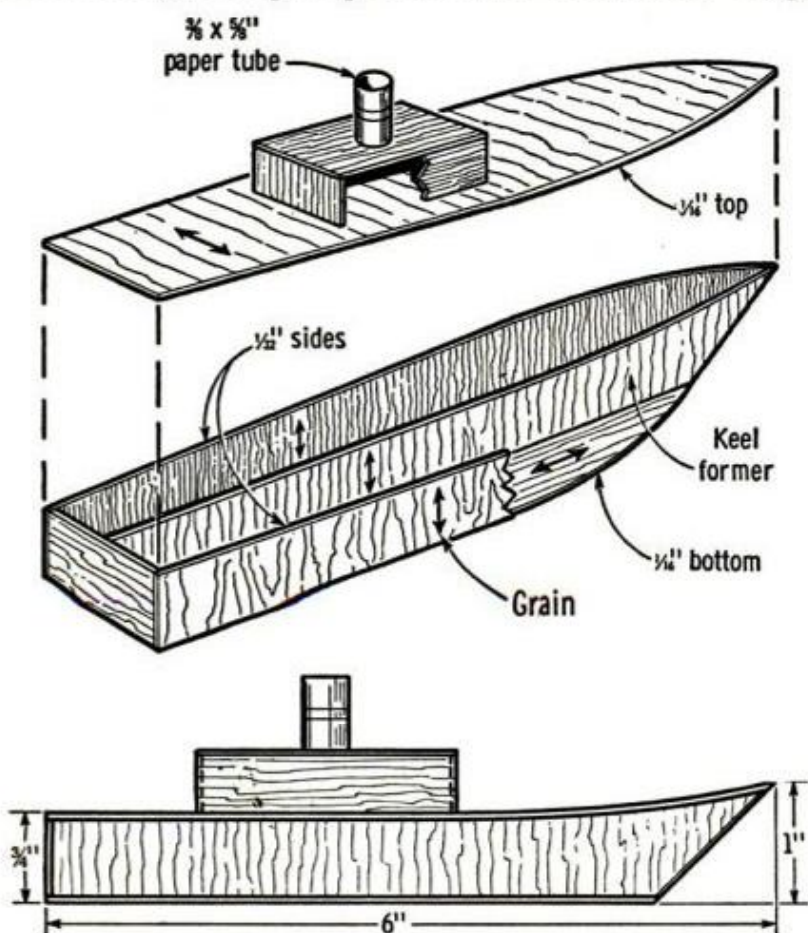
WANT BELLS TO TOLL on your patio? With the detail above as your guide, you can make a sweet-sounding set of wind chimes with several new, red-clay flowerpots sized from 3 to 8 in. in diameter.

You'll hear soft musical tones as thin hardboard discs, glued to slim dowels hung inside the inverted pots, strike the "bells."

This occurs whenever a breeze blows metal strips cut from a venetian-blind slat and suspended below the discs.

To make holders, cut 2-in.-long dowel pieces of drain-hole diameter and glue metal washers and plywood squares to ends. For better tone, add a washer directly below each disc.—*N.P. Steveson*

Model glue propels this bathtub tugboat



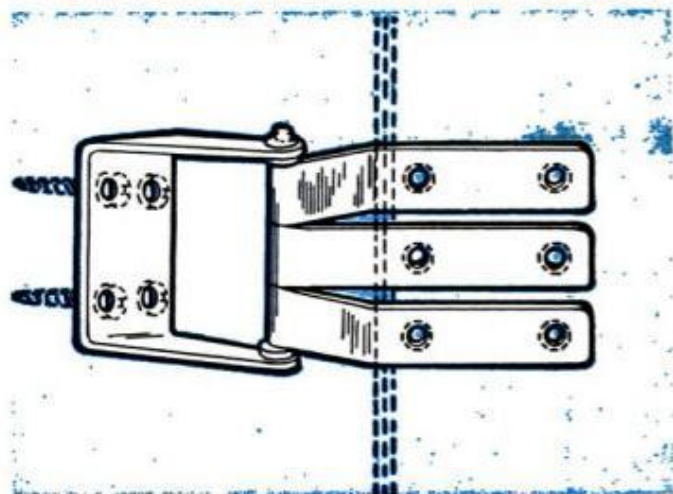
A REAL PUZZLER is this tiny model boat—there's no sign of motive power, but set it in water and away she goes!

Operation is very simple. Run a bead of ordinary model cement *along the transom* at the water line and put the boat in the water. It will soon move forward 20 to 30 feet. After it stops, wipe off the congealed cement and put on a fresh bead for another run.

To build it, use model airplane balsa wood. Cover bottom and sides with model plane tissue and apply three coats of dope to decorate and waterproof it. When dry, add two coats of paste wax to the bottom; rub to a high finish.

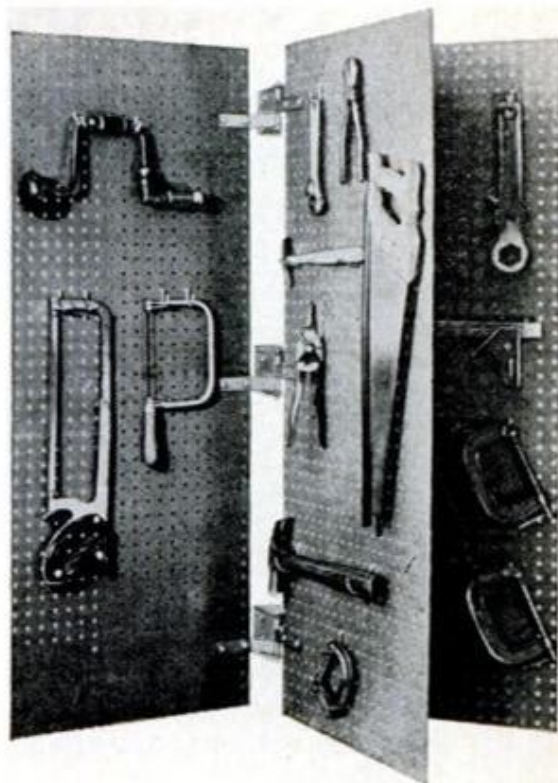
What makes it go? One guess is that volatile solvents in the cement "boil out" to exert a thrust, pushing the light hull forward.—*R.L. Clough Jr.*

New Hardware to Improve Your Home



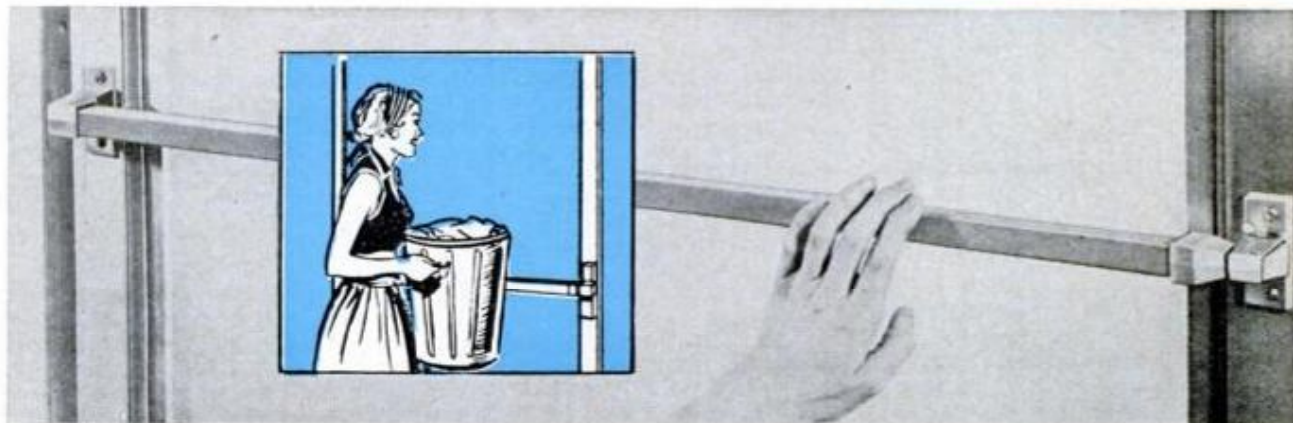
Three-panel hinge

Clever new hinge lets you pivot three panels of perforated hardboard to form a roomy, six-sided storage rack in a minimum of space. Great for holding mops and brooms, perfect for corraling hand tools. John Sterling Corp., Richmond, Ill.



Storm-and-screen-door hardware

Ideal Brass Works of Red Bank, N. J., has introduced three new hardware items of interest to all homeowners. The preset hydraulic closer shown above eliminates the bounce-back characteristic of pneumatic door closers. The jam-proof door latch shown at the right has a special metal plate which keeps the locking mechanism in an open position when door swings shut. Can't accidentally lock you out.



Ideal's Touchbar latch (above) lets you open storm or screen from inside when hands are full—a nudge and the door is open. Extends full door width to protect screen and glass from damage.

HOW TO CHOOSE THE RIGHT

Don't be confused by that bewildering array of chemical wonders crowding your dealer's shelves. Here's a quick course in caulks to help you pick the best material for every kind of sealing job

TODAY'S BOAT CAULKS and sealants can do things for a boat that could never be done before, which is one reason why you're likely to find more than a dozen different types on your marine dealer's shelves. Some save you money, some save you work, and some can save your boat when it's such a leak-riddled wreck it would once have been relegated to the junk heap.

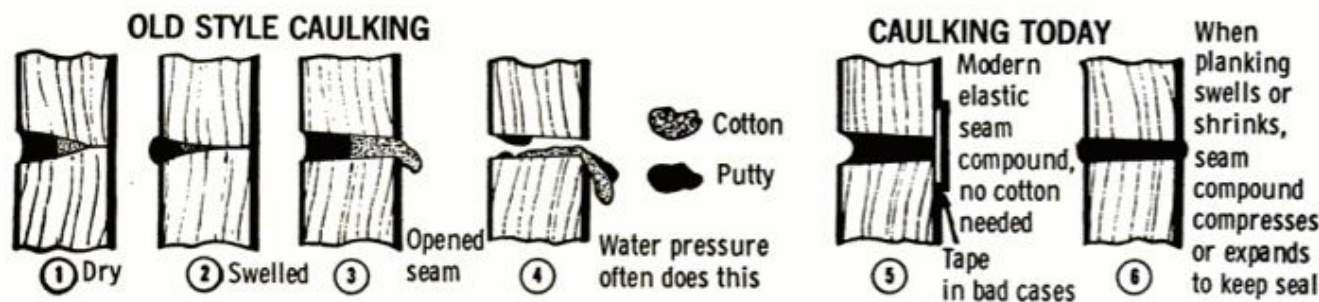
Which one you choose depends on the job to be done, since a material that can make one boat watertight as a bottle may actually start a leak in another. The principal ingredients of the material are a pretty good guide to the job it can do.

On wooden hulls, the condition of the boat and the location involved makes a big difference. For instance, a plank deck is alternately sun-baked and rain-drenched,

so you need a seam compound that can compress and stretch without tearing loose from the wood when planks swell and shrink. On the other hand, the underwater portion of an old wide-seamed hull requires a compound with strength of its own, especially on a deep-draft cruiser.

The pressure trying to force water through the hull seams increases by 64 lbs. per sq. ft. with every added foot of depth. At a mere 2½ ft. in quiet water it adds up to 160 lbs. per sq. ft. That's enough to dislodge many old-style seam materials and give you a bail-or-sink situation.

If the hull is fairly tight, requiring only minor seam touch-up, you can use an inexpensive oil-polybutene type. Because it sticks better and has much greater elasticity than the old white lead-oil types, it has taken their place to a large extent. It's also



1. Traditionally, seams widened toward outside of hull and were closely fitted (with slight gap) toward inside. To seal, they were paint-primed and stranded caulking cotton was driven in with a caulking iron. Then the outer portion of the seam was filled with white lead-in-oil putty, which was knifed slightly concave to allow for swelling of the planks.

2. When planks swelled, caulking cotton was squeezed to form a tight gasket between planks, and white lead putty was squeezed outward, sometimes making a smooth, flush surface, sometimes bulging a little, depending on caulker's skill.

3. Planking that was too tightly cotton-caulked or allowed to dry out for too many seasons ashore without launching, often developed a "set" or permanently open seam. One reason: Wood fibers were crushed next to the seam when planking swelled against hard-driven caulking, and didn't re-swell normally when wet.

4. Caulking cotton worked into these opened seams was often forced out on the inside of the hull, providing little

or no sealing effect after launching, so that water pressure (especially on deep draft hulls) could push both caulking and putty filler out of the seam, causing serious leaks.

5. Modern synthetic rubbers and resins (polysulphide is a prime example) require no caulking cotton, even in opened seams, as pressure-sensitive tape can seal the inside of the seam while soft, uncured seam compound is putty-knifed or gunned into the seam. It adheres powerfully to plank edges in a seam if they're dry and grease free. Outer surface of the seam compound should be slightly concave.

6. After curing, seam compound, like polysulphide, can't be pushed out by water pressure in pleasure boat hulls of normal draft—and even those in most deep-draft categories. It is not only an elastic seal that compresses and expands when planking ranges from water logged to bone dry, but it's a powerful adhesive that won't part from the wood. And it's strong enough to take the water pressure. So, although modern caulking and seam-sealing materials often cost many times more than traditional materials, they're worth it.

BOAT CAULK

By George Emory

TRANSLATING THE LABEL

Polymer or elastomer simply means a chain-like molecular arrangement repeated over and over. Two-part liquid polymers are "chains" that have been cut short. When the two parts are combined, they "cure" by tying two short "chains" together to form a longer one which turns the liquids into a solid. That's why you have to mix thoroughly. If some of the chains don't link up, your material won't be firm.

Base compound, curing agent, accelerator, curing agent or catalyst. Base compound is the body of your material. The other terms refer to what you mix with it to "cure" it to a solid or rubbery state. In common types, the mixing ratio between the two parts may range all the way from 1 to 1, up to 100 to 1. So follow directions on the brand you buy.

Pot life, work life, or application life, tells you how long the goo remains usable after you mix the two parts, or how long a time you can count on a one-part material remaining usable. Sometimes it means the time required for a caulk to set up solid. These terms vary with the manufacturer, so be sure you know the true meaning before you go to work.

Tack-free time, cure time, optimum cure time, ultimate cure time and cure rate. Though the interpretation may sometimes be looser, tack-free time is usually the time required for the material to cure firm enough for the next step in your finishing job to be accomplished without damaging the first-applied portion. For example, some caulking is ready for painting in an hour, some immediately and some the next day. You don't want to try sanding something that will clog your sandpaper like chewing gum or muck up your paint.

Ultimate cure time and optimum cure time refer to the time it takes for the material to acquire its full husky and rugged state. In general, with polysulfides, this takes about seven days for the two-part types. The one-part versions depend on the amount of moisture in the air. This is all usually figured on a temperature of around 75°. Actually, the stuff keeps on getting tougher for quite a while after that.

Relative humidity is important to curing time, especially of the one-part products. The term refers to the amount of moisture in the air in proportion to

the maximum that it could hold at the temperature involved. As cold air can't hold much moisture, you're better off using one-part systems on warm days.

Tensile strength is the load in pounds per square inch that your material will take before it breaks. Some people call this "ultimate tensile strength." If you take an old strip of rubber, measure its cross sectional area, then clamp both ends and stretch it out until it lets go, you can figure its tensile strength.

Modulus is a fancy term for plain, everyday stretch. Materials with a low modulus flex and stretch easily without much pull. Ones with a high modulus call for a harder yank to get the same effect.

Elongation is usually measured in terms of the percentage of stretch an elastic material can take before it breaks. If a rubber seam compound can stretch from 1/4 in. to 1/2 in., it has 100 percent elongation.

Shore hardness has no relation to the shore where you do your boating. It's related to a Shore durometer, which tries to drive a needle into the material being tested. The more it takes to drive the needle into the surface, the higher the Shore reading.

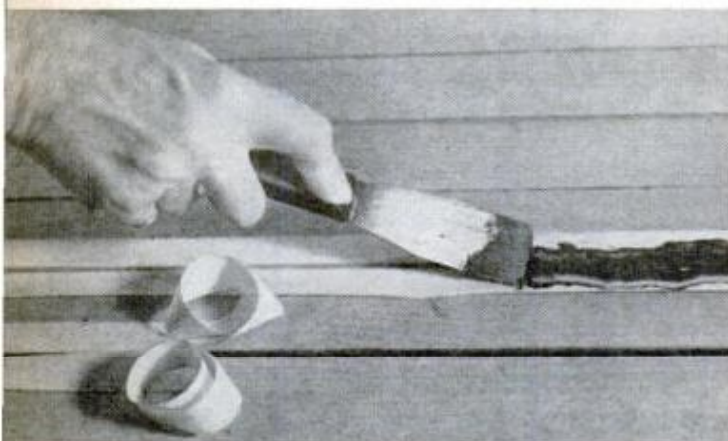
Adhesion is measured in terms of "peel strength" and "tension" or "tensile adhesion." In the peel test, the adhesive material is pulled from a surface like a banana skin. In tensile, it is usually measured by the load required to pull apart a pair of blocks bonded together with it. In either case the material to which the adhesive substance is bonded may let go before the adhesive does. If a layer of wood is ripped off with the adhesive, it has "pulled" wood. If the adhesive comes free of the wood, you have an adhesive failure. If the material itself pulls apart, freeing the blocks, you have a "cohesive" failure.

Viscosity and thixotropy sound awful but aren't. Molasses is more viscous than water and pitch is more viscous than molasses. That's the gist of viscosity. Thixotropy is a bit more recent, and less understood. Whipped cream, for example, will stick to the ceiling, but mineral oil will drip from the same ceiling. Similarly, the mineral oil in a jar will slosh from one end to the other if you invert the jar, but whipped cream won't. Whipped cream is thixotropic.





MAKE THIS TOOL for cleaning seams by wrapping tape around broken sabre-saw blade to form handle



RUN MASKING TAPE along the edges of seam to be caulked with polysulphide and you'll avoid smears



YOUR MOIST FINGER is best tool for smoothing a polysulphide seam to proper concave configuration

TWO-PART COMPOUNDS come in twin packages such as stacked cans, left, and nested cans, right



easy to use, easy to paint and easy to buy. In fact, if you ask for just plain seam compound, it's the kind you'll usually get.

This type eventually dries out and hardens, however, so you'll probably have to do the job over after a season or two. And on a deck you may have to do it sooner. But, all in all, it's a good material.

If you're painting over caulking, be sure the paint is compatible with it. Otherwise, you'll have peeling or blistering along the seams. For severe shrink-and-swell conditions you need an elastic seam compound matched to an elastic finishing material. Most boat-finish manufacturers make both in the form of a "system." Sav-Cote's polysulfide seam compound and plastic resin coating is one. Calahan's Seaprene hypalon (resin) seam compound and Seaprene neoprene coating is another.

These coatings, and others of the same type, can be used as a run-in caulking in very narrow seams and cracks. You can also use the hypalon compound on aluminum-boat seams and patches, a job for which polysulfide isn't recommended because of lead compounds it contains.

Should you use a two-part or one-part seam compound? In polysulfide, at least, there are plenty of pros and cons for each. The two-part type must be very thoroughly mixed and after mixing it must be used within a few hours, but it's ready for sanding the next day.

(If you hate to waste any surplus that remains, have some homemade molds ready. The material actually becomes synthetic rubber when it cures, so you can make your own gaskets, washers or spark-plug covers. Line the molds with polyethylene or coat their inner surfaces with petroleum jelly. Polysulfide won't stick to either one.)

One-part polysulfide is cured by moisture in the air, so it sets up faster in damp weather. And what isn't used isn't wasted. Just cap the tube when the job is finished, and you can save the remainder for weeks. But allow at least a week for the job to cure; even more than that during dry weather.

For really leaky wooden hulls, either type of polysulfide is an excellent choice. Make a clean job of it though. It isn't easy to sand off cured rubber when you do smeary work. The best way is to use masking tape on both sides of all seams so

(Please turn to page 212)

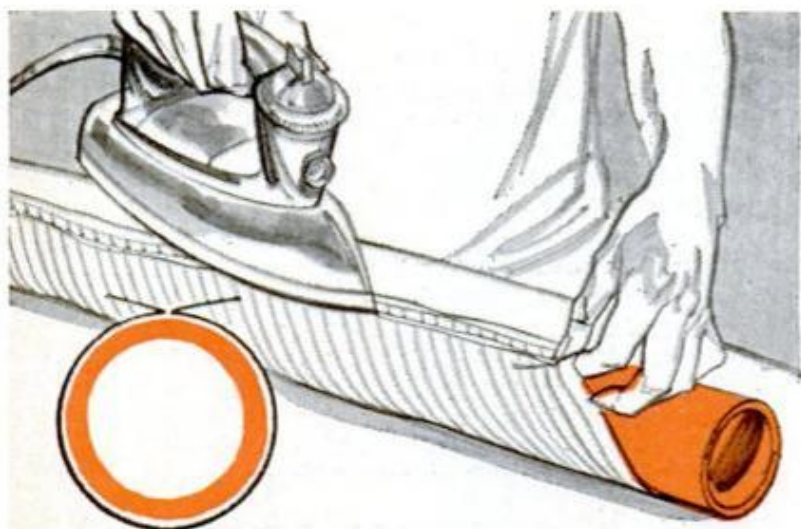
A QUICK GUIDE TO MODERN CAULKS AND SEALANTS

Basic Ingredient	Data	Price
Acrylic	Hard, two-part forms include wood and metal adhesives and dent fillers up to 6,000 p.s.i. strength, like 3-Ton Adhesive. Flexible one-part forms for trim caulk, like white-coating deck seams, are available.	(Varies widely)
Buna N	Highly flexible one-part sealants for small cracks and bedding jobs where ample give is needed. Match the type to the use. Expect some shrinkage. Examples: Ti-Tall, Alum 'O' Bond.	8-oz. squeeze tube, \$1.70
Butyl	Highly flexible one-part seam and bedding compound. Ample give for parts that flex and twist. Often used in lapstrake seams, also under deck hardware. Examples: Butyl-Flex, Rub-R-Tex.	8-oz. squeeze tube, \$1.95
Epoxy	High-strength, two-part dent filler like Kuhl's Epotex, or two-part seam filler in combinations like Travaco Lab's epoxy-thiokol Caulk-Tex. Long life. Price varies with formula.	pt., \$7.90; qt., \$15
Hypalon	One-part flexible seam compound compatible with neoprene hull coatings. Long life, tough. Example: Seaprene Caulking.	lb. cartridge, \$4.80
Neoprene	One-part, air-dried, elastic, in liquid and knifing forms. Highly elastic, usually requires care in applying. Liquid can be flowed in to seal small seams, cracks. Example: Liquid Seaprene.	qt. liquid, \$4.80
Nitrocellulose	One-part dent filler, dries by Solvent evaporation. Easily shaped, available in wood tones and colors. Can be tooled, sanded, and finished like wood. Topside and cabin use. Examples: Duratite Wood Dough, Kuhls Woodtex, Plastic Wood.	lb., 98¢
Oleoresinous	Seam compounds, bedding compounds, and dent fillers made from natural oils and resins, in one-part ready-to-use form. Easy to apply, moderate to long life (25 years in some cases). Not usually as tough as synthetic rubbers. Examples: Avio Glue (softest form), Bedlast (moderate stiffness), Seam Composition 2 (stiffer), Seam Composition 1 (stiffest), Trowelast, dent filler.	qt., \$3-\$4
Pine or coal tar	One-part combinations of tar and resins, often with toxic material added to prevent damage by marine organisms. No heating required. Example: Woolsey Underwater Seam Compound.	qt., \$2.65
Polybutene	One-part, ready-to-use elastic seam compound, glazing, and bedding compound. Also made in "rope" form with asbestos fiber for glazing and bedding. Examples: Elastic Seam Compound, Dap Architectural-Grade Caulking (also suited to boat hulls), Dap Rope Caulk Bedding.	qt., \$2.95; 11-oz. cartridge, 62¢; rope caulk, 50' roll, \$1.07
Polysulphide	Made in two-part and one-part forms. Two-part form cures faster. Both types become synthetic rubber when cured, form one of toughest, longest-lived seam compounds available. Two-part form must be very thoroughly mixed, used within working time specified on can. Examples: Sav-Cote Polysulphide Caulking, Rub-R-Seam, Flexiseal Polysulphide, Caw-King Rubber Seam Compound.	qt., \$10
Polyvinyl acetate	One-part sealant for above-waterline use as glazing and sealing compound, also for white deck seams. Long-lived, waterproof, but not suited to prolonged immersion because of tendency to swell. Example: Quick Seal.	6 oz. squeeze tube, \$1.29
Rubber-base	Rubber in petroleum-derived vehicle, waterproof. Dries hard, not flexible. Can be applied to wet surface in emergency. Not proof against gas and oil. Example: Miracle Adhesive.	pt., 85¢
Silicone rubber	One-part flexible sealant that sticks to almost all materials, including metals, glass, fiberglass, and painted surfaces. Highly elastic but not paintable in most forms. Made in light and dark tones. Very long life. Examples: General Electric Marine Seal, Dow Corning Marine Sealant.	3-oz. squeeze tube, \$1.95
Urethane	One-part flexible seam compound with good adhesion properties on teak and similar oily woods. General qualities comparable to polysulphide. Examples: Caw-King Urethane Seam Compound, Polycaulk Black Polyurethane.	qt., \$7.75
Vinyl	One-part flexible ready-to-use seam compound, easy to apply. Toxic element added for types applied to bottom seams in salt water. Example: Vinelast Bottom Seam Compound.	qt., \$2.15
White lead putty	Old traditional seam sealant over caulking cotton. Not flexible, short-lived (dries out).	lb., 70¢

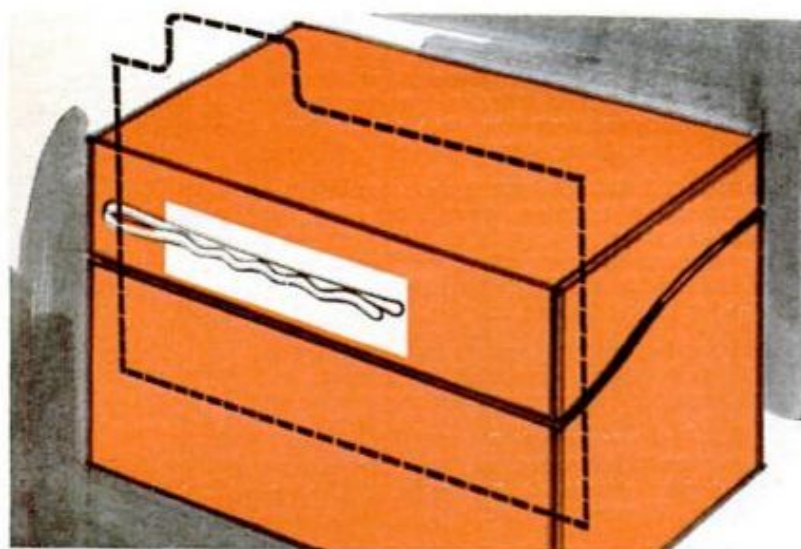
Note: These principal ingredients are combined with other materials in widely varied ways by different manufacturers to achieve special working qualities. So, not all products in a given category will behave in the same manner. You will also find special products for special purposes, like International's two-part Epoxy-Putty for steel yacht hulls, and Boat-

yard Bedding Compound made from fish oil and oleoresins for traditional-minded skippers. Your best guide to products not mentioned here (space doesn't permit a complete list) is the name of a reputable manufacturer and a reliable dealer. The directions on the container will do the rest. A phone call or letter to the maker will usually solve special problems.

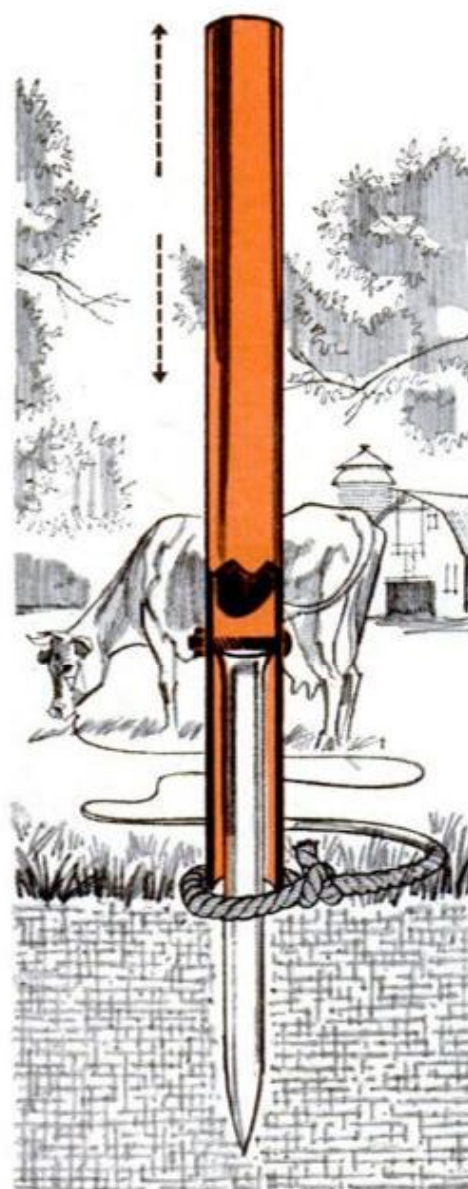
Solving home problems



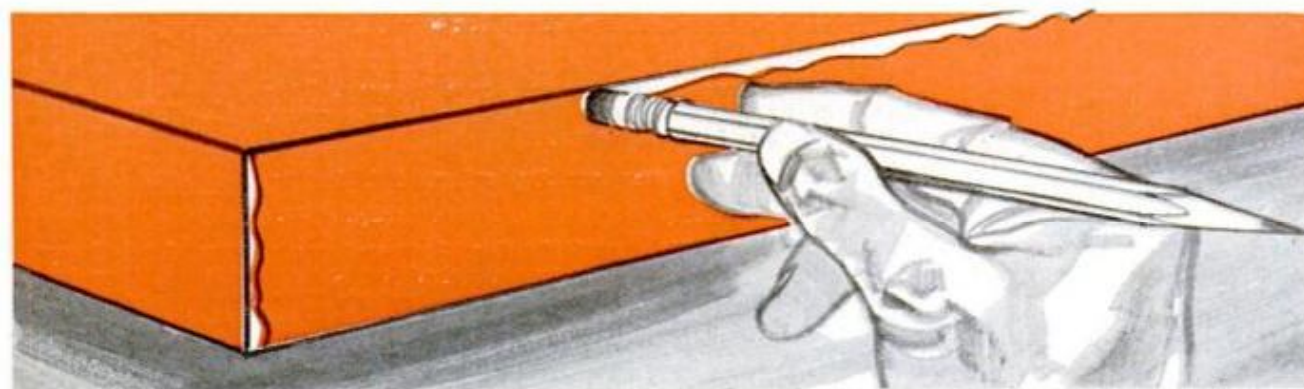
IT'S DIFFICULT to keep from making a crease in the fabric when pressing a seam flat that is to be later turned. Difficult, yes, unless you do the pressing along a mailing tube that's inserted inside



HOW DO YOU PROP UP a recipe card so you can follow it? There've been a dozen ways, but a real simple solution is to tape one leg of a bobby pin to the recipe file box and stick the card in it



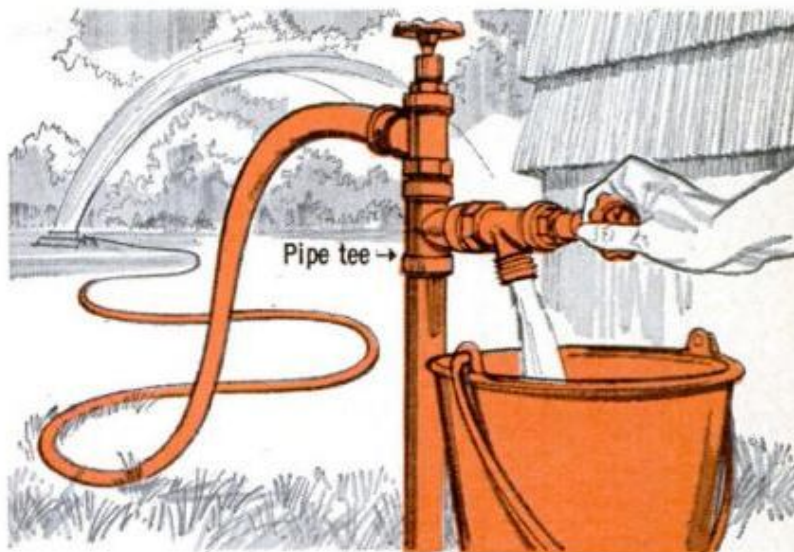
YOU RUN A CHANCE of possible injury to an animal when you tether it to a short stake. Slip a pipe over it and you can rest easy. Crossbolt lets the pipe also serve as stake driver



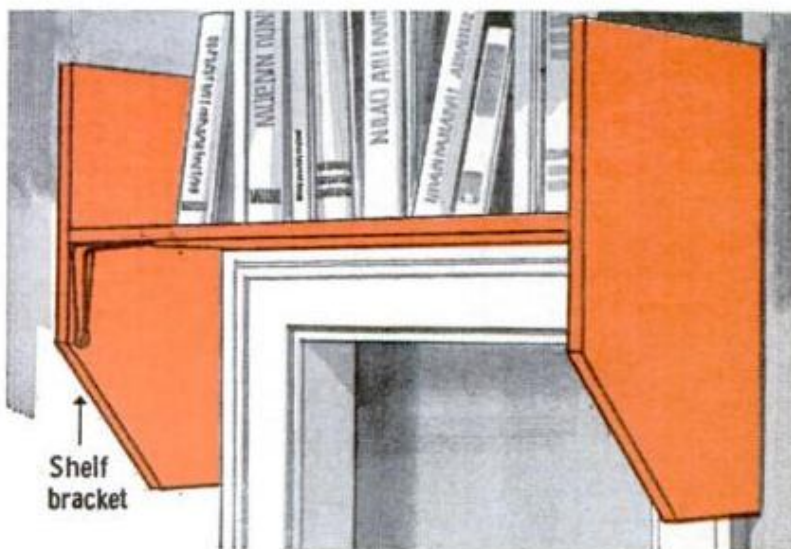
YOU CAN USE A FINGER to rub off excess contact cement, but you're apt to get a blister. You can use solvent, but you're apt to loosen the bond. A smart way is to rub it off with the eraser on the end of a pencil



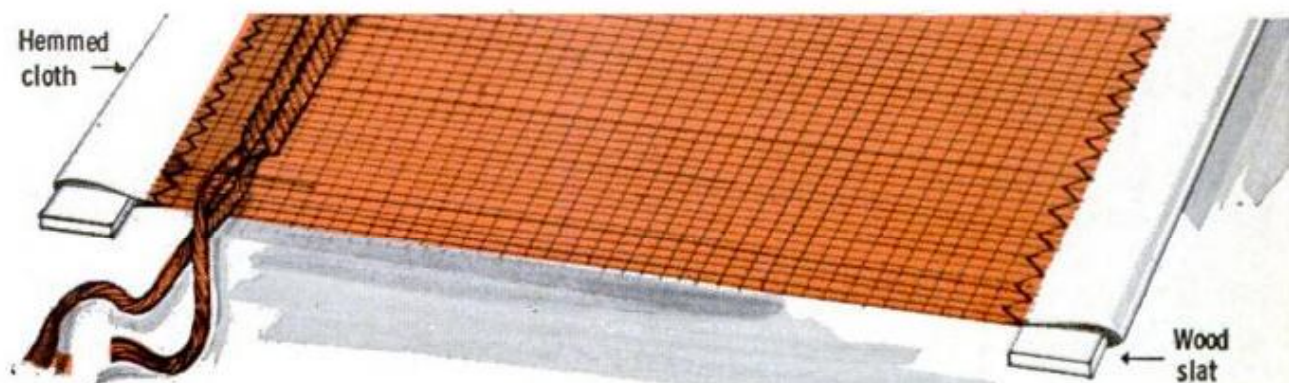
LOOSE-LEAF PAPERS in a ring binder won't tear so easily if you coat the areas around the holes with clear, fast-drying household cement. It's faster than applying gummed reinforcements



EVER HAVE A SPRINKLER going and wish you could draw a pail of water from the same hydrant? A tee fitting is all you need to add a second faucet at right angles to a sillcock or standpipe



A BOOKSHELF over a door puts waste space to good use when a youngster's room is bursting at the seams. Door casing provides ready-made support for attaching shelf with screws down from top



YOUR WIFE'S NEEDLEPOINT will stay flat and straight while she works on it if sleeves of cloth are first sewn to two sides of the mesh and wood slats run into them. She can roll it neatly when she puts it aside



HOME IMPROVEMENT

Do-It-Yourself Steel Pool For \$1250

AVAILABLE IN SIZES ranging from $8\frac{1}{2} \times 17$ to $25\frac{1}{2} \times 50$ ft., there's a pool to fit smallest yard

SCOOP OUT A HOLE, line the walls with prefabricated steel plates, drape vinyl over the whole thing and you've got yourself a 16x32-ft. Sparton swimming pool for \$1250 that never needs painting. Of course, there are such hidden costs as water, filter, diving board, excavating, plus the flagstone apron and fence around the edge,

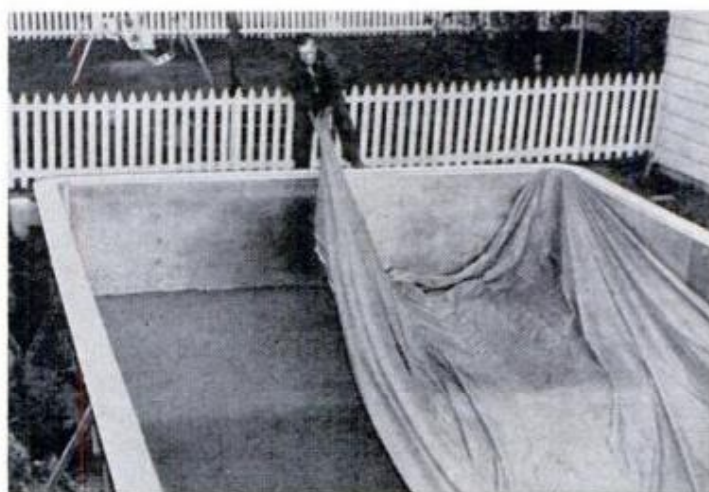
Build This Low-Cost Diving Board

YOU KNOW WHAT a 12-ft. one-meter diving board similar to the one shown in the photo above is apt to cost you? As much as \$124. I couldn't shell out that kind of dough, so I built a laminated board for—believe it or not—\$14. As far as I can tell it works as well. I weigh 180 lbs. and it flips me with no strain on the board, using the standard minimum fulcrum setting of $5\frac{1}{2}$ ft.

I started out with 11 straight 2x3 fir studs and turned them into a beautiful tapered board as outlined in the steps shown in the drawing at right. After giving it a nonslip coating, I mounted it on tubular U-shaped legs buried in concrete.



AFTER POOL WALLS are bolted together, white snap-lock coping is added around top of steel sections, fitting the corners first. Bolts in T-slots hold it



POOL BOTTOM is covered with 2 in. of sand, troweled smooth, then vinyl is draped, snapped to coping

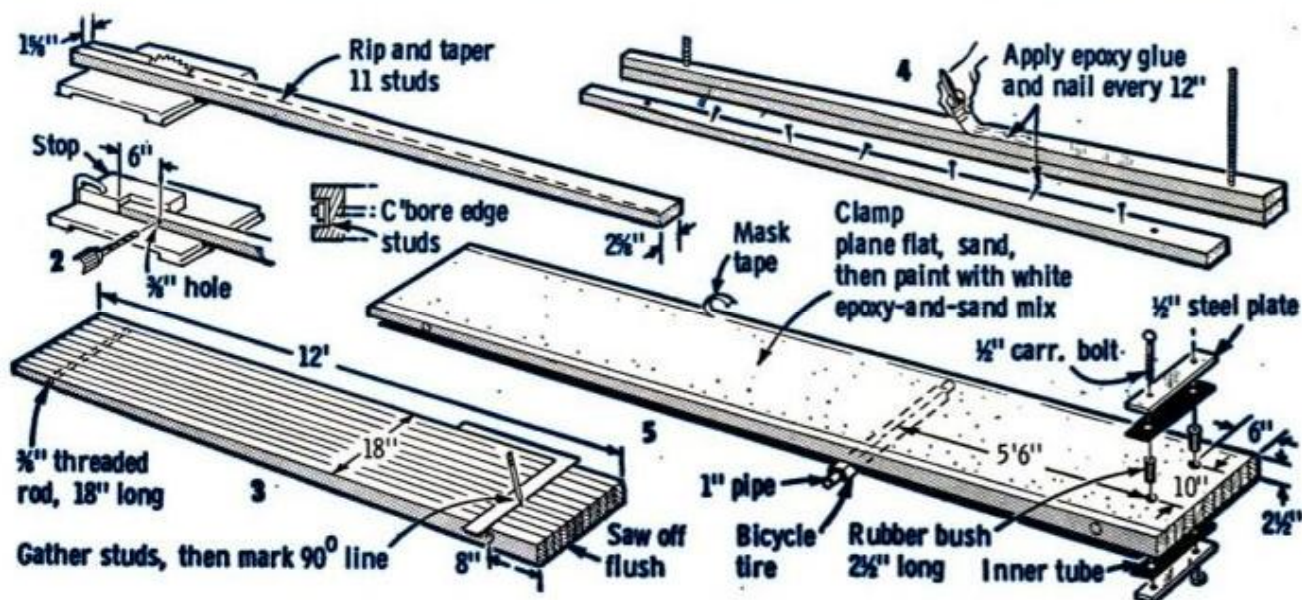


YOU HIRE this part of job. Backhoe digger does neatest job of shaping hopper hole at the deep end

but then these are extras that go with the basic price of most any pool.

It's an ambitious project for eager beavers, but it beats the usual high cost of swimming in the back yard. The galvanized steel walls, 42 in. high, come from the factory in 7½ and 9½-ft. sections which bolt together. Special "bearing plates"

work as levers to align the sections when hitched together. The earth bottom is dug with sloping sides, after which wet sand is used as a base for the one-piece, heavy-duty vinyl liner which is "buttoned" to the walls. A vacuum cleaner is used to suck out the air under the vinyl to draw it snug and wrinkle-free.



Build This **Two-in-One** Chest-Crib

Keeping baby happy is made extra convenient by having everything right at hand in one compact piece of nursery furniture

By DON SCHACKMUTH

Technical art by ZIK Associates

LIKE A HIGH CHAIR which can be handed down from one child to another, a baby crib is a piece of furniture that down through the years can become a real part of the family, not only your own, but your brother's and sister's as well.

And who wouldn't be anxious to borrow this one! It's the handiest thing ever, for it not only has its own built-in five-drawer chest, but there's storage galore below the crib for sheets and blankets. Everything's right at hand, all in one compact, space-saving unit.

While you can buy mattresses from Sears and Wards to fit 1, 2, 4 and 6-year-old size cribs, the crib dimensioned here is for a 23 x 46-in. mattress, which is a 4-year size. If you prefer to build the crib larger to take a 27 x 52 in. mattress, you'll have to increase the dimensions to suit. You may want to use a slab of latex foam rubber for a mattress.

Maple or birch are good durable woods for a project like this. All the rails should be solid stock. The sides and top of the chest can be hardwood-faced plywood or solid stock. Tempered hardboard can be used for the crib panels and sliding doors. Where plywood is used, the exposed plies are covered with wood-grain tape. Remember, if you paint the crib, use non-toxic paint. You'll note in the drawings that strips of chrome molding are indicated along the top rails to discourage teething.

Before beginning to build, study the drawings so you fully understand the construction. Make the chest first. The

end and front views on the opposite page give the width and depth of it. Both side members are rabbeted at the ends and dadoed in between to receive five drawer frames and a solid bottom. All the drawer frames are made alike from solid stock and assembled with dowels at the corners. Glue is used to fasten the frames in the dadoes, while both glue and screws are used to fasten the top frame and the chest bottom in the rabbets.

Once this is done, the hardboard back can be added to hold the assembly square. This member is cut slightly less than full width and height of the chest so its edges won't show so much. It is simply centered and nailed to the rear edges. The chest top is kept even with the back panel, but overhangs $\frac{1}{2}$ in. on three sides. Glue and screws driven up through the top frame are used to attach it.

Runners attached to the bottoms of the drawers slide in wood channels screwed to the middle of the drawer frames. Typical drawer construction prevails, each being made to fit its opening. The drawers lap the openings at the top and sides, but not the bottom. The exception is the bottom drawer which laps the bottom member of the chest. Thumbtacks (or regular plastic glides) pressed in the frames at the front corners will make the drawers slide freely. Ready-made 4-in. tapered legs with metal plates for attaching are purchased and screwed to the chest bottom to complete it.

Now for the crib: The footboard is assembled as a separate unit, as are the front and the back spindle railings. Only af-

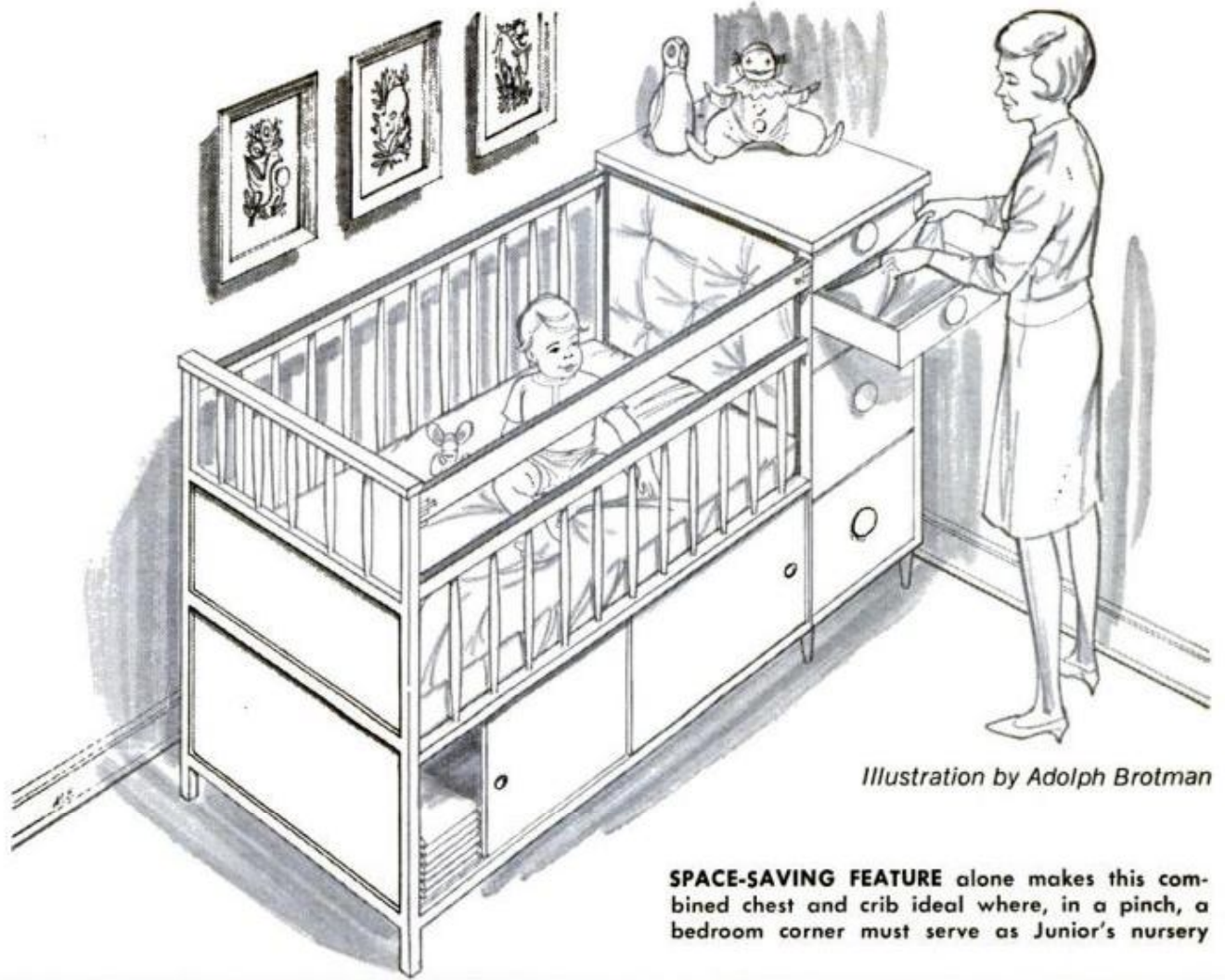
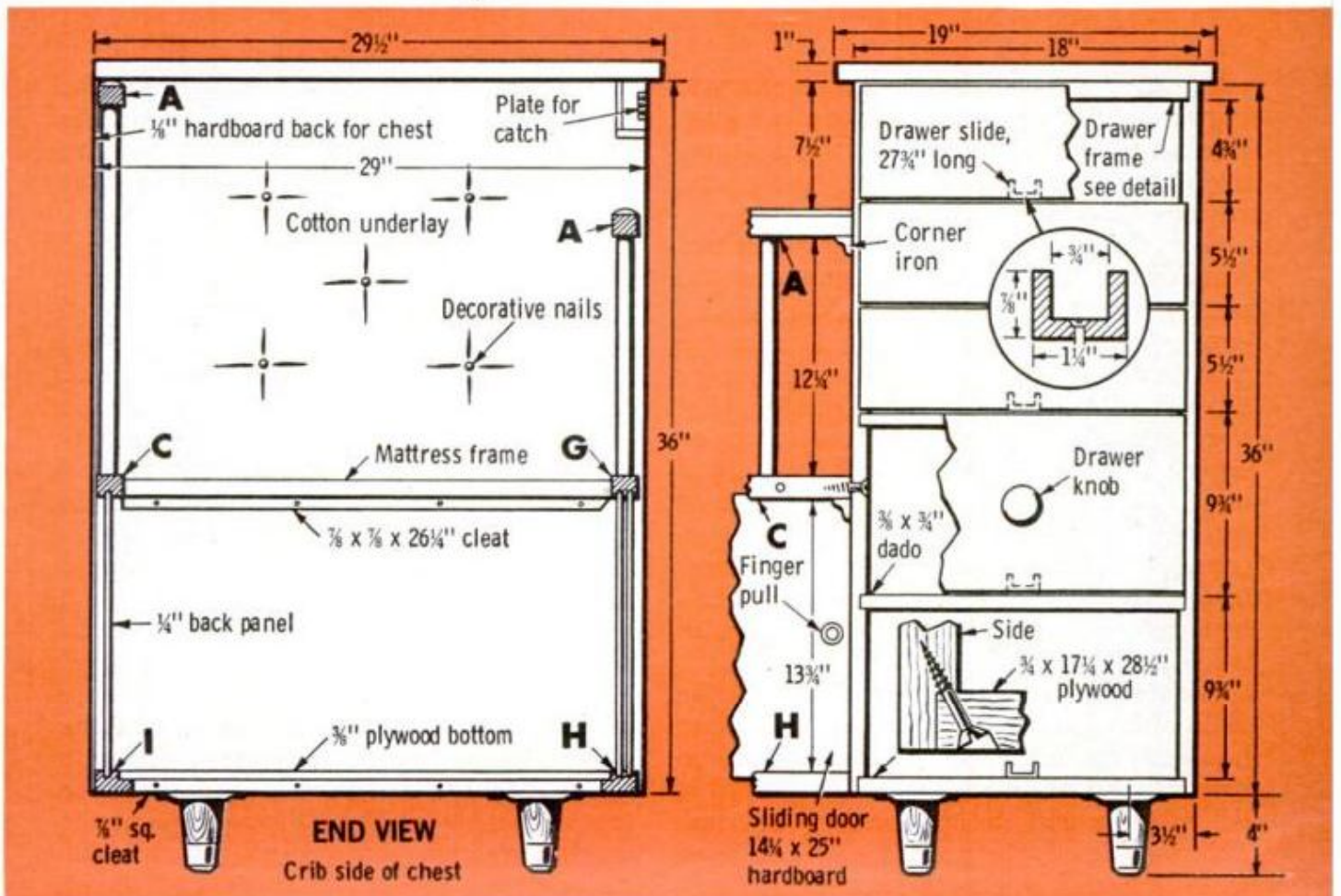
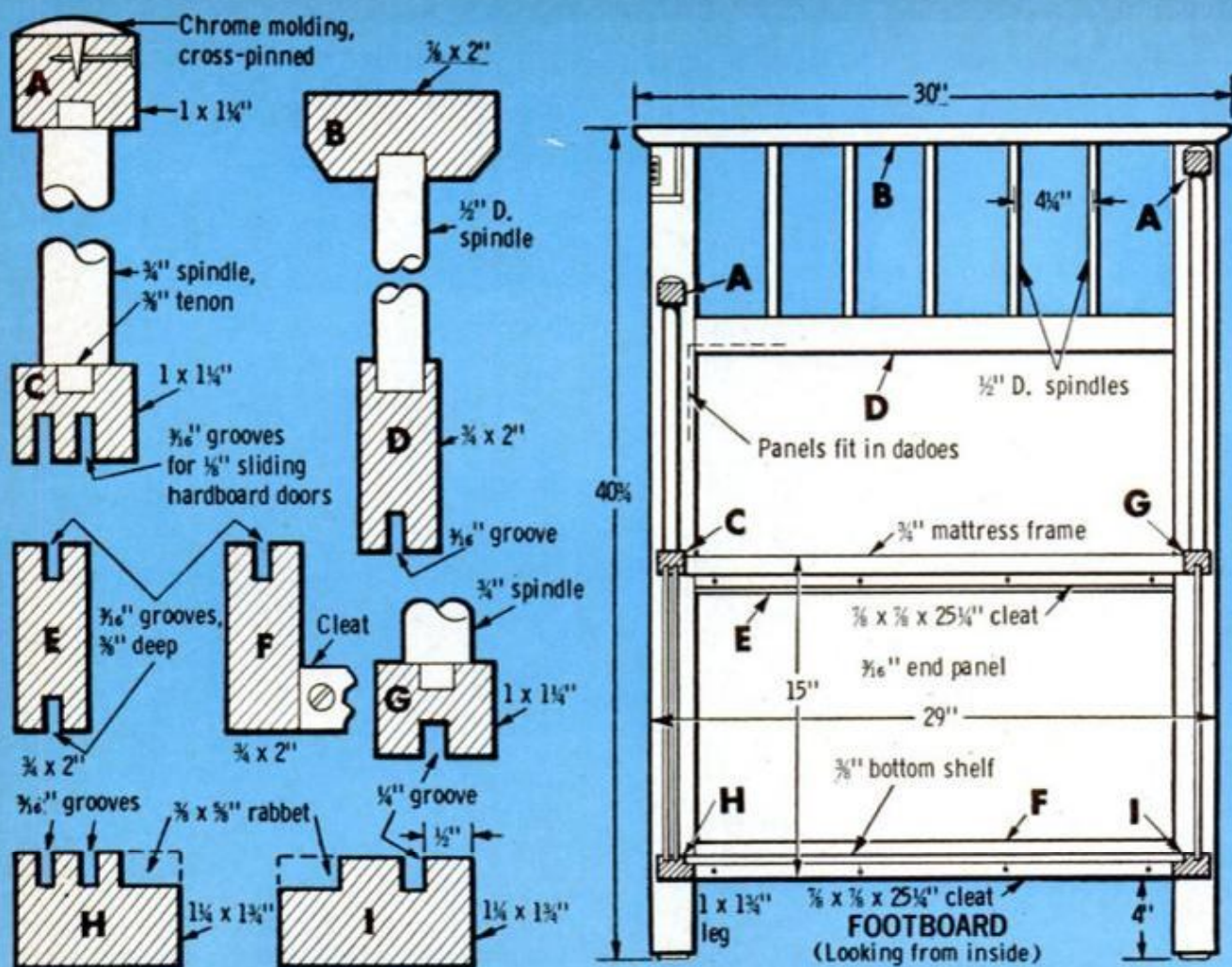


Illustration by Adolph Brotman

SPACE-SAVING FEATURE alone makes this combined chest and crib ideal where, in a pinch, a bedroom corner must serve as Junior's nursery





after these assemblies are made can you begin to join the crib parts to the chest. The keyed sectional details in the drawing above give the size and shape of the various rails.

Start by ripping and dressing the two end posts 1 x 1 3/4 in. Total length of the posts when the top rail is added should equal the height of the chest. Dados for the hardboard panels are made in facing edges of the posts, but you'll notice that they are blind—that is, they are stopped where the panels fit. Grooved rails D, E and F merely butt the posts. A long screw, plus glue and the panels themselves, holds the rails. All such screw fastenings, by the way, are made in counterbored holes and later capped with wood buttons.

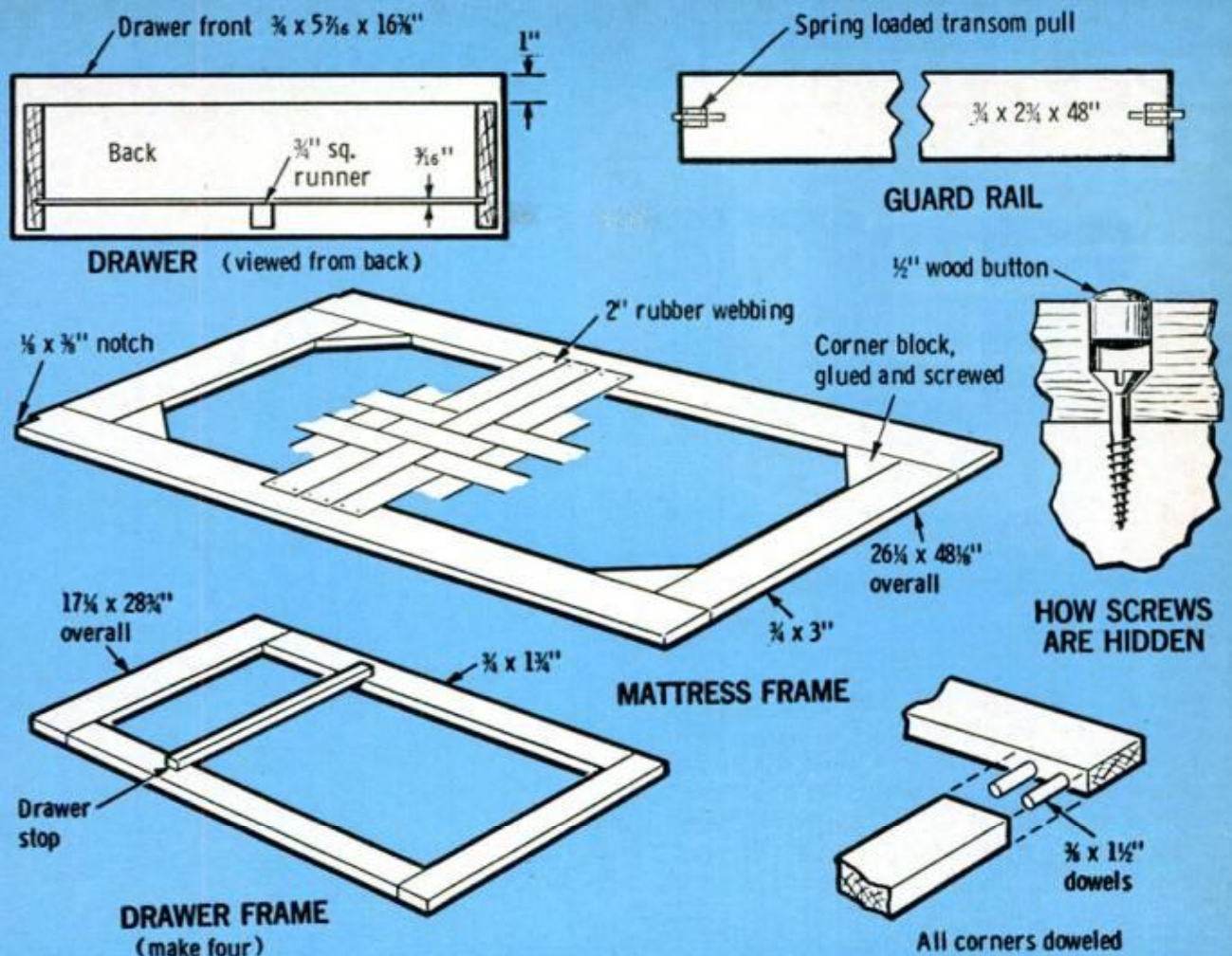
Besides being grooved, rail D is also drilled for five 1/2-in. spindles. These can be common hardwood dowels, or you can turn fancy ones on a lathe. Top rail B is drilled also and its lower edges beveled. This now leaves two cleats to be screwed to rails E and F, one to support the bot-

tom of the storage compartment and the other to support the mattress frame. Additional cleats are added to the face of the rear post and to the chest to later support the ends of the compartment's back panel.

Rails A and C and A and G are fitted with eleven 3/4-in. spindles equally spaced. Here in checking the sectional details of the rails, you'll notice that the dowel spindles are shouldered to fit 3/8-in. blind holes.

If dowels are used for spindles, shouldering them almost requires a lathe and one that has a hollow spindle through the headstock large enough to accept a 3/4-in. dowel. Chucking it and letting the end protrude a couple of inches makes it a simple job to turn a perfect 3/8-in. tenon at the end.

However, you can cut a fairly accurate tenon on your bench saw by laying the dowel flat on the table, at right angles to the blade, and slowly rotating it over the top of the blade. Here the saw's fence is used as a depth stop and the saw's miter gauge (anchored to the table with tape)



is used as a fence against which the dowel is rotated. The blade is raised to project a maximum $\frac{3}{16}$ in. above the table, but you should take only $\frac{1}{16}$ -in. cuts at a time when working with such hard wood. If you're careful, you can produce a fairly accurate tenon this way.

You'll notice that rail C, as well as its mating rail H, has grooves in it for two sliding hardboard doors. Likewise, rails G and I are grooved to accept the back panel. You should note that the grooves for the sliding doors are made deeper in the top rail than the bottom one so you can later insert the doors. Rails H and I also have rabbets along the inner edges to support the $\frac{3}{8}$ -in. plywood bottom.

Flathead wood screws in counterbored holes are used, along with glue, to join the rails to the footboard and to the chest. Additional support at the chest end is provided by corner irons placed under rails A, C and G. The crib, by the way, can be added to either the right or left side of the chest.

The mattress frame rests on the cleat

added earlier to the footboard and on a second cleat screwed to the side of the chest. The detail above shows how the corners of the mattress frame are doweled and how the top of it is covered with rubber webbing stretched and interlaced to form a soft support.

Since the front rail is fixed and doesn't slide up and down like most conventional cribs, a separate removable guard rail is provided. This is simply a 3-in. board fitted with a spring-loaded transom pull at each end to engage catch plates attached to both the chest and the footboard. L-shaped retaining brackets, cut from $\frac{1}{4}$ -in. wood, position the guard rail and help register the pulls with their catches.

One last step after painting is padding the crib side of the chest. Here a 1-in. layer of cotton is covered with fabric, tufted by driving bright tacks into the chest and trimmed around the edges with gimp. Add the knobs to the drawers, the finger cups to the sliding doors and you're finished. ★ ★ ★

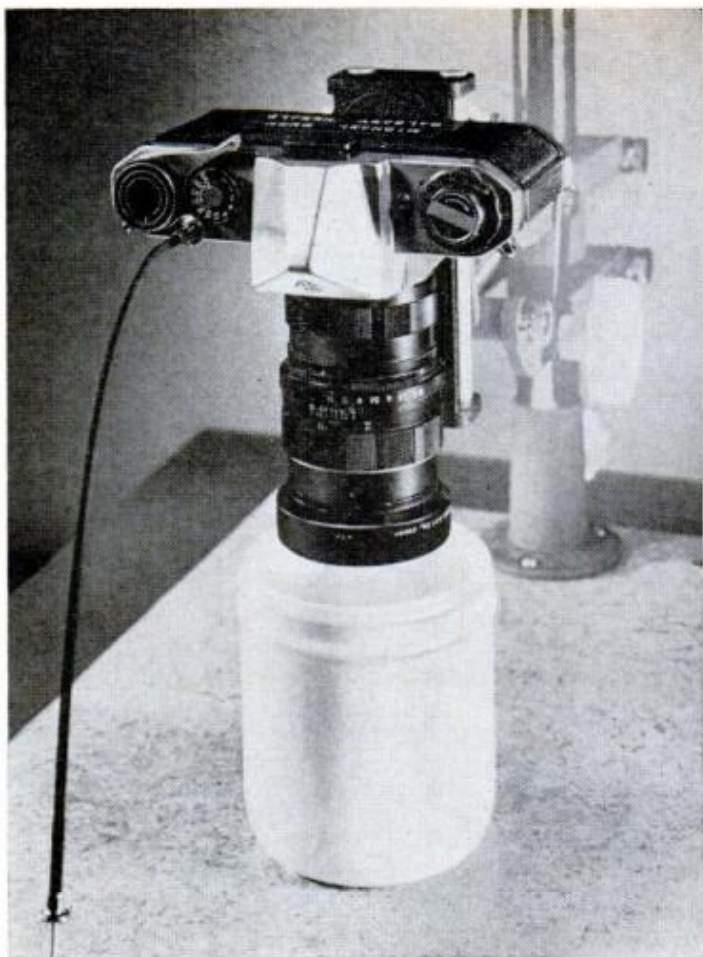
PHOTO HINTS



Close-up light diffuser

An empty white opaque face-cream jar makes an instant "tent" for clean, even lighting of small shiny objects like coins. Place the object in the bottom of the jar and shine the lights at the sides. In the case of coins, like the one above, basic exposure remains unchanged.

—Michael Burns

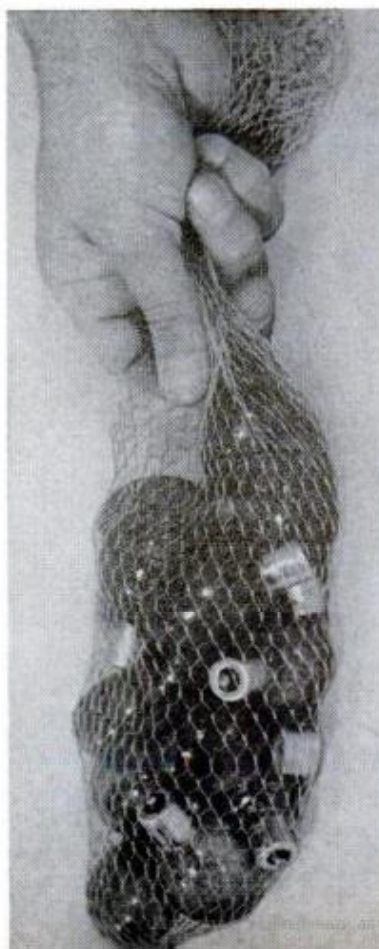


Plastic box protects film

The molded-plastic cartons that cameras and small appliances come in are perfect for carrying film and batteries on a trip. The insulating plastic protects them from heat.—Marshall Lincoln

Bag those flashbulbs

Flashbulbs kept in their cardboard sleeves take up a lot of space in a crowded camera bag. You can solve the problem with a mesh vegetable sack from the supermarket. The sack will keep the bulbs together yet let them slip into small nooks and crannies to save space in your bag.



"Automatic" lens cap

If you've lost your lens cap or prefer not to bother with one, here's an answer. A small piece of foam plastic fastened inside your camera case will press up against the lens automatically when the case is closed and keep out dirt and moisture. Drop the front of the case and you're ready to shoot.

—Ken Patterson

Why is it called a 2x4?

EVER MEASURE a 2x4? It isn't 2 in. x 4 in. at all. True, when first cut it did measure 2 in. thick and 4 in. wide, but planing it smooth on all four sides, plus loss in size through shrinkage in drying, reduced it to about $1\frac{5}{8}$ x $3\frac{5}{8}$ in.

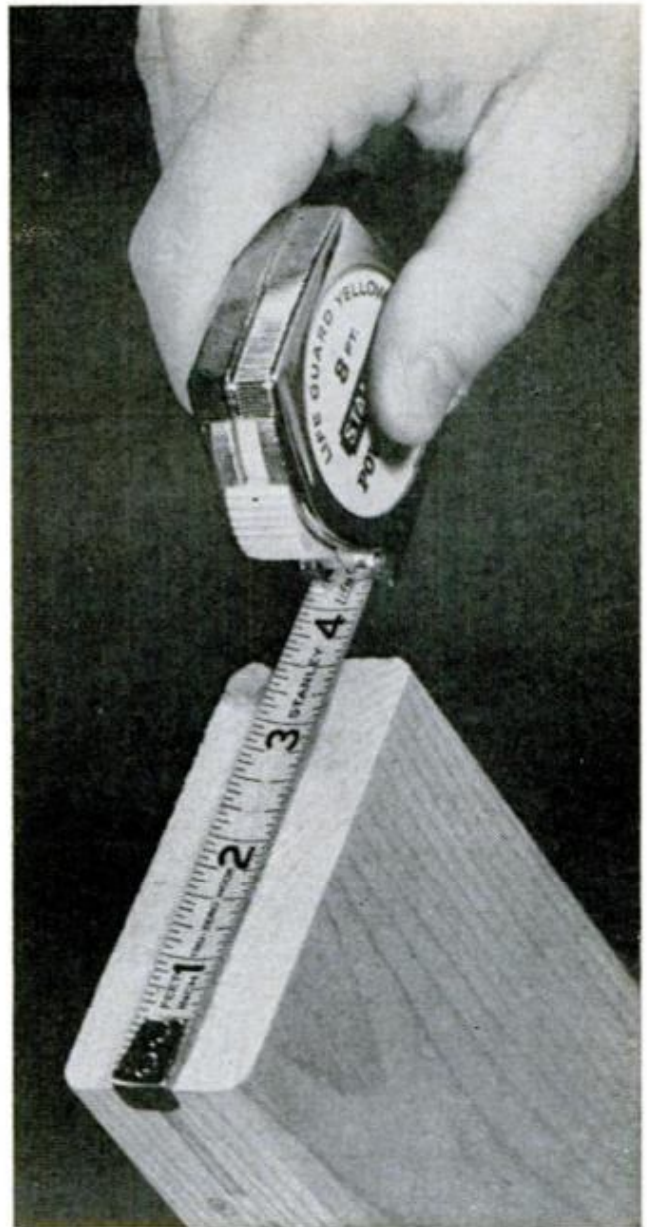
When lumber is first cut from a log, it may be literally saturated with water. This is reflected in the term "green" used for unseasoned lumber. As this water evaporates, lumber shrinks.

For example, an 8-ft. green 2x4 contains about three pints of water. Conventional kiln-drying at the mill lowers the water content from three pints to about two pints, or 19 percent average moisture content. But the piece dries even further in use. At about 15 percent moisture content, it remains reasonably stable.

Obviously, all framing lumber (2x4s through 2x12s) with uneven, uncontrolled amounts of water will shrink unevenly and shrinkage begins in different members at different times. These changes continue even after the lumber is nailed together. In fact, they never stop until the moisture content of the wood and the atmosphere come into equilibrium. This tends to produce a shifting, moving house. Stairs and floors squeak, windows and doors stick and bind, plaster cracks and nails "pop" in drywall. Thus the importance of building a home of dry lumber is obvious. Framing lumber that's shrunk down to uniform size before it goes into a house won't give you trouble afterward.

Since the thickness of lumber should be related to its moisture content, Weyerhaeuser, for example, surfaces its 2x4s down to a $1\frac{1}{2}$ -in. thickness *after* they are dried to a uniformly low moisture content of 15 percent.

Oddly enough, as lumber dries and shrinks, it actually increases in strength, stiffness and load-bearing ability, resists twisting and warping and has four times the holding power of green lumber. Tests have proved that its reduced size not only provides ample strength, but helps avoid "over-construction." ★ ★ ★



GREEN

19%

15%

THE BEST kiln-dried lumber is never completely "dry," but it remains reasonably stable when the green moisture content is reduced to 15 percent



WEEKEND PROJECTS WITH PIPE

- Shop stool
- Typing table
- PLUS handy tips on making things with pipe
- Hand truck
- Fireplace grate

By JOHN BURROUGHS

Technical art by ZIK Associates

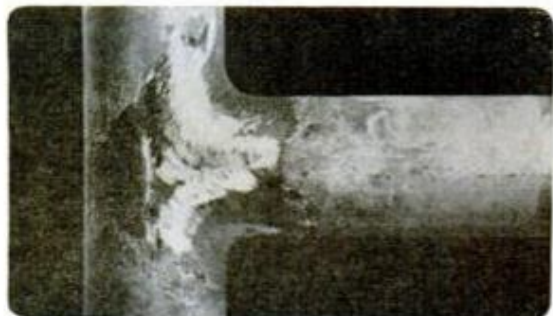
STEPS IN MAKING A BUTT WELD



1. GRIND AND CHAMFER edges to form groove



2. WELD JOINT, filling groove with weld metal



3. DRESS FILLET smooth with grinding wheel



4. SAND JOINT to remove remaining scale

STEEL WATER PIPE is a first-rate raw material for shopwork. It's as readily available as lumber, comes in convenient standard sizes and isn't awfully expensive.

Furthermore, you don't need a shopful of metalworking equipment to build a project with pipe. That dead-soft low-carbon steel is quite easy to cut and it welds beautifully. The only power tool that's really essential is a grinder. If you lack welding equipment, you can have the necessary welding done at a local garage or welding shop (about \$5 an hour) or rent a small arc welder from a tool-rental firm (about \$6 a day).

Pipe, of course, can be welded up in combination with other mild steel — chunks of plate, bar stock, lengths of angle iron or butt-weld-type pipe fittings.

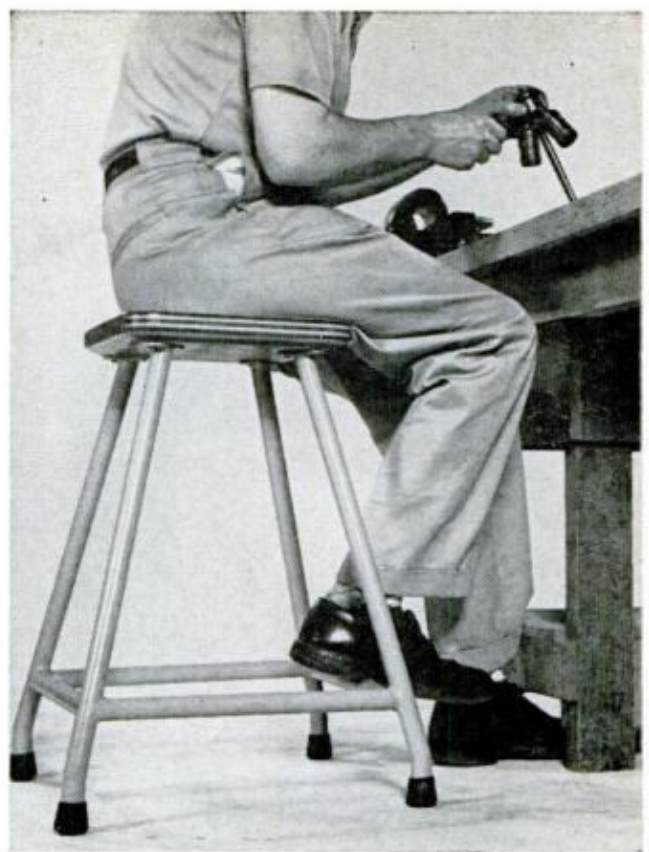
When your pipework involves short lengths of mitered pipe welded into a complex shape, or requires two or more subassemblies that must match, make a full-size drawing on a plywood panel or wrapping paper. Then fit the pipe directly on this layout.

You can buy standard-weight pipe with either black or galvanized finish in the sizes listed on page 183. (Though you'll seldom need it, double-strength pipe with heavier walls is also available.) Galvanized pipe is usually preferable to black for pipe projects, as the soft zinc galvanizing is much easier to smooth up with a sanding disc.

Pipe is sold in 10 and 21-ft. lengths, or cut to size at per-foot prices. Most plumbing supply firms and hardware stores make an extra charge (about 10 cents a cut) for cutting pipe to specified lengths. However, you can cut up full lengths yourself with a plumber's pipe

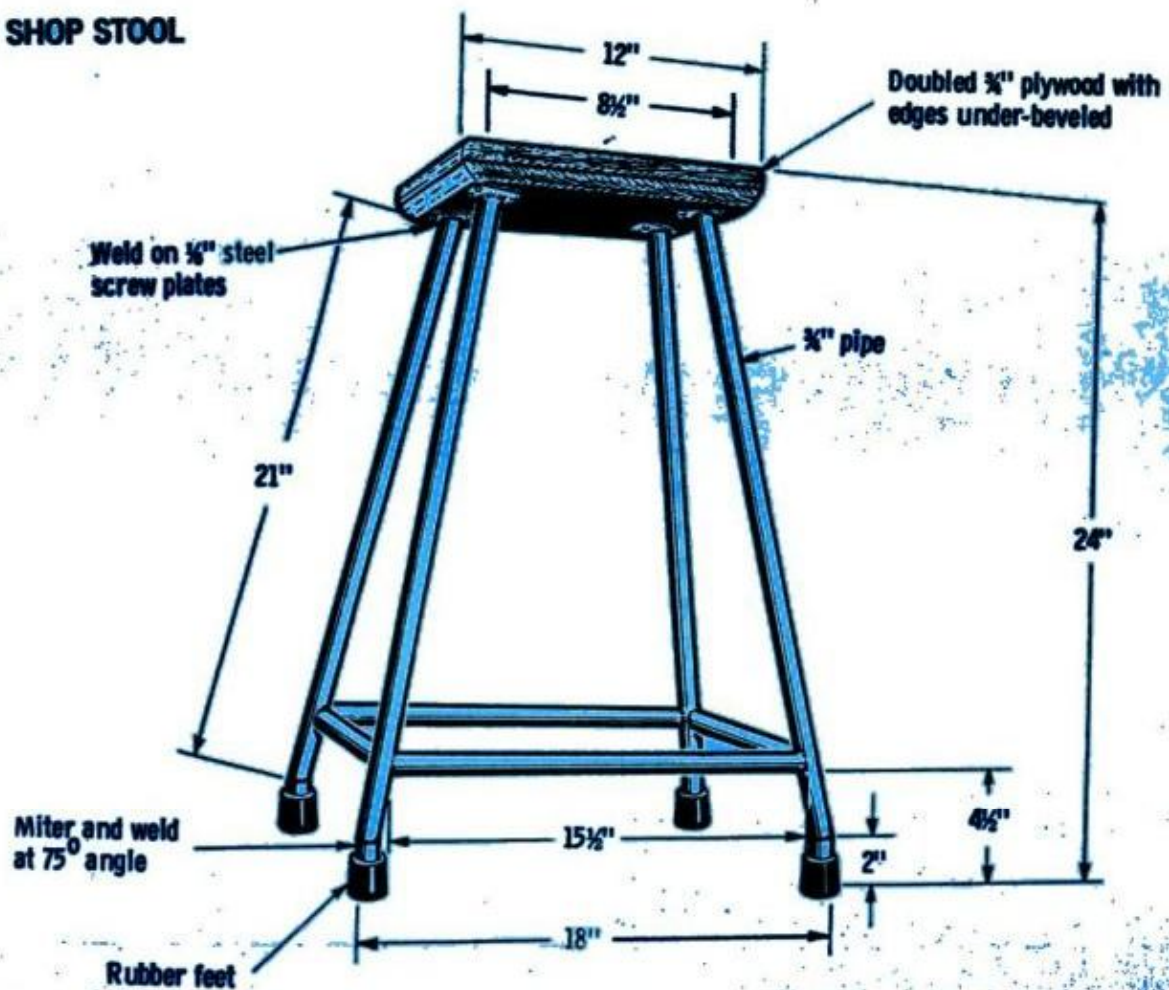


TORCH WELDING is slower than arc welding but leaves smoother fillets. However, either may be used provided proper care is taken in smoothing joint



FINISHED STOOL is sturdy and good-looking, could just as well be used in the kitchen or the laundry room. Note the use of crutch tips to protect floor

1 SHOP STOOL





TO CUT PIPE, use abrasive cutoff wheel in a portable saw. Block the pipe between two 2x4s and tack a wood strip across the blocking to guide saw



FOR LASTING FINISH, prime welded pipework with a rust-inhibiting primer, then brush on at least two coats of any good-quality, synthetic-base enamel

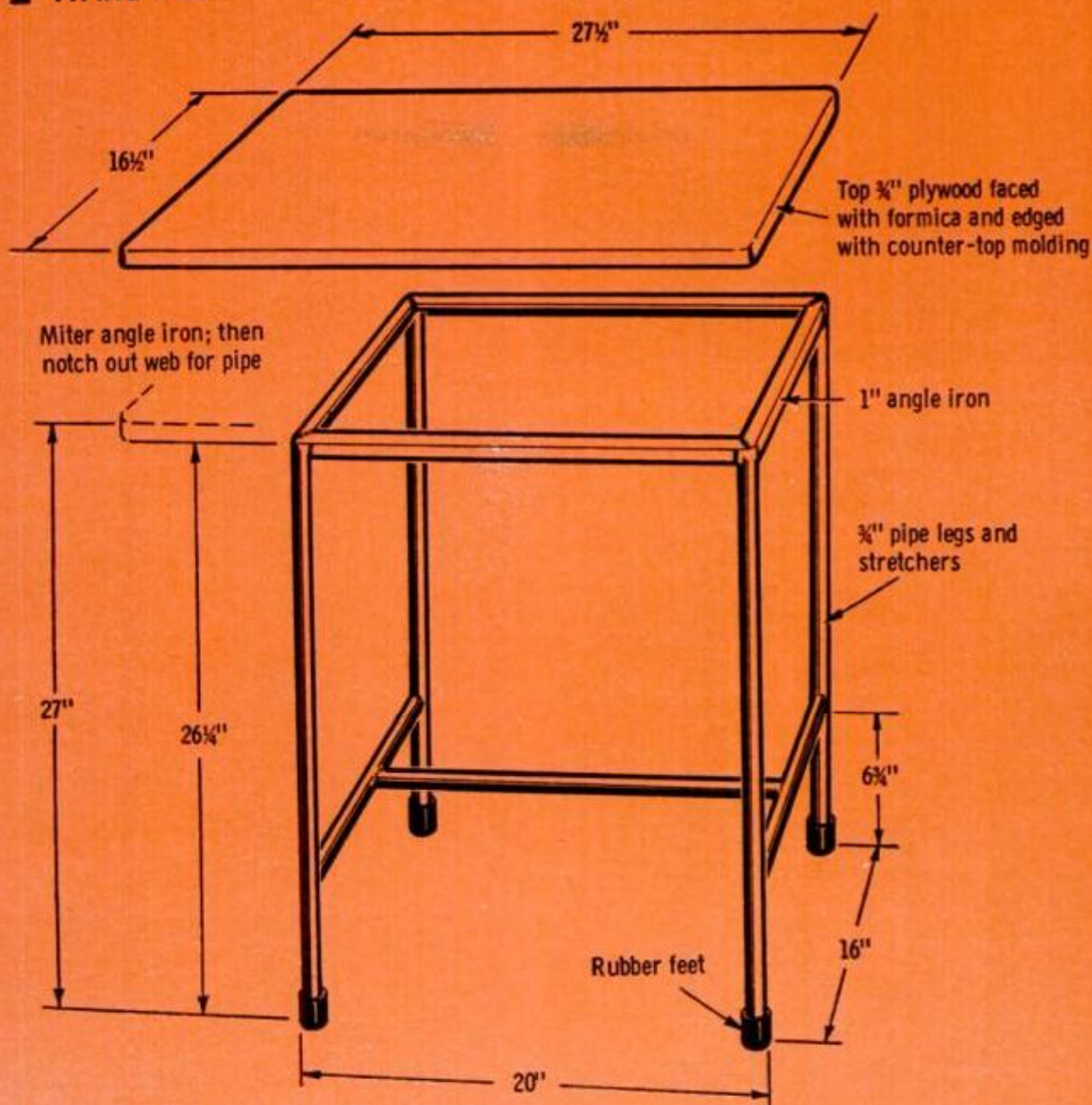


TYPEWRITER TABLE has an offset top which overhangs the frame at one end, providing extra space to hold books, papers or other materials to be copied



REGULAR PIPE CUTTER is the handiest way to chop pipe to length. As tool is rolled around the pipe, handle is screwed down forcing cutter against wall

2 TYPING TABLE



cutter, an abrasive cutoff disc in a portable electric circular saw or a sharp hacksaw.

Fitting a joint for welding is a two-step operation.

First, the pipe is ground to butt neatly. (Use a medium-grit wheel and *always* wear protective glasses.) If the joint is mitered, this is simply a matter of truing the angles of cut. If it's a T-joint, the end of the butted pipe should be ground concave.

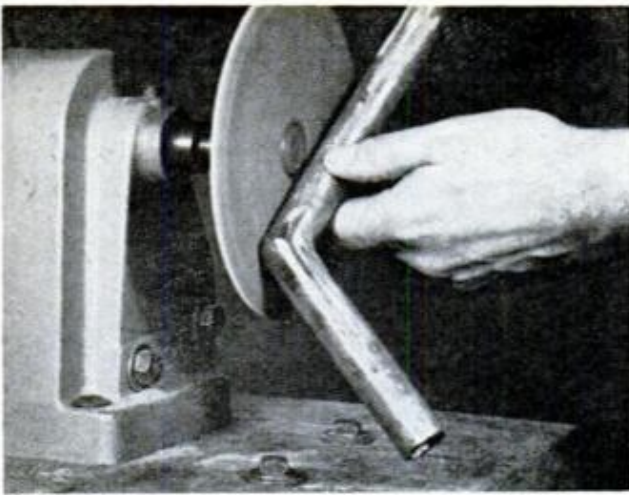
Second, adjoining edges should be ground to a chamfer, or bevel, to form a V-shaped groove around the joint. This permits the weld metal to penetrate the full thickness of the pipe wall and thus assures a sound weld.

It's easier to weld pipe than to braze it.

First the work should be tack-welded and checked for proper positioning and alignment. Then the joints are welded all-around, right over the tacks. Weaving the arc or oxyacetylene flame in a tight zigzag fills in the V-groove and builds up a fillet of weld metal. (Any length of pipe that will be welded closed at both ends should first be vented with a 3/16-in. hole drilled bottom-center.)

There's no reason to dress the welds in rough work. When appearance is important, however you'll want to smooth off the welds to neat uniform fillets. You can do this by hand with a sharp rat-tail file but the job is easier with a rounded-face grinding wheel especially made for the purpose (welding supply firms have them).

3 HAND TRUCK

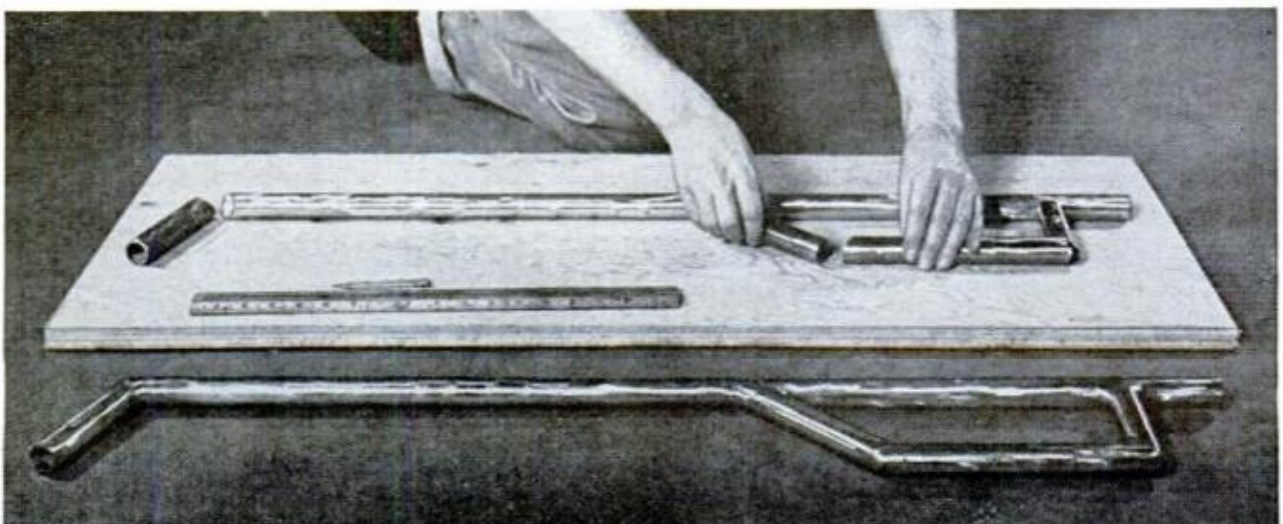
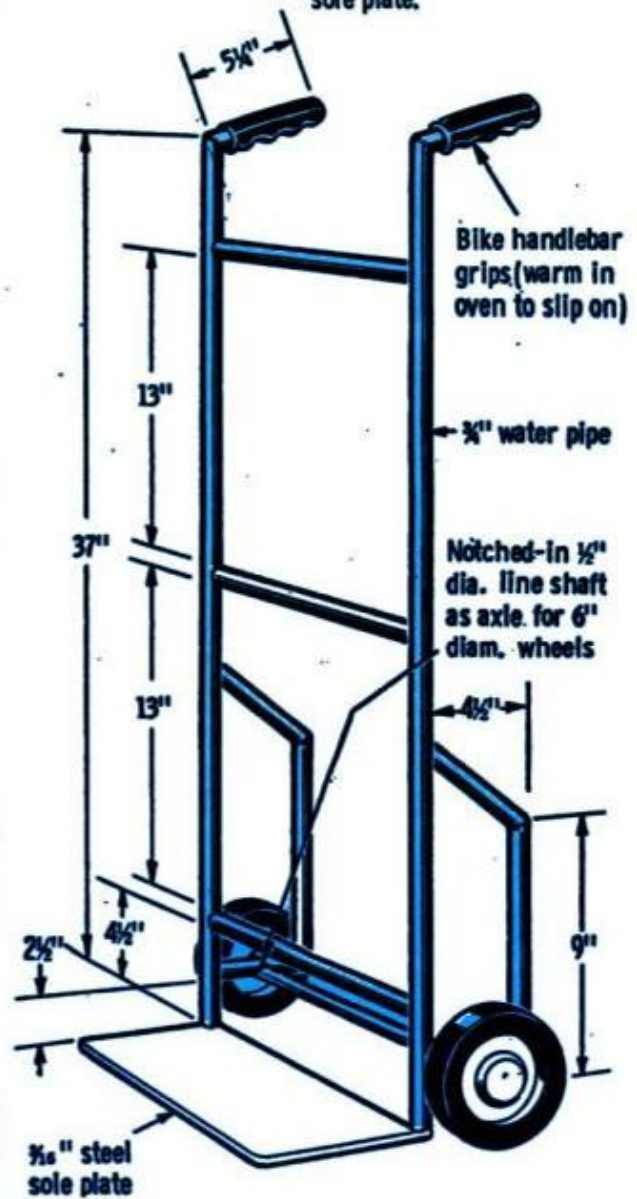


TO FINISH JOINTS, smooth with 40-grit aluminum oxide sanding discs. Be sure to wear protective glasses



SCRAP LENGTHS of $\frac{3}{4}$ -in. pipe were used to build this small hand truck. Axle is a $\frac{1}{2}$ -in. line shaft

Note: first weld up side assemblies; then weld in three 15" long stretchers; then weld on axle and sole plate.

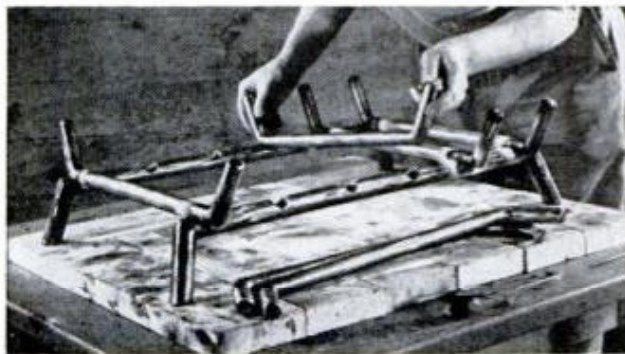


FULL-SIZE LAYOUT on a plywood panel or butcher paper simplifies the cutting and fitting of mitered parts

STANDARD WEIGHT STEEL PIPE

Nominal Size	Actual Outside Diameter	Actual Inside Diameter
1/4"	.540	.364
3/8"	.675	.493
1/2"	.840	.622
3/4"	1.050	.824
1"	1.315	1.049
1 1/4"	1.660	1.380
1 1/2"	1.900	1.610
2"	2.375	2.067
2 1/2"	2.875	2.469

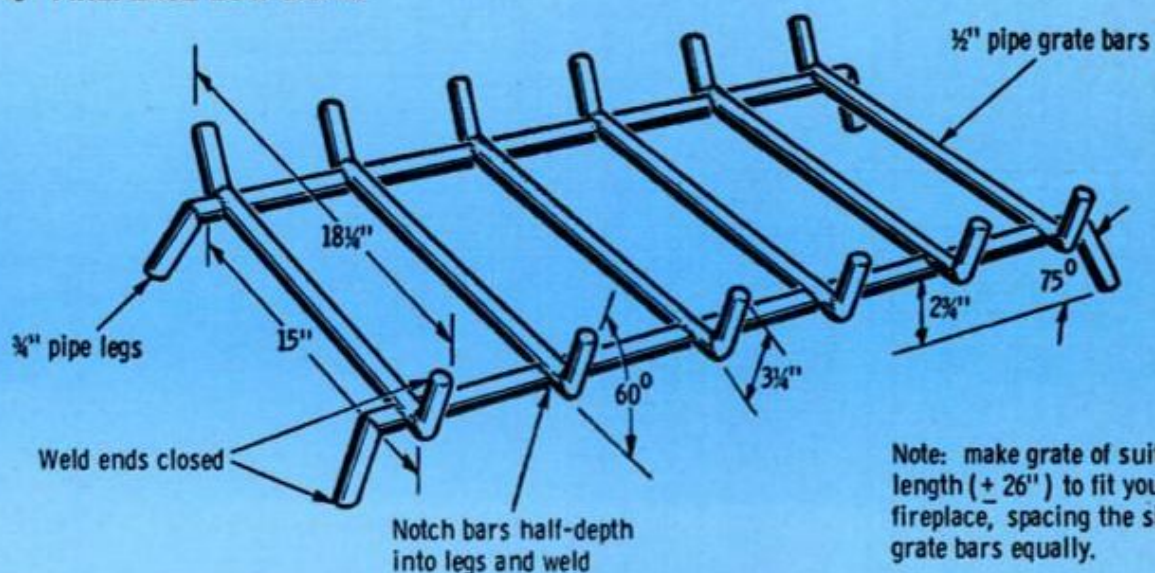
(From American Standard B36.10)



CUT NOTCHES in the leg assemblies for grate bars

DIMENSIONS may be changed to fit your fireplace

4 FIREPLACE LOG GRATE



Disc-sanding the welds after they're filed or ground smooths off grinding marks. Going over the entire assembly with a 40-grit sanding disc will clean up the pipe for painting.

Priming welded-up pipework with rust-inhibiting primer and brushing on two coats of top-grade enamel give it a finish

that will outlast paint on wood. Copper-nickel-chrome plating which you can have done at a plating shop is another attractive and lasting finish.

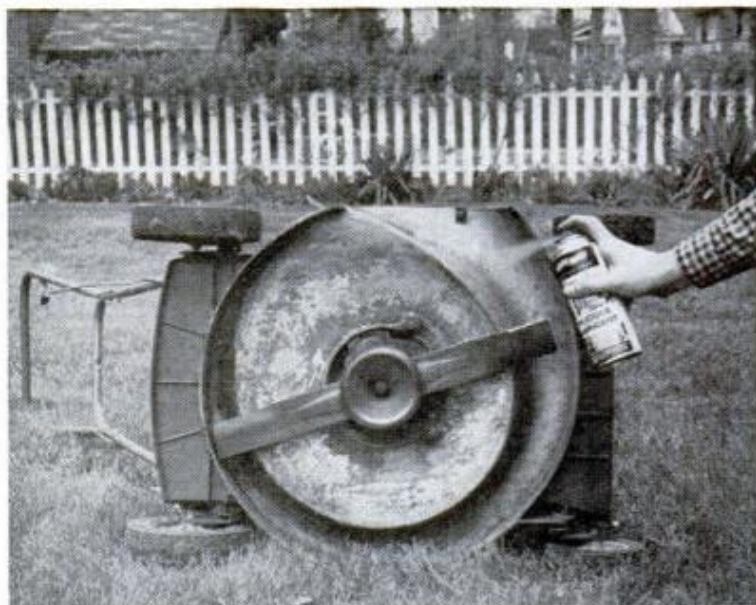
If you want to design a project of your own, first make a scale model from soda straws so you can thresh out any problems before you touch a pipe. ★★★

Pushbutton yard maintenance



GARAGE DOORS are easier to lift and stay so for weeks after hinges and tracks are treated with silicone spray lubricant. Just hold can close; spray on heavy coat

BARBECUE GRILL is renewed quickly with thin, even coat of a high-heat-resistant paint. Move can back and forth 12 to 16 in. from grill; spray air-dries in minutes



UNDERDECK OF POWER MOWER will resist build-up of grass, dirt and rust after treatment with a silicone spray lubricant

EVERY WAY YOU TURN these days, you find a new aerosol product to ease your yard and home maintenance.

For instance, there are Hot Paints to withstand temperatures above 1000° F.—just the thing to spray barbecue grills where high heat is a factor.

Spray high-visibility fluorescent paints on garden and hand tools—you'll be less likely to overlook them if left in tall grass or shrubs.

And with use of a silicone spray, the "dry" lubricant, your mower and spreader will be more efficient—the garage doors will run smoother, too.

There's even a "Styrofoam-compatible" formula, such as Plasti-Kote BonBon Home and Hobby Spray Paint, to decorate foam-plastic coolers.

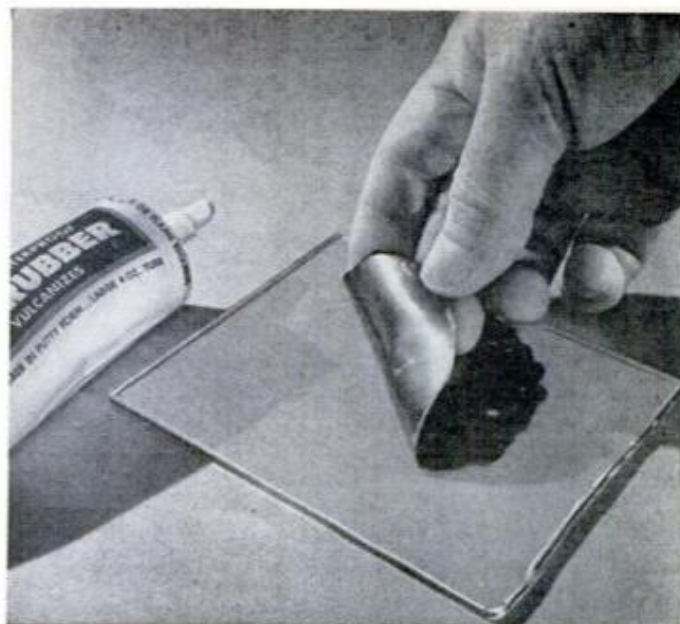


SPREADER OPERATION is improved by spraying rotor with non-sticking silicone "dry" lubricant. This will reduce friction between moving parts, but seeds and pellets won't stick

HINTS FROM READERS

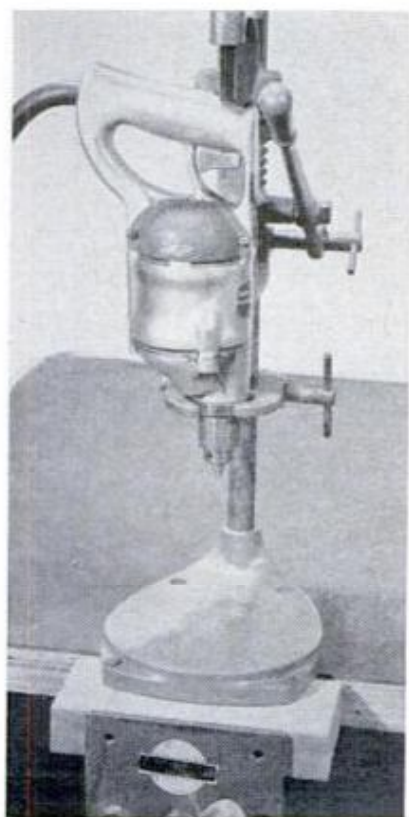
Homemade sheet rubber

Liquid rubber in a tube is not only good for sealing holes, it's great for making on-the-spot "sheet rubber" for special needs in the shop. Simply squeeze it out on a clean piece of glass and tap the edge to spread it to a uniform thickness. When dry, just peel it off. Where an extra thin piece of rubber is needed, add a little water to the liquid rubber and it will spread out more freely. It's a good trick to remember.—*Ken Murray*



Dry-storing lacquer

When brushing lacquer is used infrequently and in small quantities for touch-up work, it's difficult to keep it in liquid form once the can is opened. However, I've found that by allowing it to dry in a fairly thick layer on the cover of a can, I can reactivate it at any time by simply dipping the brush in thinner and working with it like water colors. Pigmented shellac can be stored in the same way and later made brushable with alcohol. The photo shows flat black lacquer being reactivated and applied to a brass lens ring to kill reflections.—*Walter E. Burton*



◀ Anchoring a drill stand

When a drill stand is used only occasionally, it's silly to have it bolted down, taking up valuable bench space. It makes more sense to bolt it to a wood block so it can be clamped in a vise when needed. It's not standing in the way, yet handy.

—*Marshall Lincoln*

Sanding-disc tree ▶

Storing abrasive discs in saw cuts made in the side of a mailing tube makes it easy to pick out the right grit when changing discs on your portable sander. Make the saw cuts at a 45° angle, an inch or so apart, and attach the tube to your shop wall.

—*Ken Patterson*



Flat Turnings From Round Stock

Here's a reliable old shop trick in which you turn the work first, then cut it apart and stretch it out flat

By WALTER E. BURTON

THERE'S MORE than one way to skin a cat, as the saying goes, and here's a good example of how your metal lathe can pinch-hit for a shaper or milling machine when none is at hand.

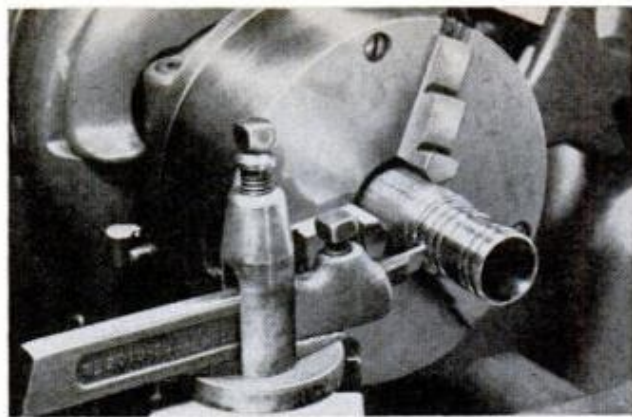
It's a clever shop trick whereby a three-dimensional surface design with grooves and ridges can be machined in a flat plate with, of all tools, the lathe.

The design is turned in the wall thickness of tubing. Then the section is cut free, slit lengthwise, spread apart and hammered flat. Once flattened, it looks as if it were made on a metal shaper.

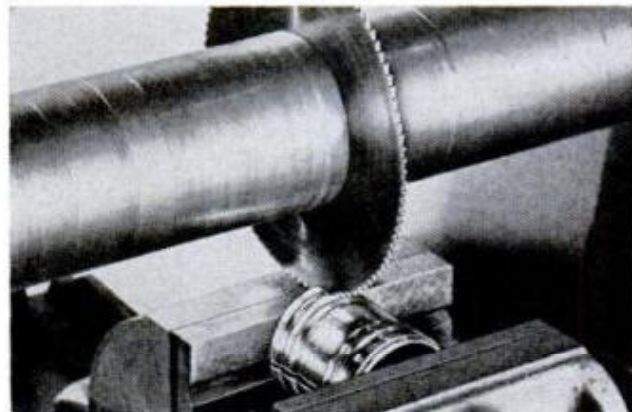
The drawings and photos on the opposite page show some of the many things you can make. The tubing diameter determines the length of the flattened turning. Width, of course, can be anything up to 2 in. In the case of a nameplate, the grooves and ridges would be grouped near the edges with the center portion left blank for lettering. By using the lathe's threading ability to cut right and left-hand intersecting, spiral grooves, you can produce a pattern of basically diamond-shape buttons, which can be combined with regular grooves and bands.

Usually the metal is soft enough to flatten without cracking; if not, it can be annealed easily by heating and cooling.

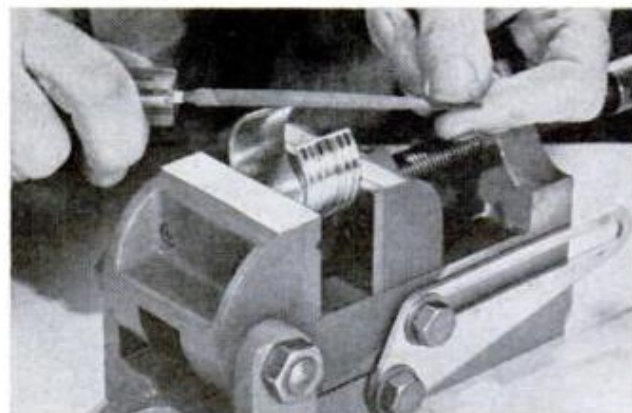
Normally, there's no need to further finish the parts once they are flattened. However, additional texturing can be applied with a nailset or prick punch. If brass, the metal can be antiqued with chemicals. Steel can be blued by heating and then quenching. Aluminum can be left as is, or anodized. A coating of clear lacquer will prevent tarnishing. ★ ★ ★



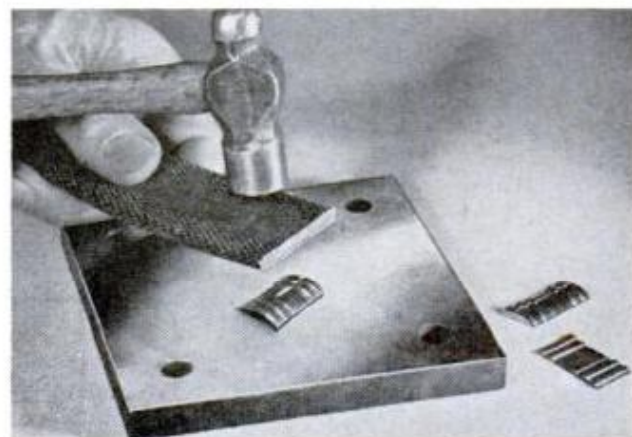
TUBING IS TURNED down until wall thickness is uniform, then ridges and grooves are formed as desired



FINISHED TURNING, whether sleeve or ring-shaped, is slit by machine or hacksaw for spreading apart

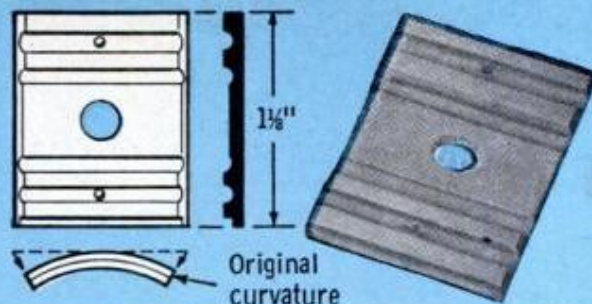


ROUGH EDGES of a partially opened sleeve are filed smooth, grooves are continued around the edges



CURVED SECTION is flattened by hammering on metal surface. Rubber belting saves turning from marring

DRAWER-PULL PLATE

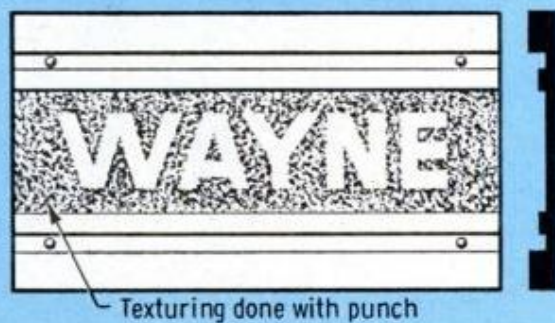


DRAWER PULL

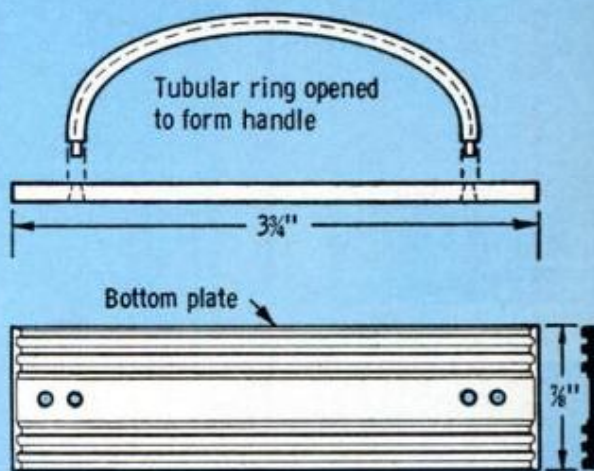
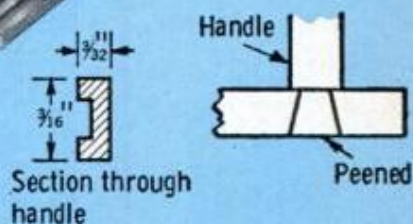
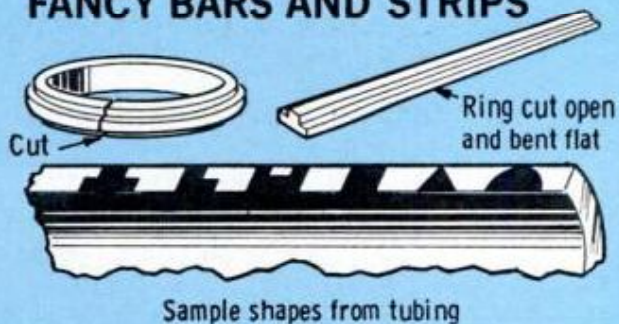
ZIK Associates
Technical art by



DECORATIVE NAMEPLATES



FANCY BARS AND STRIPS



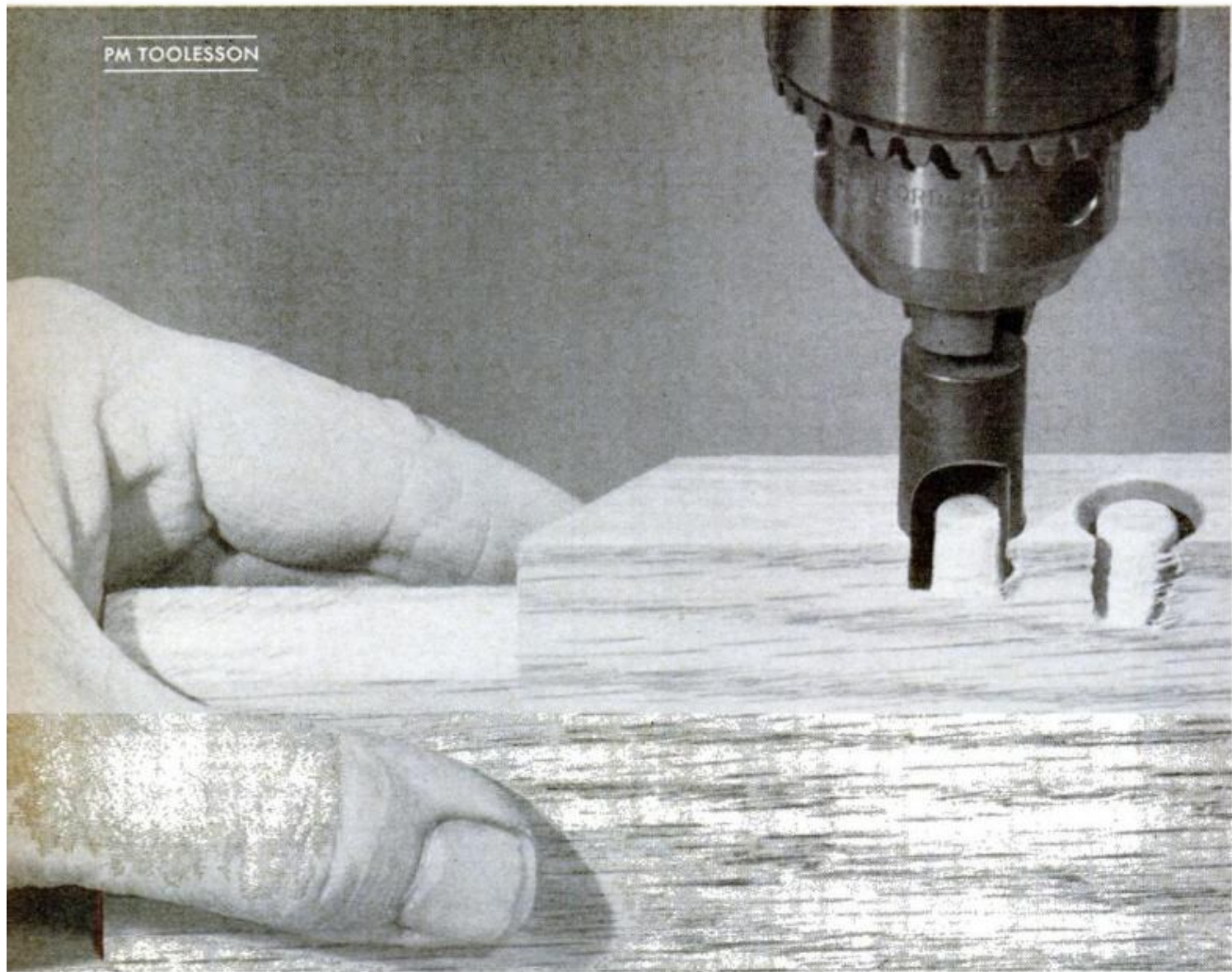
NEXT MONTH IN SHOP AND CRAFTS

HOW TO REROOF YOUR HOME. If your home has a steep "rain-splitter" roof, you should leave it to the professional roofer when it needs reshingling. However, if it has a fairly low-pitch roof, you won't be risking your neck by reshingling it yourself and you'll wind up pocketing a good-size labor bill. Next month a home-improvement feature will take you through the steps of laying asphalt shingles. Part 2 in July will cover the laying of a cedar-shingle roof.

BUILD A MINIBIKE. Tired of pedaling? That old 26-in. two-wheeler can be converted to a sporty motor-driven minibike for almost half the price of a new one. Your main outlay is for the engine, transmission and wheels. A craft feature next month shows how you build it, starting by cutting down the old bike frame.

HOME-OFFICE ROOM DIVIDER. If you've needed an office at home for business or household use, here's a handsome one that makes use of prefinished material to make it exceptionally simple to build. You can build it as a combination desk-divider affair, or tuck it against a wall or in a corner. You'll see it in beautiful color-roto next month.

YOU CAN LAY A SPANISH TILE FLOOR. Luxurious beauty, durability and lazy-man's maintenance are yours with quarry tile. And a new epoxy compound lets you set and grout them yourself—at a saving of hundreds of dollars. First-hand report by a PM editor who made an actual installation.

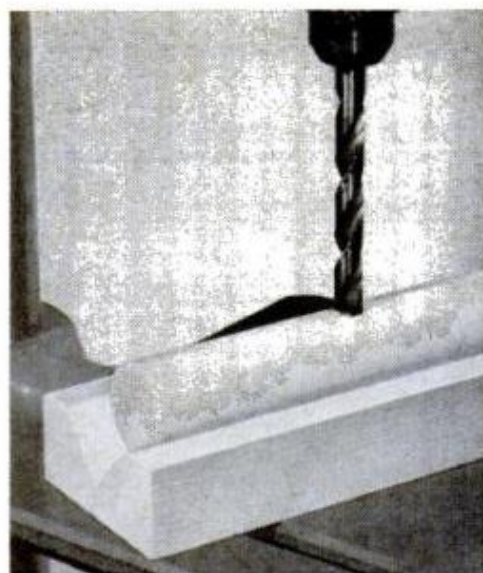


don't sell your drill press short

By **MANLY BANISTER**

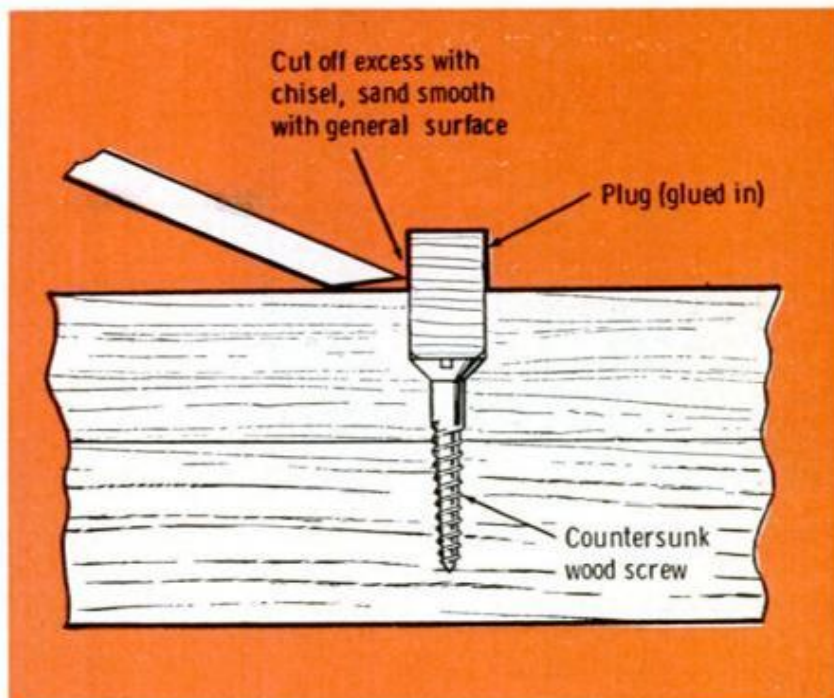
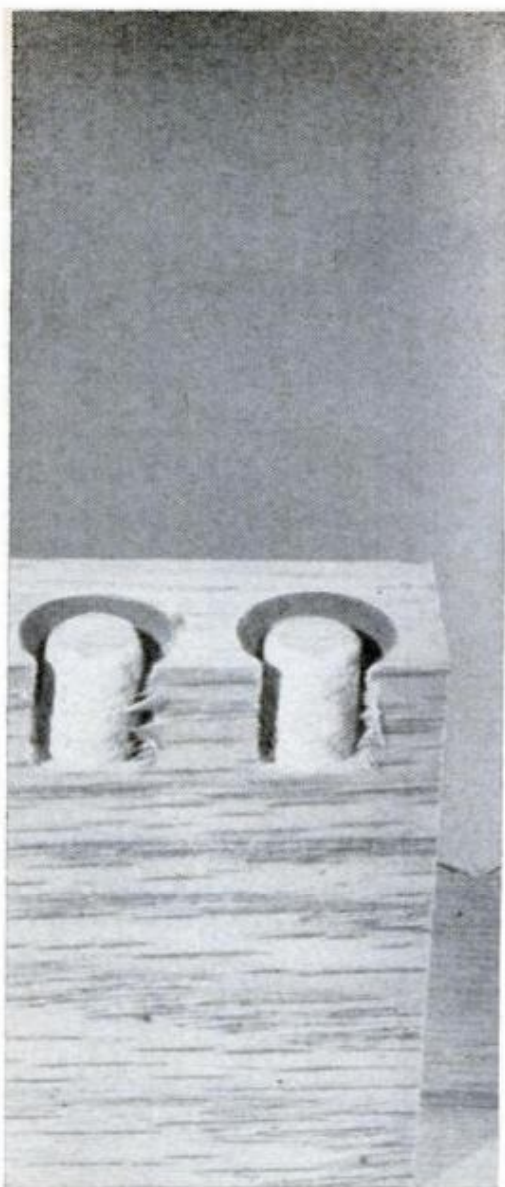
Technical art by Donald Evans

It can be the most versatile tool in your shop—once you've learned to exploit its potential with a few simple accessories. Here are a dozen or so ideas to remember



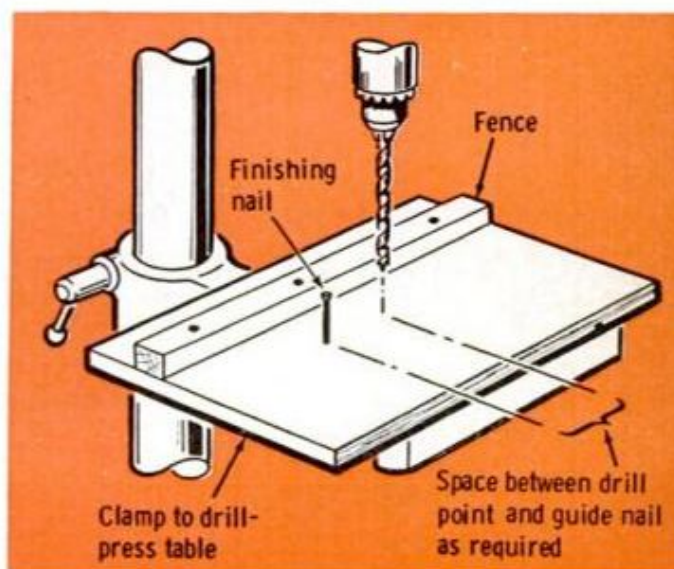
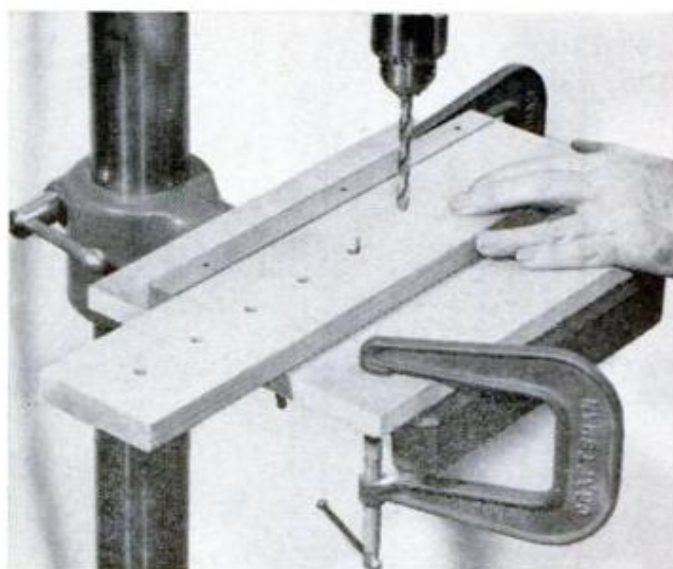
DRILLING A DOWEL. When a hole must be drilled transversely through a dowel, take time to make a V-block on your saw from a short piece of 2x4 scrap. It will cradle the dowel, yet won't mar it in the slightest.

POPULAR MECHANICS



CUTTING SCREW PLUGS. A handy drill-press accessory is a plug cutter. This is a tool for making wooden plugs which are used to conceal screwheads in counterbored holes. Plugs differ from dowels in that their grain is crosswise so that they can be chiseled off flush after being glued in place. The thing to remember in using a plug cutter is to bring it down as far in the wood as it will go. This tapers the plug so it will fit the hole tightly when tapped in place. Note direction of grain in board shown at left.

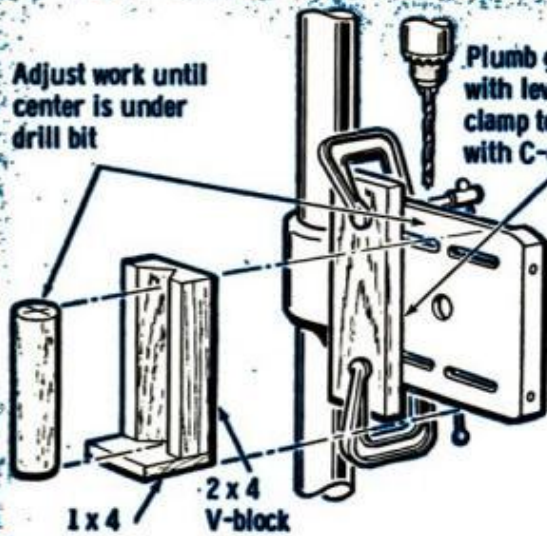
FILE FLAG
OPPOSITE SIDE



DRILLING EQUALLY SPACED HOLES. Where a row of holes must be drilled the exact same distance apart, you can do it in jig time with an auxiliary plywood table that's clamped to the drill press and fitted with a nail-on fence. The work is placed against the fence and the first hole is drilled. Then the work is shifted and the second hole is drilled. The bit is left in the second hole so the work can't move and a finishing nail is driven in the first hole. As each new hole is drilled, the work is slipped over the nail for the next hole. The nail automatically spaces each hole identically.

Adjust work until center is under drill bit

Plumb guide board with level and clamp to table with C-clamps



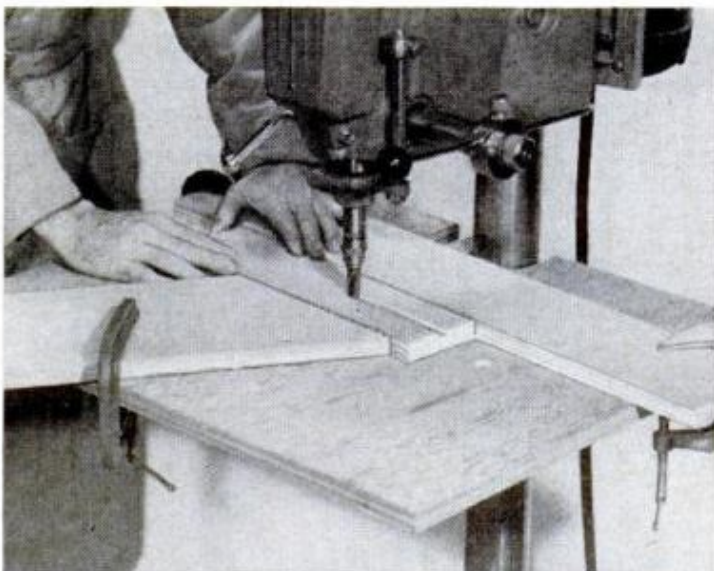
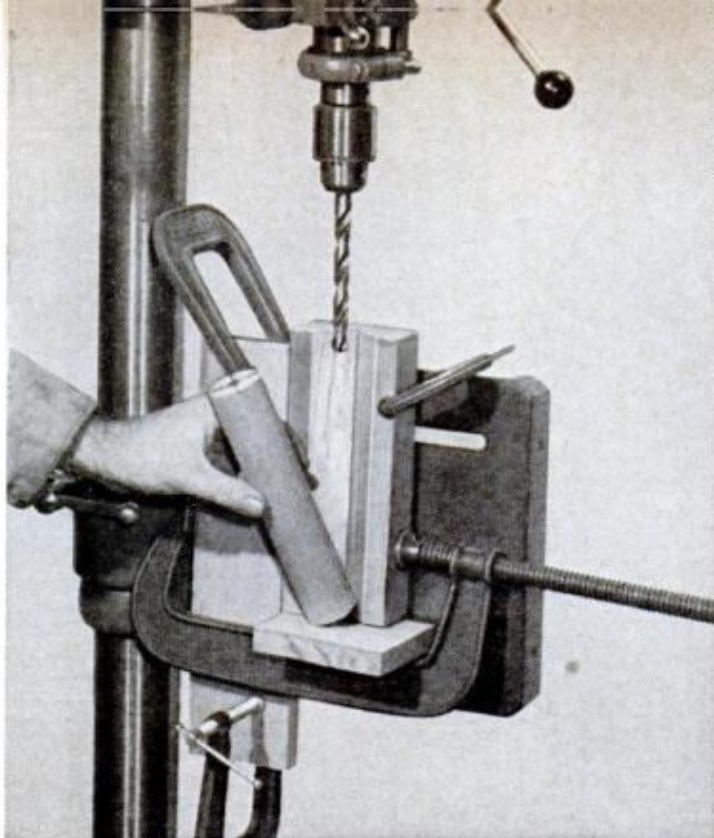
1 x 4
2 x 4
V-block

END DRILLING DOWELS. If your drill-press table tilts, the setup at right automatically centers the work under the bit when you want to end-drill round stock. A stop nailed to the end of the V-block lets you stand the work on end to hold it.

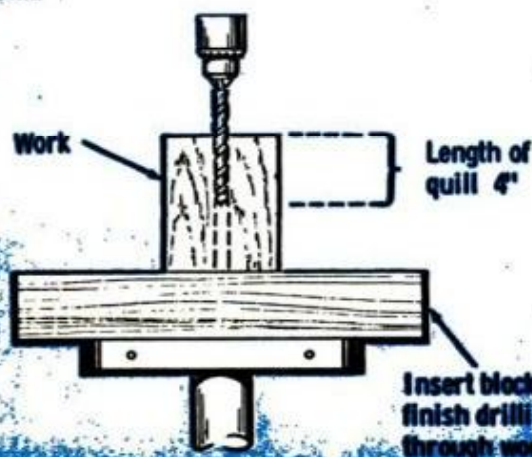
CUT
FOLD
TAPE

**DRILL-PRESS
TECHNIQUES**

DRILL-PRESS ROUTING. With a finger-board forcing the work snugly against a fence of an auxiliary table clamped to the drill press, open and blind grooves can be accurately made with a router bit in the chuck. Here the drill press is run at its highest speed for a smooth cut. Limit each pass to a $\frac{1}{8}$ -in. cut, feeding the work from left side, against rotation of cutter.



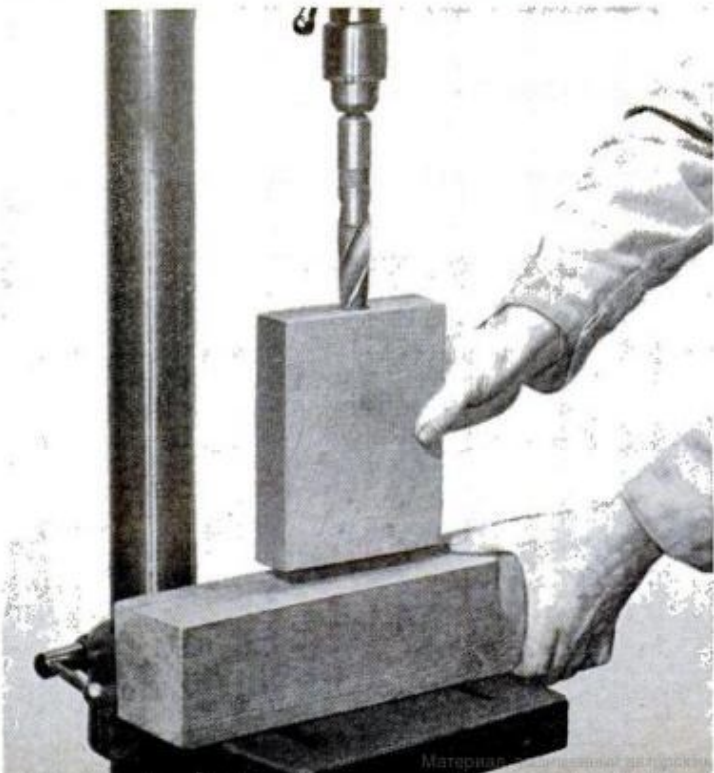
GAINING DRILLING DEPTH. When there's plenty of drill left, but you've reached the end of the quill, you can still complete the hole when there's but an inch or so to go. Simply turn off the motor, leave the bit in the hole, raise the work on a block and continue drilling.

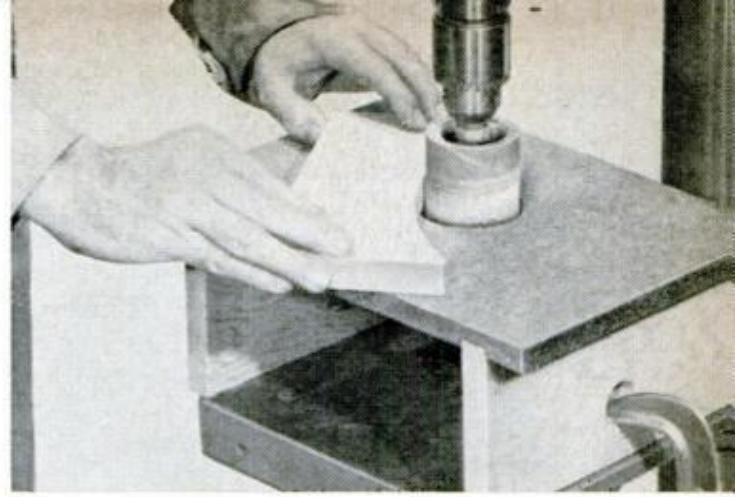
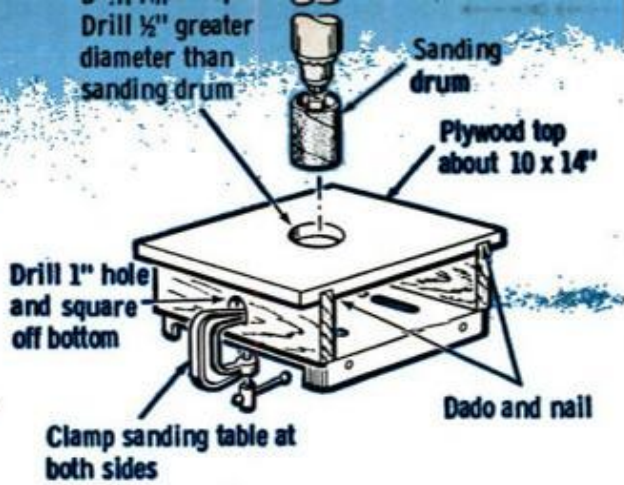


Work

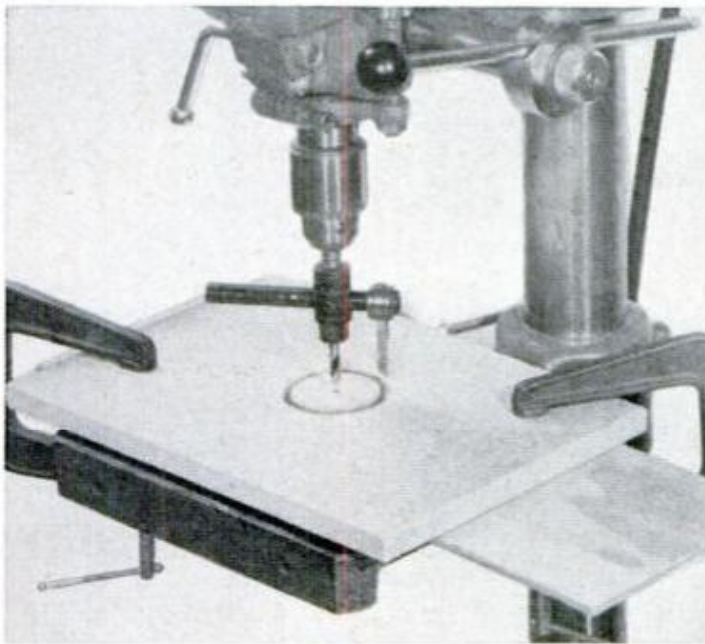
Length of quill 4"

Insert block and finish drilling through work

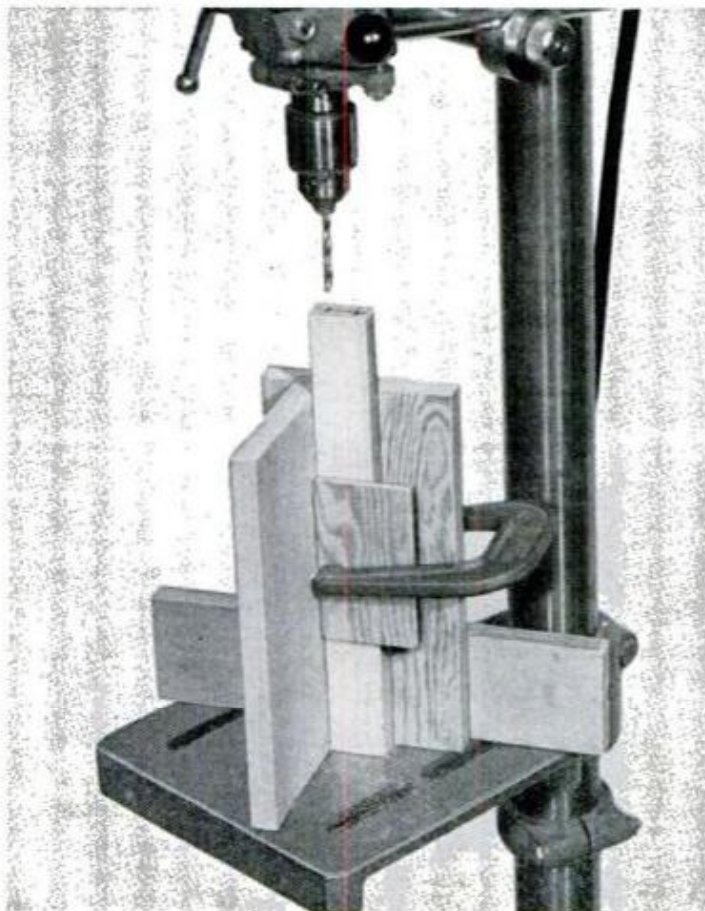




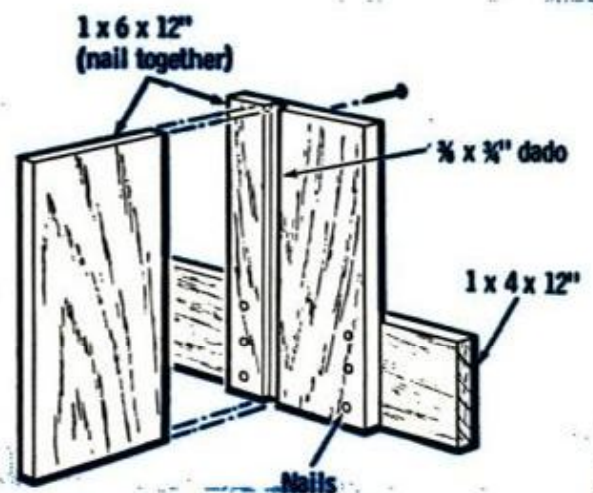
USING ALL OF DRUM. Using a sanding drum in a drill press always means you have to clamp a board with a hole in it to the drill-press table so the drum can be lowered below the work level. However, if the board is elevated as shown, you'll be able to distribute abrasive wear evenly over the full length of the sleeve.



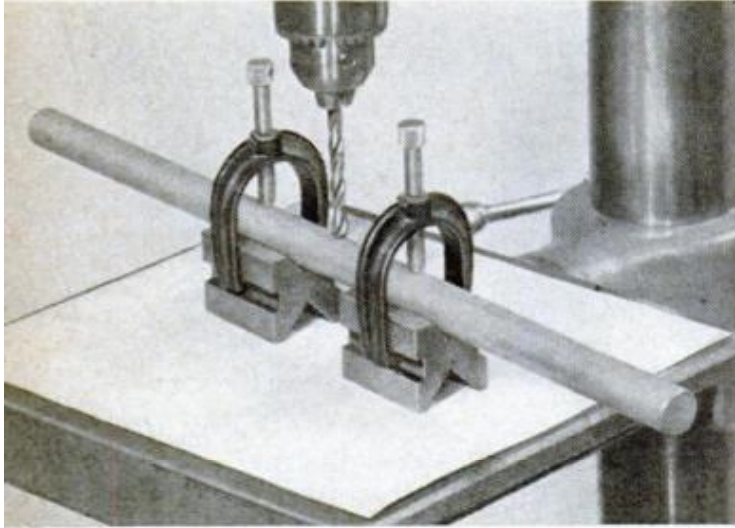
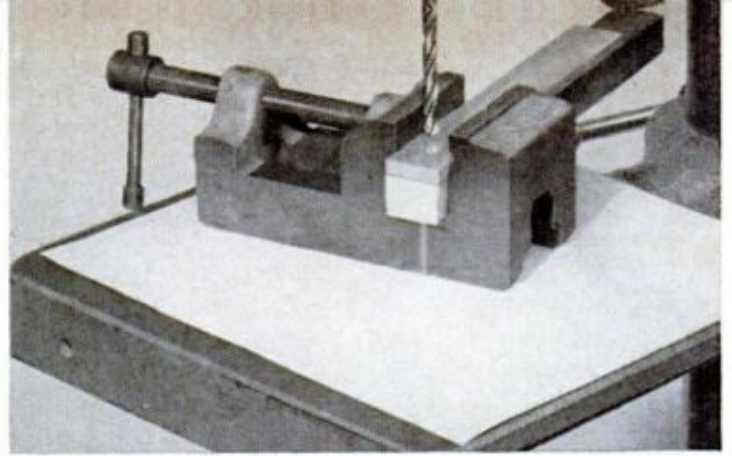
"SAWING" WITH DRILL PRESS. Fastest way of cutting discs and large holes up to 8-in. in both wood and metal is with a flycutter. If you're cutting a hole, position the cutting bit to face in; if cutting a disc, turn the bit to face out. Regulate drill speed by the size of the hole—the larger the hole, the slower the speed. Always clamp the work to be safe.



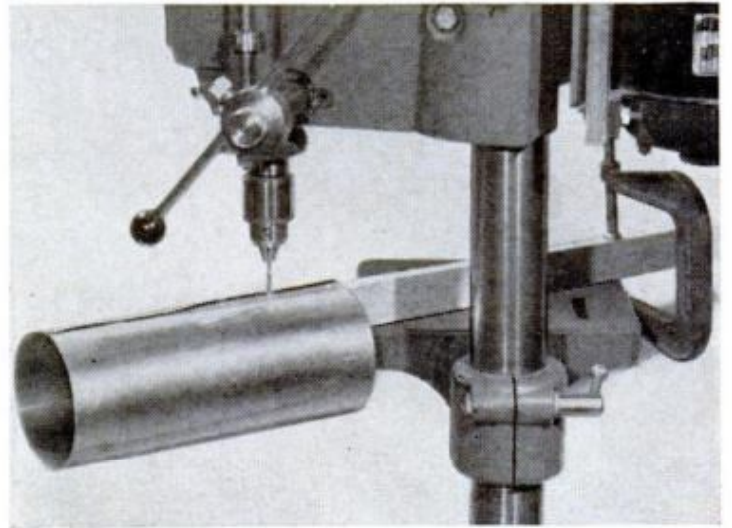
DRILLING FOR DOWELS. Holding slender work vertically for drilling dowel holes in the ends is no problem with this T-shaped jig made to stand on the drill-press table and slide along a wood clamp-on fence. Work is placed in the corner of the jig and clamped. The jig, of course, must stand perfectly plumb.



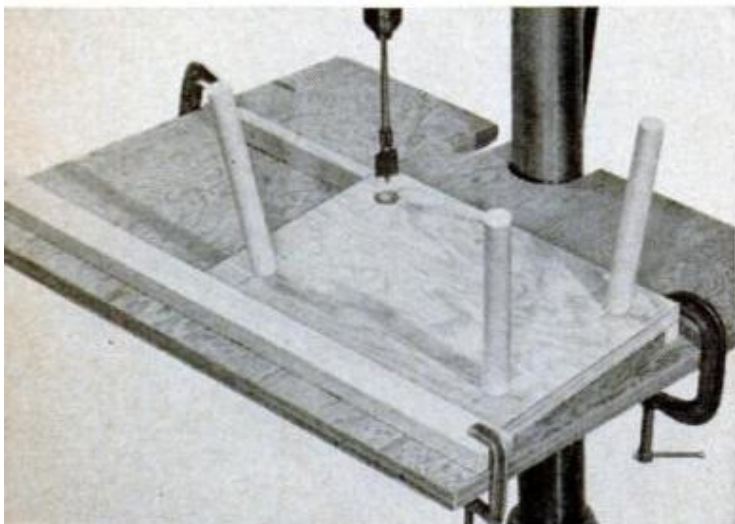
A STUNT TO REMEMBER. When drilling bar stock, you should always play it safe and clamp the metal in a vise. You'll also wind up with a clean-cut hole and you won't have the problem of "grabbing" when the drill breaks through if you make it a practice to place a hardwood block under the work when clamping it in the drill-press vise, as shown at right.



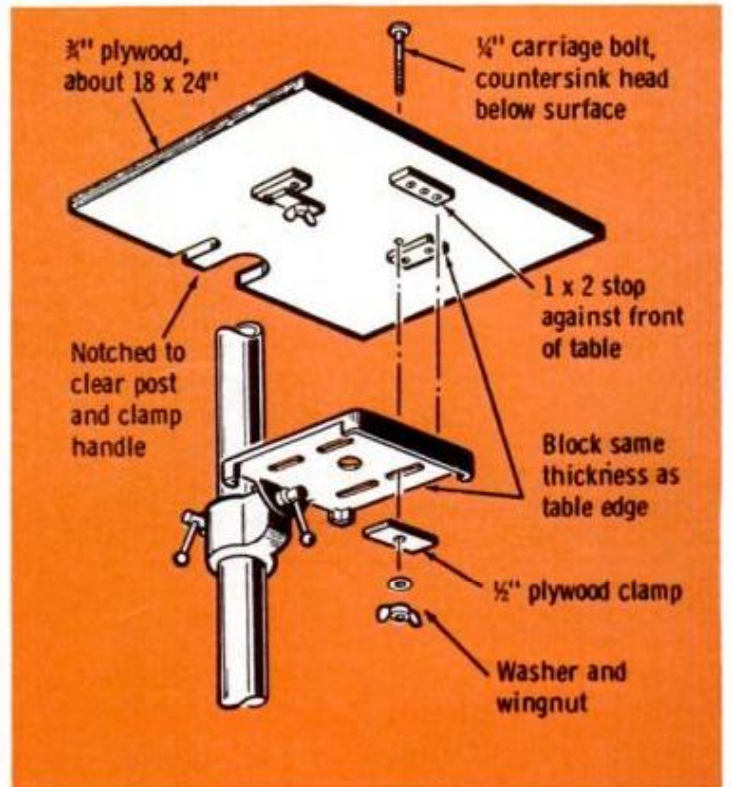
MARKING CENTER OF RODS. Smart way of spotting the exact center of cylindrical stock is to lay the rod in a couple of V-blocks as shown in the photo. Then with the drill press turned on and the bit lowered to barely touch the metal, pass the work under the bit. Punch the mark.



OUTBOARD DRILLING. A backing block is what you need when it comes to drilling through the side of a sheet-metal pipe, the side of a can or the face of a band. Round the top edge of a short 2x4, swing the table to one side and clamp the block to it so it's under the drill bit.



COMPOUND-ANGLE DRILLING. How do you drill two-way holes for splayed stool legs? You can't miss with the auxiliary table detailed at the right. In use, a block along the back of the work props it up 15° in one plane, while the table tilts it 15° in the other plane.



Now paint the fifth side of your house for beauty and protection! Choice of colors.

New colored aluminum roof coating, made with Alcoa® Pigments, weatherproofs, bonds roofing granules, hides old patched surfaces, seals small nail holes and small cracks. Adds 5-10 years to the life of your present roof. Apply it yourself and save money. Coating is easy to apply with long-nap roller, regular 4-in. paint brush, or special-nozzle spray gun. Costs about \$8 per 100 sq. ft.

If your dealer doesn't stock these coatings, send coupon.

Aluminum Company of America
480-E Alcoa Building
Pittsburgh, Pa. 15219

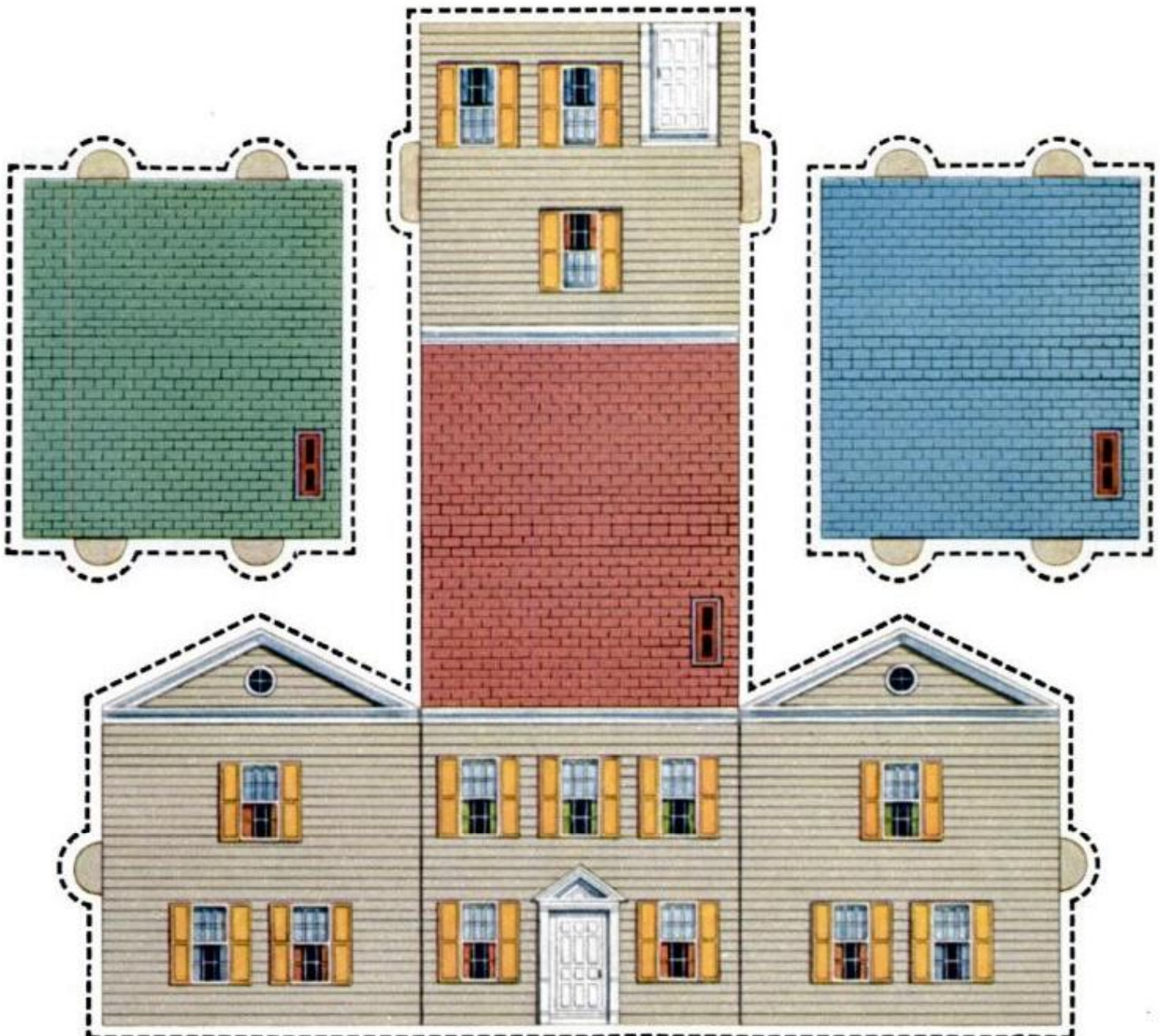
Please send folder on colored aluminum roof coating and names of manufacturers.

Name _____

Address _____

City _____ State _____ Zip _____

Change for the better with Alcoa Aluminum



FOUR-WHEEL SAFARI

(Continued from page 122)

said. "The trail up to Imogene Peak will give everybody a chance to limber up, and there's some good scenery."

Two short blocks, over a cattle guard, and we were on what looked like a mule path—a narrow, rutted ledge cut into the side of a steep hill. There was a sign that warned: *Danger! Proceed at your own risk. Four-wheel-drive vehicles only.*

The line moved slowly upward. Within 10 minutes I was looking down at the cluster of rooftops, the false-fronted stores, the church steeple—an aerial view of picturesque Telluride.

There were places where the road slanted at a precarious angle and the outside was washed away to leave the tire mark on the very edge of a precipitous drop. I followed the others across, but my hands on the wheel were damp with sweat, and I was ready to bail out.

It was on a nice wide spot that the brand-new V6 Jeep engine conked out. The line came to a halt, the hood went up and a dozen experts came to look. Everything was checked, but it wouldn't start. "Probably a vapor lock," someone said. The Jeep was pushed to a cutoff and left. I went on as a passenger in the Scout.

Scout is a workhorse

The road went up and up, winding through breathtaking alpine scenery. If the Scout had been sluggish on the highway, it was a workhorse in four-wheel drive, responding to the throttle with steady, sure-footed power. It was like a dude who suddenly rolls up his sleeves and gets down to work.

At the farthest point of the morning's drive, the road is steep and covered with loose rocks and shale. There are numerous tight switchbacks, and this is where Ron Gibson was practically making the Bronco stand on end.

Although the Jeep owners were impassive during the display, I was impressed. Compared to the Jeep, Land Rover or Toyota, the Bronco is a dandified rig. It looks like a suburban car perched over its wheels on over-sized springs. On the highway it rides like any other high-powered Detroit product, so you have the feeling that it is just another mass-production gimmick. But it literally leaped over those mountain trails.

The caravan turned back and I rode down the trail with Ron Gibson. He went full tilt all the way, keeping up a steady stream of talk as he twisted the wheel this way and that.

"I was raised in this country," he said.

"I've owned every kind of four-wheeler there is, and this is the best of the bunch. I sell them, of course, so I guess I'm partial, but it's really some machine."

I held my breath as we came thundering around a turn and a Jeep was coming up toward us. Ron hit the brakes and the Bronco slid to a stop. He put it in reverse and we backed up the trail to a cutoff and let the Jeep pass. Then we went on.

"You hear these fellows saying that they don't think the Bronco will hold up," Ron said. "Well, that's nonsense. I sold one to Jim Starr. You met him, the big guy wears the plug hat. He's got a mine over at Crested Butte, drives back and forth from Delta every day, right over the mountain on a road worse than this. And he's a hard man on a machine—drives like a maniac."

Coasts back to Telluride

We reached my parked Jeep, it still wouldn't start, so we got it turned downhill and I coasted back to Telluride. We went to find some lunch while Al Morris, who owns a service station in Montrose, buried himself under the hood to find the trouble.

I was bellied up to the Elk's Club bar listening to Jim Starr, of the wide suspenders, plug hat and cigar, regale the group with various tales of derring-do, when Morris brought news of the Jeep.

"You were out of gas," he said.

Red-faced, but with the Jeep fully fueled, I joined the caravan for the afternoon jaunt up to Bald Mountain and Alta Lakes. The first leg of this trip was over a road that I would have said was impassable. It was muddy, steep and deeply rutted, and harrowing spots had to be taken at full tilt. The punishment on the machine made me shudder.

Find Bronco at top

The Scout was lugging it up ahead of me, matching the others jolt for jolt, but when we reached the top, there, literally perched on the peak of a steep knoll some distance off the trail, was the Bronco with Gibson and Starr stretched on the hood.

We doubled back on the trail, drove up to Alta Lakes, then took an easy winding trip back to Telluride. We camped out that night in the hills above town, but we were out at dawn to give the three vehicles some high-speed runs through a nearby stream.

Don O'Rourke was driving the Jeep to give it a fair shake against the others. But we could have saved our time. The tests were just a game of follow-the-leader. They raced down the bank, into shallow

(Please turn to page 196)

Get a new riding sensation

Pleasurizers help smooth out an older car's ride. Make driving a pleasure again. The new Delco Pleasurizer has an exclusive "Genetron Gas Filled Cushion" . . . a GM engineering development that replaces air in the hydraulic reservoir.

Delco's exclusive "Genetron Gas Filled Cushion" eliminates aeration and foaming of the fluid as it takes the place of air inside the reservoir. This smooths out the action and the ride.

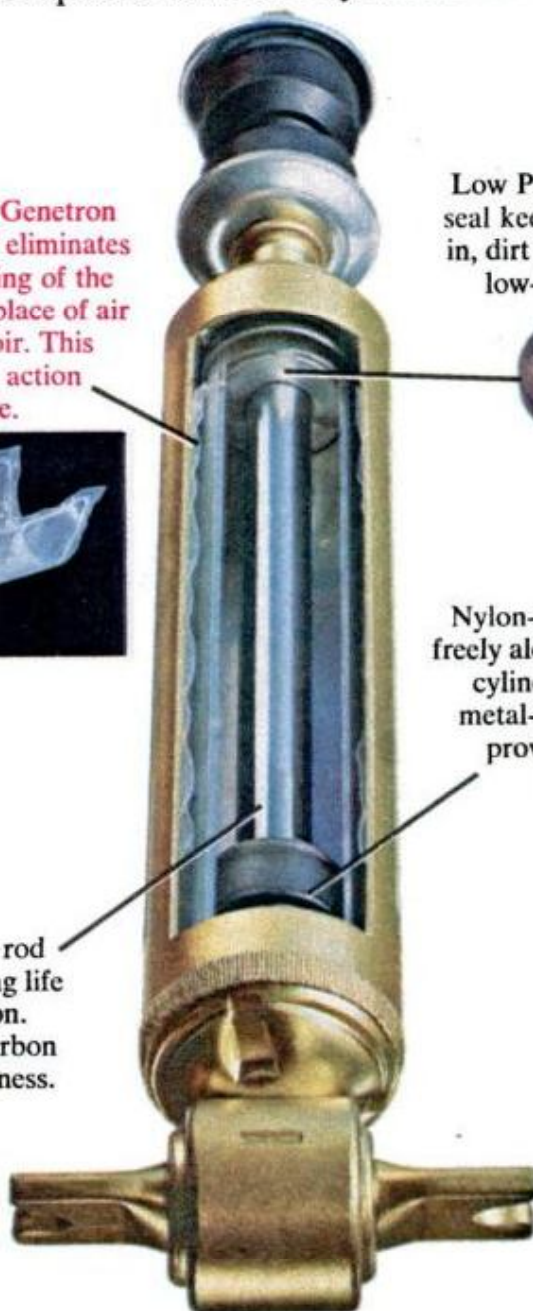


Low Pressure Multi-Lip seal keeps hydraulic fluid in, dirt out. Assures quiet low-friction action.



Nylon-skirted piston travels freely along the mirror-finished cylinder wall. Eliminates metal-to-metal contact and provides more positive compression.

Super-finished piston rod resists corrosion for long life and smooth operation. Induction-hardened carbon steel for ramrod toughness.



The New Delco Pleasurizer — available wherever you see the United Delco Service sign.



MARK OF EXCELLENCE

New Delco Pleasurizer

with exclusive Genetron Gas Filled Cushion

The second set
is your first real choice.



Don't boot it.

Get the Dunlop Gold Seal: the only popularly priced tire that's *certified safe* at 100 mph.

You won't ride at 100. But you will use the extra margin of strength and performance... the four full plies, wet hold, patented Safety-Shoulders, new low-profile design, and wider footprint of the Gold Seal.

All Dunlop tires meet or exceed every official specification for safe performance.

Upgrade when you replace. Dunlop quality costs no more. Find your nearest dealer in the Yellow Pages and let him prove it.

 **DUNLOP** Buffalo, N. Y.
... means quality in golf, tennis, and tires

FOUR-WHEEL SAFARI

(Continued from page 194)

water, and up the far bank. We drove them through deep water to see if they'd drown out, but they just plowed through it. We ran them through soft and thick mud. When it came to hard work, one was as good as the other.

The caravan was assembled when we returned to Telluride, and we were off on a long trip to Silverton and Ouray. We turned off the paved road at Ophir. When we reached Old Ophir, the sky suddenly opened and it poured rain. It only lasted an hour, but the mountain roads were like gumbo. It was slow, but it was just an easy sightseeing trip to Silverton.

We lunched at the old Imperial Hotel, watched the narrow-gauge Rio Grande railroad train come in, then headed out toward Engineer Mountain and a mean stretch of road.

It was high and hard going. It rained and the road, a narrow ribbon of mud, was slippery. At one point, I pulled over to rest and was joined by Ed Nelson and his son Dan. An ardent four-wheeler, Ed is director of the Montrose Chamber of Commerce. Standing in the road, Ed pointed off to the bottom of a canyon.

Went over the side

"See that spot of red down there?" he asked. "That's a vehicle. Man and his family. Went over the side. Terrible."

"Does that happen often?" I asked.

"No, but it happens. Usually it's a tourist not used to driving in the hills like this. The driver gets taken with the scenery, looks away from the road, and over he goes."

Straggling into the town of Ouray, the safari came to an end. Our three vehicles had collected some jolts, a few dents and a coating of mud. The most surprising of the three was the Bronco. The Jeep performed as we expected it to, and it was not surprising that International would make a machine that was more at home off the road than on. The Bronco was a top performer on both highway and trail.

If I had my own vehicle, my next vacation would be spent four-wheeling in the San Juan Mountains. It is an excellent trip for the family and a good test of driving skills. There are a number of four-wheeler clubs in the area that stage annual safaris. A letter to Ed Nelson, Chamber of Commerce, Montrose, Colo., will bring complete details. The Telluride Jeep Club will set up and guide safaris for groups of four-wheelers, but you'll have to give them advance notice. Write to Don O'Rourke, Telluride, Colo. ★★



Ride the Softest Cloud in the Big Blue

Our 19' Surfer rides the big blue on our famous Sea-Foil hull — tough, fiberglass reinforced plastic contoured to act as a shock absorber to create a ride that's soft, level, dry, safe. It leaves a flat wake that's a freeway for skiers but no trailing tidal wave to leave other boats wallowing astern. Surfer is so goof-resistant that even average guys enjoy "seasoned skipper" skill and confidence. She's tuned to big water with all the first-class appointments you'd expect. A 200-hp Johnson-dependable stern drive wings nine passengers without panting. ■ Want to ride on a cloud? See your Johnson Boats dealer, or write for free, full color catalog on the complete line of Johnson Sea-Foil Boats. Johnson Motors, Waukegan, Illinois 60085 . . . Dept. PM-B1.

First in dependability • **Sea-Foil boats**, Sea-Horse motors, Air-Buoy skin-diving gear, Skee-Horse snowmobiles • Division Outboard Marine Corporation

 **Johnson**



AQUANAUT

(Continued from page 111)

lights on panels before me. A maze of pipes and oxygen bottles lies just below my right elbow. Daylight shows through a small window by my left ear. A watery light filters through three viewing ports at my feet.

"Buckle up," Al orders. I snap the seat belts closed. The speaker blares: "Ready to go."

I have a strange feeling that this is a space capsule, not a submarine. Standing on the seat, head through the hatch, Al steers us away from the barge. On the right-hand panel I see red lights blinking at irregular intervals. Each tells the direction we're moving—up-down, forward-reverse, port-starboard.

Sub has three props

Star III has three electrically powered props. One of these "thrusters" is athwartships in the bow. Activating this 2-hp motor moves the bow left or right. A second 2-hp motor is mounted vertically amidships for up-down motion. The main prop is a 7.5-hp thruster in the stern. This is for forward or reverse motion. The red lights tell the pilot what thrusters are engaged.

A hand-held box with an umbilical cord is the control unit. The pilot moves a toggle switch to engage the thrusters.

Suddenly, Al drops down, slams the hatch. "Here we go," he says. To my surprise, the red reverse light glows. I feel my body sliding back against the seat. We're sinking by the stern. Al smiles. "This is the easy way. The main prop doesn't clear the water as we submerge backward."

Minutes later, Al moves his fingers slightly. We level off. Through greenish, bubbly light I see the bottom. We are now 50 feet below the surface.

"Get down and have a look through the floor ports," Al says.

"How?"

"Any way you can."

"But my feet may kick a switch or a valve."

"Don't worry."

I twist and turn. My knees are under my chest, my forehead's against a cold bulkhead, my breath is fogging the view port—but I'm looking at the dim bottom. I see acres of sand spotted with long strands of kelp waving dreamily as currents move them at will. A flat fish shakes sand off its back and scurries away. A starfish clings to a protruding rock.

I wonder how Al knows what's ahead.

I can see only a few feet from my port. "TV cameras," Al says. "We have a bow camera to see what's just ahead and a camera in the sail for a broader, longer view. The screens are here in the cabin."

Cold seeps into my neck. I feel my muscles cramp. How long can I stay in this position?

"My buddy and I can only stay at the window a few hours," Al says. "I get a tension headache if I stay too long. The pilot and observer change off every hour or so. The longest that I have stayed in the sub is 7½ hours, though *Star III* can stay submerged 12 hours."

I'm getting colder now. Al tells me there're no heaters, but body warmth and heat from motors and pumps keep the chill off. In warm water, he sinks the sub deep to cool it off before coming back to working level.

Star III helps to lay underwater pipe lines, surveys construction or drilling sites, and takes photographs for study. With her mechanical arm, she can work on submerged oil wells and retrieve valuable equipment. (Small subs were used to recover a missing H-bomb off the Spanish Coast.)

I hear the sound of whirring motors as Al maneuvers *Star III*. She handles with tremendous ease and dexterity. Suddenly the motors stop and I see we're resting on the bottom. Silt fills the water around us. Al snaps on the 500-watt light outside. It does little good.

Like a Ferris wheel

The motors start again and we slip away. The motion of this sub reminds me of riding a Ferris wheel—softly swinging in the chair when the wheel stops.

Breaking the surface, we can hear the outboard motor of a tender coming alongside. Three raps on our hull signals that the water has been pumped from the sail. I'm surprised as the sound of a popping champagne cork hits my ears. Al has cracked the hatch.

"We'll get drenched if the sail isn't clear of water," Al says. "We can't tell how much water is left in the sail, but the launch crew can see through the windows in the sail. They rap on the hull when it's clear."

Standing on the seat again, Al steers for the barge. As the bubbling water washes by my porthole, I wish for a longer and deeper trip. I've been bitten by the mini-sub bug.

On the barge, I meet Bob Toeher, designer and father of the *Star* class subs.

"If you want," he says, "you can rent one for \$10,500 a week." ★ ★ ★



If the mountain won't come to you

... go to the mountain. And the higher and tougher you pick them, the more reasons you have for an INTERNATIONAL Campermobile.

It takes a tough truck frame and rugged front end suspension to carry your camper in safety and ease. And, the INTERNATIONAL pickup has them, plus the power to move up any mountain.

Find out why so many camper owners are switching to the INTERNATIONAL pickup. Your nearby INTERNATIONAL Dealer will be happy to show you. Or, write for a free brochure to Dept. PM-567 International Harvester Company, P.O. Box 7333, Chicago, Illinois 60680.



INTERNATIONAL TRUCKS

Meet the most useful power tool ever invented!



Other drills are single speed. This one is any speed you want it to be. An accelerator instead of an "on-off" switch gives you speeds from 0 to 2000 r.p.m. to drill any material. Other drills operate in only one direction. This one goes forward and reverse. Lets you drive screws, nuts, bolts and remove 'em, too. Powers a workshop of accessories. We call it **Drive-R-Drill**. You'll call it the most useful power tool ever invented. Comes in $\frac{1}{4}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " sizes. Prices start under \$32 at better hardware, lumber and department stores. Skil Corp., Chicago 60630.

WRITE FOR FREE 32-PAGE POWER TOOL CATALOG.

Has trigger speed control, any speed 0-2000 rpm.

(1) Forward or (2) reverse at flick of a switch

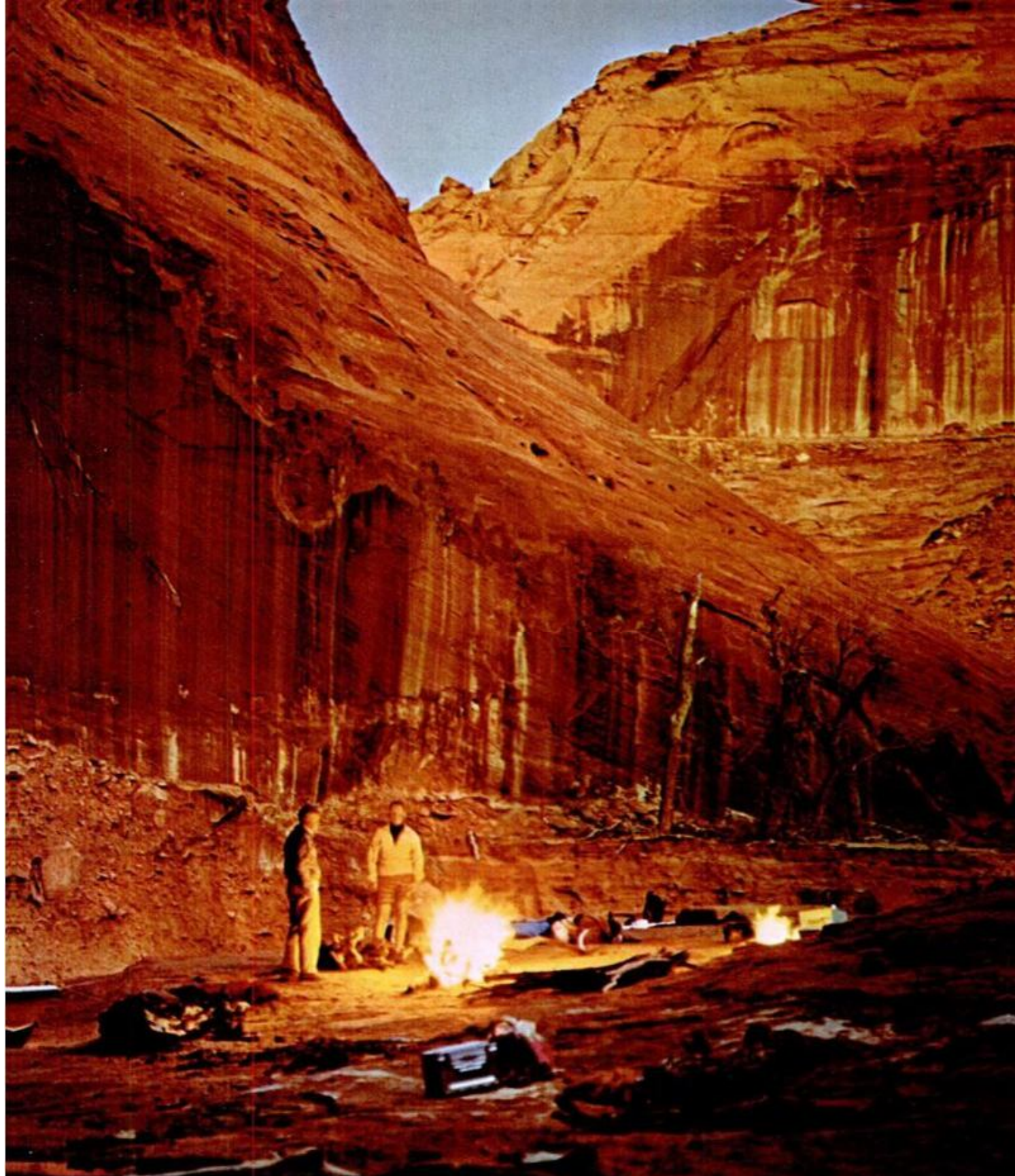
Drives screws and removes 'em, too

Removes nuts, bolts like a power wrench

Makes threaded holes in metal

Drills holes in tile, masonry and glass

Put power in your hands with **SKIL**®



What a time for Falstaff.

Crisp. Clean. Robust.

**For four generations, good taste has made Falstaff
the choicest product of the brewers' art.[®] Everywhere.**

Falstaff Brewing Corp., St. Louis, Mo.



19 Astronauts: 75¢

And it's a bargain at the price. This limited edition lithograph entitled "Our First 19 in Space" has been created as a tribute to America's gallant astronauts.

Printed on heavy weight paper, suitable for framing, this 12 x 18 inch reproduction is both educa-



tional and decorative. It can be hung in children's room, den, library or just anywhere around your home.

To order your copy of this limited edition lithograph, send 75 cents plus 10 cents postage in cash, check or money order to:

POPULAR MECHANICS,
ASTRONAUT PICTURES,
575 Lexington Avenue,
New York, New York 10022

I have enclosed \$_____ plus 10 cents postage for
_____ copies of Popular Mechanics Astronaut Picture.

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

MOST DANGEROUS JOB

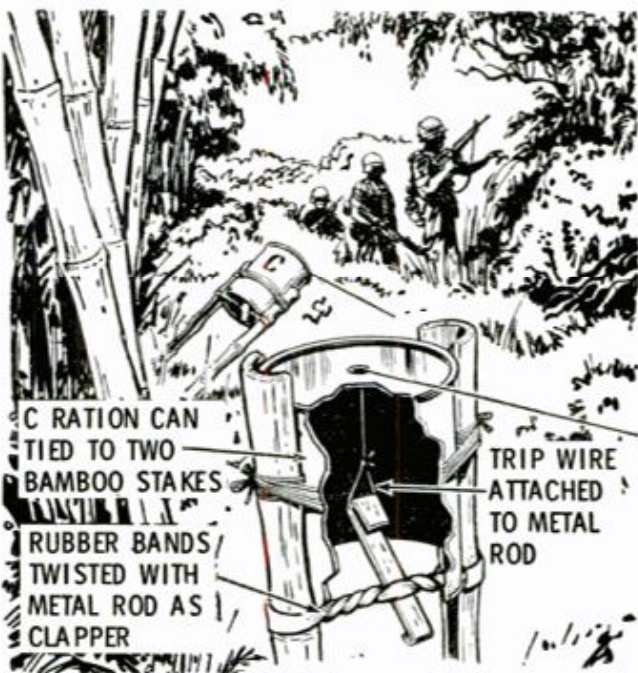
(Continued from page 83)

EOD team set about the task until, finally, the bomb was declared safe. How was the job done? We'll never know. That's classified information.

However, the most common triggering device is a wristwatch timer. Another the VC likes to use is fashioned from an ordinary mousetrap.

There is more than booby traps for EOD men to worry about in Vietnam. Plenty of hair-raising assignments involve the more conventional weapons, too.

Not so long ago Capt. Samuel Moschella led an Air Force EOD team through



WARNING DEVICE is made out of more American discards: empty C-ration cans that rattle when tripped

miles of dense Vietnam jungle and rice paddies to get to a 250-pound bomb that had been jettisoned by a B-26 with engine trouble. The bomb hadn't gone off, and it was Moschella's job to find and disarm it.

After flying to Tra Vinh, closest base to the ejected bomb, his team went the rest of the way by jeep, sampan and foot, often wading in leech-infested water up to their chests. After days of searching, they found it half buried in the dense jungle near a friendly village. It was too close to the settlement to be blown up, so the captain went to work. Within 10 minutes, he had the detonator out and the bomb made harmless. He returned from the job with a wrenched hand, several dozen leech bites and a high fever and spent the next few weeks in the hospital.

EODers never know where their next risky assignment may take them. Marine

Staff Sgts. Harold Ermish and Frank Broughton, for example, were sent to a Buddhist temple. An unexploded 90-mm shell was lodged deep in the temple's wall, up in a corner where the wall joined the roof.

To get it, Ermish stood on Broughton's back. First he scraped away the loosened wall around the shell. Then his years of training came into play as gingerly touching it in just the right places and exerting just the right amount of pressure, he worked it loose.

When he had the shell all the way out, he recognized what it was—a "Willy Peter." In EOD language, that means a white phosphorous round that contains a burning chemical. The two Marines placed it in a clearing and ran, just as the chemical started burning with a white-hot heat.

Much of the equipment used by EOD men looks like the tools found in anyone's home workshop. The secret is in learning to use them with the skill of a surgeon. Some of the devices, however, are highly sophisticated, such as the electronic stethoscope that can detect the slightest whisper of a tick coming from a heavily insulated parcel, and a portable X-ray machine that enables the men to determine what might be inside a bomb casing.

Avoid magnetic materials

All of the tools and equipment are non-magnetic and made from a special bronze and copper alloy that doesn't generate static electricity. This problem of magnetic properties in metals and alloys is so important in EOD work that even the men's watches must be nonmagnetic, and recently a Navy dentist suggested a substitute for tooth fillings of EODers that is less magnetic than the standard filling materials.

A good many times the reports from Vietnam tell of how the VC have devised a Rube Goldberg type of booby trap out of U. S. ordnance that's either been captured or has failed to detonate.

Good examples are the tiny bomblets that U.S. planes have used to drop on VC positions deep in the jungle. The midget bombs are dropped in clusters. They have fins, and some catch in trees or don't explode when they hit the ground.

The VCs gather up these duds. They'll place them with the detonator up and a heavy rock propped overhead on a stake in the ground. The stake is attached to a trip wire leading off into the brush. American patrols enter the area and trip the wire, pulling out the stake, and the

(Please turn to page 202)

FOUR-WAY

Best Low Cost
Electric ARC WELDER
MONEY CAN BUY

COMPLETE READY TO USE

5 YEAR
GUARANTEE

10 DAY
TRIAL

Only \$18.95 POSTPAID



WELD, BRAZE, SOLDER, CUT. Tops in performance and value. Ideal gift, educational, profitable, enjoyable. No experience needed. Use 1/8" welding rods and 1/4" carbons to make or repair auto bodies, fenders, trailers, boats, toys, furniture, farm equipment, garden tools, anything of metal, even aluminum. Operates on 110 V. line. Produces to 11,000°. Complete ready to use.

WORLD'S GREATEST WELDER VALUE. BRAND NEW. YOU CAN PAY MORE BUT YOU CAN'T GET A BETTER LOW COST WELDER. Over 500,000 in use by home owners, farmers, hobbyists and mechanics. **5 YEAR UNCONDITIONAL GUARANTEE.** Simply return. We will repair or replace and ship free of charge. You Get: **FULL FACE SHIELD**, heavy metal cabinet, ground clamp, 12 ft. heavy cables, **SPECIAL combination carbon arc torch & rod holder**, carbons, welding and brazing rods, flux, solder, welding manual. **ORDER TODAY ON 10-DAY UNCONDITIONAL MONEY BACK TRIAL.**

SEND ONLY \$2.00 and pay \$16.95 plus C.O.D. charges on delivery, or send only \$18.95 for postpaid shipment in U.S.A.

FREE Order from this ad & receive extra \$2.00 gift of rods, flux and solder. **FREE**

FOUR-WAY WELDER CO.

1810 S. Federal St., Dept. R2-E, Chicago, Ill. 60616

This **COUPON** entitles you to years of trouble-free grass cutting with famous



—DEVERE—
Locke
ROTARY
MOWERS

Send me **FREE** Literature on **DEVERE—Locke** Rotaries

and also on Locke reel and Manco-Locke high-wheel mowers. I'd like name of closest dealer too.

(name) (street)

(city) (state) (ZIP)

Locke Manufacturing Cos., Inc. 1075-Y Conn. Ave. Bridgeport, Conn.

MOST DANGEROUS JOB

(Continued from page 201)

rock falls onto the detonator. The bomb is no longer a "dud."

And the EOD men will be the first to emphasize that the VC are far from stupid when it comes to ingenious devices designed to catch U.S. troops off guard. For example, the guerrillas will rig up a warning device made out of a C-ration can tied to two pieces of bamboo. The bamboo is placed in the ground, with the can slightly elevated. At the top of the can are elastic bands stretched across, with a small hole in the top of the tin.

A U.S. patrol enters the area, trips the string, and the wound-up elastic spins, with the small piece of metal clanking an alarm that can be heard for quite a distance. It's an effective warning device.

Only trouble is that when U.S. troops find these or other "harmless" articles, they get too sure of themselves. A GI will spot one, recognize it as a warning device, and pick it up. About that time, the VC will start booby-trapping them, and this simple warning device is turned into an armed and dangerous booby trap.

Favorite trick: broken glass

A favorite trick of the VC is to dump a couple of pounds of broken glass around a land mine when they bury it. It pays double dividends. If stepped on or run over, the flying glass plays havoc with surrounding troops. If the mine is detected—and most of them are—the jagged slivers of glass play havoc with the skilled hands of the EOD men who are called on to disarm it.

Every EODer receives what the military calls "incentive pay for hazardous duty." It amounts to \$55 a month. "But we don't do this type of work for the extra money," says Master Sgt. Harold Brooks. "Most of us enjoy it."

Probably one of the things they enjoy most is the kinship and camaraderie within their profession. They're a special breed and they know it.

Marine Sgt. Walter Perry likes to tell about the day his EOD team met a patrol of Marine infantrymen.

"You the guys that remove mines, tinker with booby traps and that kind of stuff?" one of the leathernecks asked.

"Something like that," Perry replied.

"Man, I wouldn't trade jobs with you for a thousand cases of beer!"

"And that guy," recalls Perry, "was just coming in after being shot at for a couple of days and nights."

What finer compliment could there be than this? ★★★



A Volkswagen dealer will stake his reputation on it.

No, that's not a new model Volkswagen.
That's an old model Something Else.

And it's on a Volkswagen lot for the same reason any other car would be on a Volkswagen lot. It's for sale. Along with most of the cars people trade in on new Volkswagens.

So why buy a used Something Else from a VW dealer, instead of from Somebody Else?

Buy it from a VW dealer, and you get his 100% guarantee for the repair or replacement of every major working part for 30 days or 1000 miles. Whichever comes first.

Engine. Transmission. Rear axle. Front axle assemblies. Brake system. Electrical system.

Those are the parts covered.

They may make boring reading. But there's nothing boring about laying out a lot of dough to fix one of them.

That's why it's so nice to know that a VW dealer will take care of anything like that on any car he guarantees.

And that's why he's pretty particular about any car he puts a guarantee sticker on.

When he finally puts the guarantee sticker on the windshield, it means he's checked out the car completely. And fixed what needed fixing to begin with.

After all, a VW dealer has a reputation to think about. He can't have it known around town that you drove off his lot with a lemon.

Even if it wasn't a Volkswagen.



Look for this sticker and you won't get stuck.

CHEVROLET IMPALA

(Continued from page 96)

satisfied with it." He has probably resigned himself to the fact of questionable workmanship and quality control or to the tyranny of the old mechanic's law that says if something can break down, it will.

While these owners were getting the bugs ironed out of their Impalas, a good many others were out on the road forming opinions on handling, styling, comfort and ride—the four qualities that drew the most favorable response from owners.

A good number of comments we received about handling seem to be from owners who are just happy to be driving brand spanking new cars again. Their lukewarm comments seem to refer more to a power-steering and power-brakes-equipped car that's easier to drive than the car they traded in:

"Steers and handles with extreme ease."
—Minnesota retired businessman.

"Easy to handle in traffic."—Colorado farmer.

"Handles beautifully."—Iowa salesman.

An owner who refers to "ease of handling" is usually not referring to a terrific suspension design meant for road racing—as much as how easy it is to steer.

On the other side of the coin, however, are the owners who actually provide a basis of comparison in judging handling:

"Car handles much better than the other Chevrolets that I have owned."
—Georgia customer service employee.

"The car handles very well in corners and turns."
—Missouri technician.

Many other owners like these two had more positive comments about roadability and overall handling that earned the Impala a number one rating for handling.

Styling ran a close second on the likes list while at the same time the restricted rear visibility, due to style, headed the dislikes list. You can't have your cake and eat it too. It's the old battle of design and function, and where one wins the other usually loses. The *oohs* and *ahs* for styling ran right up the scale of enthusiasm to the declaration to end all declarations from a retired gentleman in Minnesota who tells us simply that his Impala is the "most beautiful car on the market." Many other owners, too, favor the "great lines" of the car. But these same lines are criticized by the 22.9 percent of owners who can't see what's out back due to those "great lines" into which a rear window was dropped:

"The visibility out the rear window is cut back because of the slope of the deck."
—Missouri worker.

"Rear window is worthless."
—Illinois businessman.

"Lower the rear end so you can see out the back window."
—Iowa plumber.

"Blind spot on each side of the rear window caused by wide solid panel."
—Florida chemical engineer.

This Floridian is especially unhappy about that window as he tells us in a post-script: "I have come to feel strongly about the 'blind' spot caused by the wide panels next to the rear windows. This has been a definite hazard in driving and has cost me \$40 thus far for fender repair when my wife backed into another car which she could not see."

At the mention of "wife" and "dented fenders"—which seem the perfect ingredients for the much hackneyed situation comedy—you're inclined to snicker at our friend whose wife, you think, put one over on him. You wouldn't, however, if you had read the curses over the rear window that burned our ears here at PM.

Back on the plus side, comfort and ride received high praise from owners. Not a single respondent commented unfavorably about comfort. Impala drivers and front and back seat passengers are all getting comfortable passage. An Arkansas railroad yardmaster is especially emphatic:

"It would be difficult for me to say which gives me more enjoyment, my Morris chair or the front seat of this Impala, and the same goes for the rear."

Masochistic car buffs may feel that driving a car should be no more comfortable than sitting on a stool in a Conestoga wagon, but not Impala owners. Without exception they're all for its comfort.

The only distractions from an otherwise comfortable ride were indicated as wind noise and body rattles. Rattles, as we all know, are most plaguing when they remain mysterious:

"Too many unlocatable noises in the undercarriage."
—Louisiana businessman.
An Arizona retired salesman doesn't say whether his rattles are "locatable" or not; he's just unhappy: "Car's a rattletrap."

Summed up and averaged out, however, Impala owners are happy with the machine they're getting for their money. Some owners' anticlimactic comments, however, do make me feel a bit sad when I contrast them to Detroit's annual advertising hulla-baloo:

"It's new, runs good, looks good, nothing real outstanding."
—Missouri factory worker.

"I like everything about the car, especially the color."
—Maryland stretch machine operator.

And a closing comment from a Florida real estate man: "Have no praise or condemnation. I suppose it is as good a car as others in this class."
★★★



Town & Country truck tires—All-weather drive-wheel tire gives pickup trucks, delivery trucks, and sports vehicles extra bite through ice, mud, and snow.



Duplex tires — Extra-wide tire replaces dual tire assemblies, cuts down cost and extra weight. Trucks carry more payload.

**For any Truck.
Any load.
Any season.
Any road.**



Transport 110 nylon cord tires —High strength, great impact resistance give this all-wheel tire maximum durability and safety on high-speed highway runs.

No matter what loads you carry. On what roads you run. You're going to get more for your money if you run on Firestone safety-built truck tires. Firestone Dealers and Stores from coast to coast offer a complete selection of Firestone truck tires. Just stop in and make your deal. Instant service. And specify Firestone tires on your new trucks.

Town & Country®, Duplex®, Transport-110—Firestone TM's

Firestone

TRUCK TIRES

NEW DYNAMIC MARK 88
80 AMP INDUSTRIAL TRANSFORMER ARC WELDER

IDEAL GIFT — EDUCATIONAL, ENJOYABLE, PROFITABLE

ANYONE CAN WELD, BRAZE,
 CUT, SOLDER, HEAT
 STEEL, BRASS, ALUMINUM,
 AND OTHER METALS.

Build and repair anything of metal. Save time & money with this BRAND NEW, PROFESSIONAL ARC WELDER! Rugged metal cabinet, baked Hammerfold finish. Ideal for home, shop, farm and industrial use. Expert work on FIRST job. POWERFUL glass insulated transformer welds 1/2" metals with 1/8" rods. 4 heat settings 20 to 80 amps. Operates on 110 Volt AC line fused for 30 amps. Complete with fibre glass helmet, electrode holder, ground clamp and cables, solder, assorted rods and simplified welding manual. DOUBLE PROTECTION GUARANTEE. 10 day money back trial plus full 5-yr. warranty. If inoperative return prepaid, we will repair or replace without charge.

ORDER TODAY. ONLY \$59.50 COMPLETE (220 V. \$61.50) SEND ONLY \$6.00. Pay balance plus C.O.D. charges on delivery or write for easy "PAY AS YOU WELD" Low Down Payment Plan. Welder details FREE.

DYNAMIC WELDER CO. 1808 SO. FEDERAL ST. Dept. D2-E CHICAGO, ILL. 60616



FREE BOOKLET

If You Buy Printing You Need This

PRINTING CONSULTANT
 305 S. FOURTH STREET
 SPRINGFIELD, ILLINOIS 62701



The 5-channel CB-20 "Reacter" is one of seven solid state CB transceiver brands on the market selling for less than \$100. Even if their specifications were comparable, doesn't it make

sense to buy yours from the company that has built

more communications rigs by a country mile than all the others put together?



hallicrafters

A Subsidiary of Northrop Corporation
 5th and Kostner Aves., Chicago, Ill. 60624
 Export: Int'l. Div. Canada: Gould Sales Co.



GARDEN TRACTORS

(Continued from page 101)

Bolens has an "integrated" hydraulic system (motor and transaxle share a common oil system) and claims that this larger oil capacity plus large fins and a fan to dissipate heat are an ideal cooling system. A limited-slip differential and the added weight of the Husky 1250 solve virtually all problems of wheel slip.

Massey-Ferguson notes a trend "to be one step ahead of the Joneses. If his neighbor has a 10-hp, the man wants 12. If the neighbors have standard, he wants hydrostatic. Hydrostatic may cost a little in loss of horsepower, but it's made up for in efficiency of operation in tight spots. You can now mow an average-size yard about 30 percent faster than with conventional transmission."

The new Gravely Convertible is a 7.6-hp riding tractor that can be converted to a walker for "the tight spots"—steep slopes, garden rows and the like. One pin detaches the rider. Gravely rates this convertible feature—also available on its "Commercial 10" as a distinct competitive advantage.



ECONOMY'S 12-hp "Jim Dandy" has automotive-type all-gear drive

Gravely hasn't gone hydrostatic. "Our forward and reverse lever gives the operator instant control without clutching. This is possible with our compact planetary transmission."

For years Economy Tractor's 12-hp model has been one of the biggest of the compact tractors. Today, the company observes, competitors have at least conceded that it takes that kind of horsepower for average work. But Economy says, horsepower alone doesn't mean more pull-power. Economy uses a high-ratio automotive-type all-gear drive which, it claims, "delivers over 90 percent of engine horsepower to the wheels."

Says a company official: "We're in the business of building a working tractor, not a weekend toy."

Fortunately for buyers, major tractor makers aren't toy makers and are proving it with a new breed of tractor. ★★★

Swing a Real Deal!

BUY PLUMB HAMMERS AT BARGAIN PRICES

- **NON-BREAKABLE FIBER-GLASS HANDLES**
Guaranteed not to break, bend or collapse in normal use
- **MOLDED "DURA-CUSHION" GRIPS**
- **PERMABOND-KEEPS HANDLES TIGHT**



REGULAR
\$5.95

SPECIAL
\$4.99

Also Available at
Special Prices:
20 & 13 oz. Nail
& 22 oz. Ripping

BUY NOW AND SAVE!

SEE YOUR HARDWARE DEALER TODAY

PLUMB®

FAYETTE R. PLUMB, INC. • PHILADELPHIA, PA. 19137

Dusting off the moon

When astronauts bring back samples of dust from the moon for analysis, scientists expect that they'll have trouble separating the real lunar material from space dust that fell on the moon in the form of micrometeorites. An Ohio State University study of long-term fallout in Antarctica may help them.

OSU scientists are taking samples of Antarctic ice and snow, melting them down and measuring the rate of fallout deposited there over the years. Then the fallout is analyzed.

Preliminary results show that the fallout has the same proportion of nickel as large meteorites, which indicates that it comes from outer space, rather than from the atmosphere of the earth.

This means that the Antarctic fallout is the same stuff as the space dust which

is probably present on the surface of the moon.

Lubricated water for easier flow

More efficient central heating and longer range Naval torpedoes may result from experiments with "lubricated" water. Friction between flowing water and solid bodies has been reduced up to 40 percent by addition of certain substances such as guar gum and polyethylene oxide in concentrations of less than 100 parts per million.

Lubricated water might allow the use of smaller, less expensive pipes for central heating, or faster circulation with bigger pumps, according to researchers at the Heating and Ventilating Research Assn. in London. One problem is that present lubricants break down under heat and repeated circulation.

OLDS CUTLASS

(Continued from page 104)

"Drives better than any car I've ever driven. Does have some body squeaks I haven't had taken out yet."—Oklahoma school teacher.

A West Virginia bank vice-president, on the other hand, can't think of any thing he'd like to see changed:

"It is a dream car. I am 75 years old and have driven all makes including Cadillac. I've never driven one that I like better."

Maybe this enthusiastic bank VP isn't as demanding or discriminating as most owners, or he's actually one of the 23 percent who had no specific complaints.

Of those owners with complaints, 23.8 percent beefed about economy. Following economy were complaints about workmanship, rattles and finish, in that order and comprising 22.5 percent of owners. Workmanship got some loud boos from demanding owners—several of whom were long-time Olds fans. A Rhode island housewife was one of the more critical:

"Car was not carefully inspected before leaving the factory. Trimmings inside and knobs fell off immediately. Thoroughly disgusted with automobile after purchasing fifth Oldsmobile."

The complaints about workmanship are quite critical of factory quality control:

"I think the car should come from the factory with a more rigid inspection than mine for faulty transmission, for doors not fitting properly, dip stick too long, rear-end leak."—North Carolina plant superintendent.

A Vermont office supervisor exclaims: "My rear door handles fell off three times!!". A Kentucky technician simply and unexcitedly states: "Quality seems to be sacrificed for quantity." And the three Rs for a Maine schoolteacher are "rattles, racket and rumble"; she has nothing more to say than "shoddy workmanship."

"Body by Fisher rattles."—Kentucky mathematician.

"Loose nuts and bolts all over."—Louisiana industrial engineer.

Other owners feel that they're not getting the paint that they're paying for:

"The paint is thin—has already chipped badly."—Kentucky lab technician.

"Poor paint job."—Air Force man.

Although style is the number one reason for buying Cutlasses, owners' number one specific praise of the car is its handling. Of the 56.9 percent of owners who felt this way, many said that the Cutlass was the easiest car to drive of any they had driven.

"It handles better in town than any car I have ever driven. Also surprised at way

it holds the road."—Arkansas housewife.

"Excellent maneuverability; instant response."—U.S. Army major.

Owner enthusiasm about handling is only slightly dampened by the six percent of complaining owners who commented unfavorably about lack of "traction."

"Rear end of the car is too light for driving on wet roads or snow."—West Virginia traffic engineer.

"Lots of swaying if car is loaded and it's windy."—Maine specialist.

Nevertheless, the Cutlass's inherent handling characteristics come out well on the plus side. Hopefully, the owners who have specific praises for the car's power also rate high themselves in handling ability: They're doing a lot of passing:

"I like the pickup when passing, even in fourth gear."—Maine mill worker.

"It's got plenty of passing power."—Missouri businessman.

"Passes fast, never balks."—Colorado coed.

Fast it is, and faster yet for those with the 400-cu.-in. V8. But owners actually rate Cutlass comfort a shade higher than power in their overall praise. True, number one on the list of what they'd like to see changed is the limited headroom front and rear, but, regardless, the verdict is it's a comfortable car.

Part of the comfort, especially for rear-seat passengers is the fact that the rear end is not cut off short, as is the vogue for the "sport" look. A Louisiana clerk expresses the appeal of the new Cutlass:

"I like the styling and the *semi-sport* lines." (Italics ours.)

His opinion is backed by a Missouri manager who probably pinpoints what "style" means as a major sales factor:

"The Cutlass has many things that appeal to a man with a family, and still has enough style and class to be sporty."

This owner is right in the young family age bracket, the group that's doing more signing on the dotted line for the Cutlass than any other age group.

One owner in this group—a garrulous Massachusetts draftsman with two children—confided his technique for having his Cutlass and family harmony too. His wife talked nothing but new station wagons. So he proceeded to ogle his first love—miniature foreign sports cars—every time he and his wife were out together. Then, with the family battle at high pitch, he nobly suggested a size compromise. Now he drives his Cutlass with "... a sneaky smile and my old, worn, sports-car driving gloves."

What a man won't do for the wheels he wants!

★★★



How to mix and be popular

Start with 7-Up.[®]
Bracing. Crisp. Compatible.
Pour over Seagram's 7 Crown.
End up with the most
popular drink in the world.
Smooth. Sociable. Impeccable.
With all that going for you,
can fame be far behind?

"SEVEN-UP" AND "7-UP" ARE REGISTERED TRADEMARKS IDENTIFYING THE PRODUCT OF THE SEVEN-UP COMPANY. COPYRIGHT 1967 BY THE SEVEN-UP COMPANY



What beats the
aroma of a great
autumn day
in the woods?

Nothing.
But a pipeful of
Field & Stream
comes mighty close.



A product of Philip Morris Inc.

CAR STEREO

(Continued from page 109)

ers on either side of the firewall or behind the back seat mounted horizontally in the luggage shelf. The latter installation provides good sound and is relatively easy since you make the installation from the trunk of the car.

Some tape players—a few SJB models, for example—have the speakers mounted on either side of the tape player itself. These players are designed specifically for straddling center consoles.

If you're a PM reader, it follows that you're a do-it-yourselfer. So, when it comes to a car stereo unit you'll assume what I assumed: I'd install it myself. But before you start drilling and cutting, it's well to know what the job entails.

Check door's structure

Mechanics at a good tape dealer or auto radio shop will first check the make of car and then, either from memory or from the chassis service manual, check the interior structure of the door. Only then can they begin to locate a speaker position in the door where they will not find a major structural member or bump into an electric window motor after cutting through the door panel. More than one inexperienced do-it-yourselfer has installed his speakers only to find his windows won't go all the way down! If you can't check your door, best bet is to remove the panel before cutting it.

Each speaker must be mounted in what is usually a 4 or 5-inch-diameter hole. The pros use a special mandrel sized for the speaker they're installing. It has a knifelike cutting edge rather than teeth to prevent snagging your carpeting. Chances are slim that you'll have the mandrel you need in your workshop, so you'll wind up using any one of several slow and tedious cutting methods.

Without going any further, you see that there's a trade-off point where you have to weigh your time and labor against the price of letting your car stereo dealer do the work. Installation prices vary with regional labor rates and business volume. It's often difficult to determine the exact figure since the quoted price is usually given for a unit installed with a specific speaker configuration. If you're considering doing the job yourself, you'll probably pay close to the retail list price shown in the chart for the tape player and accompanying speakers "to go." The price installed averages between 10 and 30 well-spent dollars above the list depending on the complexity of speaker installation. ★ ★ ★

To Make and Sell Ornamental Concrete Items

You Need MOLDS

For Thorough Info
On Over 300
Different Molds
You Can Buy And
Use Plus Complete
Start To Finish
Professional Instructions

RUSH \$2.00 for book



TURN CONCRETE INTO GOLD

CONCRETE MACHINERY COMPANY, INC.
839 Lenoir Rd. - P. O. Box 99 - Hickory 2, N. C.



go beyond 3-D with H-D



Discover new dimensions on live-action lightweights from Harley-Davidson. Like this hot, new M-65. And Harley-Davidson has real depth, from 65cc all the way up to 1200cc . . . all at prices that let you make the move. Check the Yellow Pages for your H-D dealer and add a new dimension to your life. It's time to move up to H-D!

**HARLEY
DAVIDSON**

THE RIGHT BOAT CAULK

(Continued from page 166)

the polysulfide sticks to that instead of the wood.

To make the seam smooth and slightly concave (to allow for bulge-out when the planks swell), wet your fingertip and slide it along the surface of the freshly applied material. Polysulfide won't stick to a wet fingertip, and the moisture gives the compound an instant skin. As the stuff sticks to itself with a powerful grip, you can build it up to span seams as wide as $\frac{5}{8}$ in. And it still has enough built-in strength to hold its own without dislodging.

Many brands are made in several grades of firmness, from buttery to creamy. Use the stiff grade when you have to caulk upward into a bottom seam; the creamy grade for easy downflow into deck seams. If the seams are clean and free from oil and grease, the cured caulk is there to stay. Examples of Caw-King polysulfide (a long-established one) are still leak-proof after nine years of service.

For a comparable, but easier, job you can use urethane seam compound, one of the newest types. Like one-part polysulfide, it's cured by moisture in the air. It's made in white, mahogany and black; other colors may be available later. Apply it directly from the taper-nozzle squeeze tube. Allow three to seven days for curing.

For problem sealing jobs on plain wood, painted or varnished surfaces, metals,

plastics, plexiglass, canvas or almost anything else, a silicone-rubber sealant is likely to be the best answer. Buy it in a plastic squeeze-tube with a diameter to match the seam or gap to be filled. Rest the cutoff nozzle in the seam, tip the tube to an angle and push it along in the direction the nozzle is pointing, while you squeeze out the sealant like toothpaste.

Smooth off the job quickly with your fingertip, a putty knife or glazing tool, as the material skins over in about five minutes. It's dry to the touch in one hour, and smells like vinegar up to that point. It's fully cured, firmly bonded and just about odorless in 24 hours, but its strength keeps increasing for another week. If you use a silicone rubber sealant below the waterline, wait the full week before you launch the boat. If any trimming is required, do it with a razor blade.

You can seal anything from a hatch to a windshield with silicone rubber and expect it to last as long as the boat. But don't try to paint silicones. The only one to which paint will adhere is Dow-Corning's silicone/fiberglass type.

For "bedding" jobs like moisture-sealing the base of a cleat to the deck, you can use any of the compounds mentioned, but removing the bedded item may call for some work if you use the tougher ones. Butyl rubber bedding compound, however, is soft enough to ease the job, yet watertight enough to provide a total seal. It's a one-part compound that cures by solvent evaporation like rubber cement, and it's cheaper than the tougher rubber types.

When you must work under water to stop a leak, there are several sealant types that can do the trick. A Buna-N sealant can be applied directly from the squeeze-tube nozzle to the seam, tilting the nozzle and pushing it in the direction it is pointed, as with silicone rubber. The resultant seal is as flexible as rubber.

If the leak area is not pinpointed, and you need broader coverage, a rubber-base paste-type cement is a better choice. An egg-sized blob in the palm of your hand can be spread over an area larger than this page with good sealing effect. This type sets hard. But it stops leaks so well it's widely used to seal cofferdams to the sides of ship hulls when welders work in a dry chamber below the waterline.

When using either type, it's wise to wipe the affected area in advance with a cloth to remove any slime or marine growth.

To seal aluminum-hull seams and patches, aluminum manufacturers favor a flexible epoxy. Simply brush it on both surfaces of all seams before bringing them together for riveting. Then keep the job

(Please turn to page 214)

CAULKING LORE

If all this specialization makes you feel that things were better in the old days, don't be too sure. Time was when boats were caulked with such things as packed grass, clay, plaster, beeswax and hot pitch. In parts of the Pacific, they were sewn together to eliminate the need for caulking.

Even today, hot pitch is still used in some areas of the world, and one of our familiar expressions, "the devil to pay," is said to have come from this practice.

The "devil," in seagoing terms of old, was the hull plank just under the gunwale, usually the longest one in the hull. The caulking was "paid" into the seams, in the jargon of the times and, according to such famed sailing men as the late H. A. Calahan, the caulking of that plank gave rise to a seafarers' bit of cussing—"the devil to pay and no tar hot."



The toughest test program in the outboard industry makes Mercury the most dependable outboard you can buy.

Ten years ago, Mercury developed the industry's first environmental product test program. Today, at Mercury's 4 test sites—Lake X and Sarasota, Florida, and Oshkosh and Fond du Lac, Wisconsin—both production and prototype models are put through the toughest tests Mercury engineers can devise. The object is to cram the equivalent of years of customer use into weeks of intensive tests. Mercs run day and night—wide open and at trolling speeds. They slam over logs and sandbars,

plow through weeds and silt, in driving rain and relentless sun. Tests completed, motors are torn down and results tabulated. As the product improves, tests become tougher. We're determined to build each year's Mercs safer, stronger, faster, quieter and more economical. And this unique test program helps us do it. The 1967 Mercurys are the result of 28 years of unchallenged engineering leadership, and of cumulative millions of test miles. They're *engineered to stay ahead*: 3.9, 6, 9.8, 20, 35, 50, 65, 95 and 110 HP. See your Mercury dealer—or write for '67 catalog to Dept. PM-5, Kiekhaefer Corp., Fond du Lac, Wisconsin.

MERCURY



WORLD LEADER IN MARINE PROPULSION

ANOTHER MERCURY FIRST: THUNDERBOLT IGNITION—Now without breaker points and available on 4 new Mercs—50 to 110 HP!
Kiekhaefer Corp., Fond du Lac, Wis. Kiekhaefer Mercury of Canada, Ltd. Kiekhaefer Mercury of Australia Pty. Ltd. Subsidiary of Brunswick Corp.



Sure, you can buy "bargain" shock absorbers (but you may be saving only money)

Why bet your life—or your family's—on a few dollars? That's the difference between "bargain" shocks and the finest money can buy—Monroe. More people choose Monroe to replace original equipment shocks than all other makes combined. Why settle for less than the best in driving safety? Safety-equip your car with Monro-Matic® shock absorbers wherever you have your car serviced.



FREE Monroe racing decal! Identical to ones used on Indianapolis "500" racing cars. Send a self-addressed, stamped envelope to Monroe Auto Equipment Company, Sales Promotion Dept., Monroe, Mich. 48161.

Monroe Auto Equipment Co., Sales Promotion Dept.
Send me two racing decals. I have enclosed a stamped, self-addressed envelope.

Name _____

Address _____

City _____ State _____ Zip _____

THE RIGHT BOAT CAULK

(Continued from page 212)

as warm as possible to speed curing. (Most epoxy makers can supply you with a temperature-hardening-time chart.)

In cases where a closed seam is leaking because the original sealant has come out through hull damage, the epoxy may be brush-worked to provide a new seal without opening the seam. As the epoxy is 100 percent solids and sets chemically, there's no problem of trapped solvent. And it not only seals the joint, but bonds it.

Other sealants based on natural oils and resins may also be used to provide a non-bonding seal. But skip polysulfide or other sealants that contain metallic compounds likely to react with the aluminum. They stop wood-hull leaks, but may actually start aluminum seams leaking by bi-metal reaction.

For the white lines between dark wood deck strips, use a preparation like "Squeezing" 3-Ton Adhesive. This is a variation of the acrylic adhesive of the same name. Caulk your deck seams in the usual manner, as with a polysulfide. Then, after it cures, run a coat of white squeezing compound along each seam, paid on from its squeeze tube. The striping is likely to last as long as the caulk. You can do this with a paint compatible with caulk, but may not find it in a squeeze tube.

For filling deep dents and gouges, you have a choice of materials that include epoxies, acrylics, synthetic rubbers, resins and nitrocellulose wood flour. Pick the best type for the job you want done and the time you have to do it.

If the surface involved is springy, keep in mind that flexible epoxies usually have longer curing times than harder types. Nitrocellulose wood flour is a good choice where shaping is required, as it can be sanded and treated just like wood.

If you want the quickest possible cure, you can fill your gouge or dent with an acrylic. This normally sets in 5 to 15 minutes, but can be catalyst-mixed to cut the time to three minutes.

Things to come in the hull-helping field may well outperform the materials that surprise us now. From 3M, for example, there's a new Scotch-Seal No. 5200. It's a one-part moisture-curing, synthetic elastomer (not Thiokol) that's 100 percent solids (no solvent evaporation).

It has no shrinkage; you can paint it as soon as you apply it, and it sticks to teak wood (most seam compounds won't because of teak's oily nature.). As to durability, test samples have been soaking in gasoline and seawater for 18 months without enough deterioration to mention. ★ ★ ★



Beauty Is MORE Than Skin Deep Here

So beautifully finished they could occupy a position of pride in a jeweler's window. But, for all their eye appeal, these Channellock Little Champ pliers aren't decorator pieces. They're down-to-earth worksavers on hundreds of delicate jobs that need firm treatment . . . in short, the finest precision pliers you can buy.

We don't ask that you take our word for it. We merely suggest you tell your dealer you want to see and try Channellock Little Champ pliers. We'll wager it will be a case of love at first sight. You can get the whole pedigree on Little Champs—and their equally fine big cousins—in our catalog. Let us send you a copy, no charge.

TOOLS BY
CHAN NEL LOCK[®]

MEADVILLE, PA.



Ford Camper Special: Peace-of-mind is standard equipment.

Relax and enjoy! Let the unique, heavy-duty features of a Ford Camper Special see you through years of worry-free adventures. Features like tough, Twin-I-Beam suspension for easing you over those back-road ruts. Features like man-sized room and comfort to reduce fatigue behind the wheel.

With Ford's 131" wheelbase Camper Special you'll carry camper bodies up to 10 1/2' long (14' on Ford's longer F-350 model). And with options like Select-Shift Cruise-O-Matic transmission that provides both 3-speed manual and automatic shifting, husky Six or V-8s, power steering, power brakes, and air conditioning, you get car-like comfort and responsiveness.

Drop us a Camper Coupon—or drop in on your Ford dealer—and get the full story today.



Ford Division, Dept. PM-5, Ford Motor Company
Box 1000, Dearborn, Mich. 48121

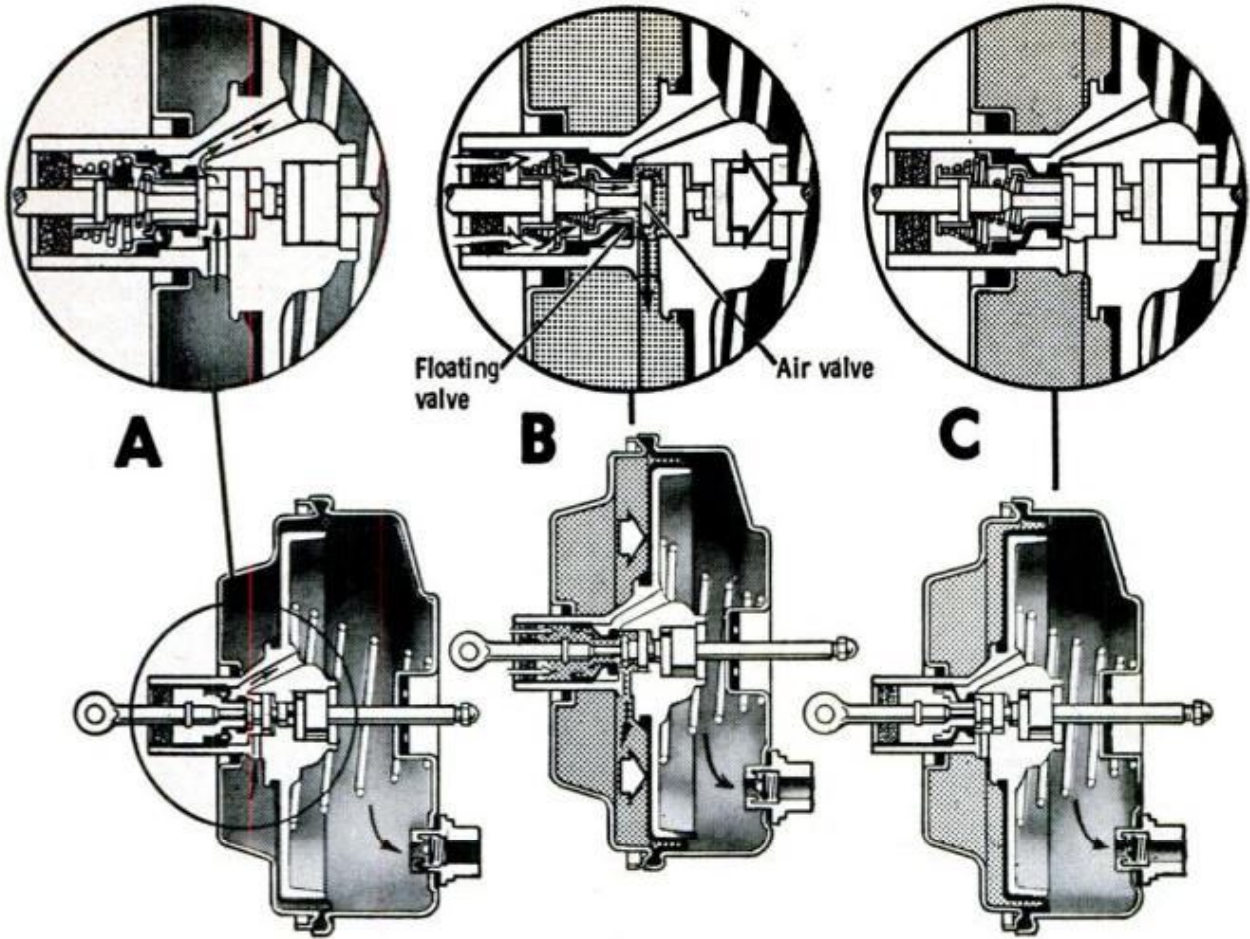
Please send me, free, the 1967 Ford Recreational Vehicle Guide Book.

Name _____

Address _____

City _____ State _____ Zip _____





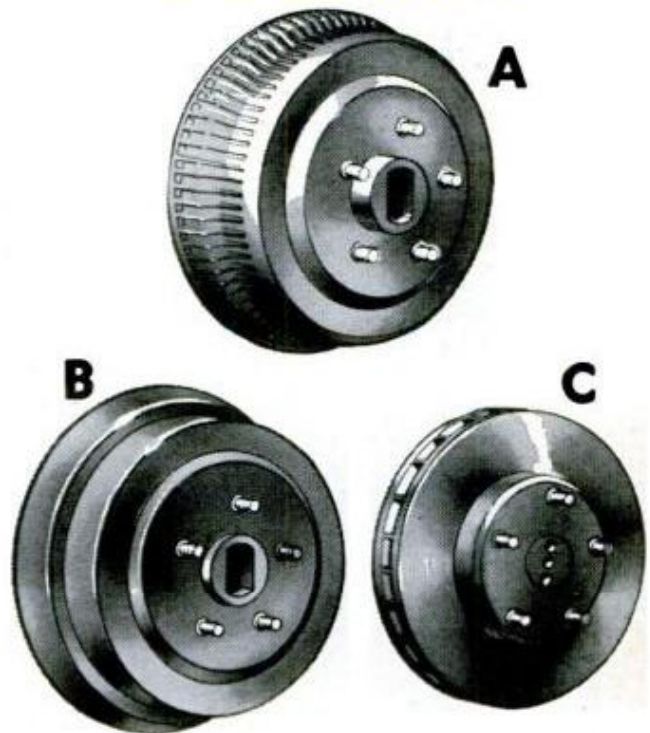
6. Power-Assist System

contained in a "caliper"—the housing which straddles the edge of the disc. With this type of brake, short single-acting hydraulic cylinders are contained in the stationary caliper with the open ends of the cylinders opposing each other on opposite sides of the disc. Frictional material is sometimes mounted directly on the piston in the form of a "spot," but in heavier cars the friction element is more likely to be incorporated in a shoe which spans the adjacent cylinders on each side. Light spring action keeps the frictional elements in contact with the discs in order to keep them wiped clean. One style of disc brake construction is shown in the upper detail.

Disc-brake systems operate at considerably higher line pressures than drum brakes, so a vacuum booster is usually incorporated in the system. In combination systems using both types of brakes, the rear drum brakes would lock up at the line pressures required by the discs in front. To prevent this, a brake line pressure-limiting valve is included in the hydraulic line leading to the rear brakes.

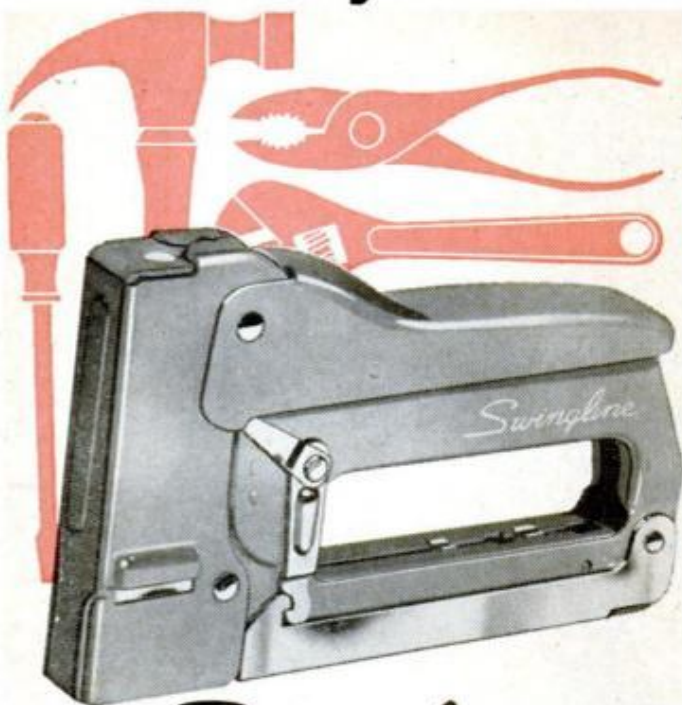
Another recent innovation is the "dual" braking system, which in reality is nothing more than a split system. A dual master cylinder is used, having two complete master cylinder assemblies in a single

housing in tandem, and operated by the same pedal push-rod. One of the master cylinders is connected to the rear brakes, and the other to the front brakes. If either *(Please turn to page 218)*



7. Heat-Dissipating Drum Designs

Basic in any tool kit...



Swingline® 800

HEAVY-DUTY TACKER GUN

Hundreds of uses indoors and out:

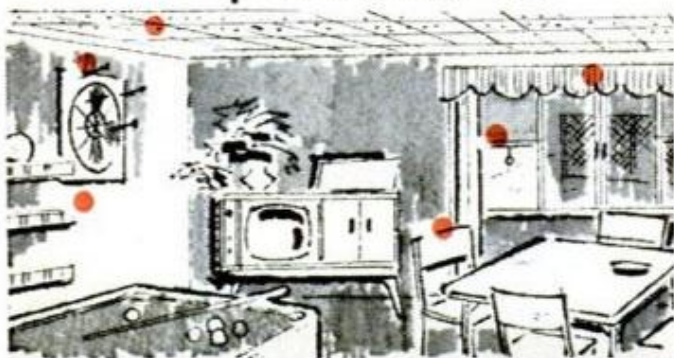
- Ceiling tiles
- Upholstering
- Shelf trimming
- Valances
- Window shades
- Fencing
- Insulating
- You-name-it!

A real precision heavy-duty gun! Easy action handle... exclusive "Power Dot" for greater staple penetration... handle lock... built-in staple extractor... takes 5 staple sizes plus special Loktile® staples for ceiling tile installation.

at all hardware, department, stationery stores. **\$8⁹⁵**

800-X Chrome Heavy-Duty Tacker Gun \$9.50

101 High Compression Tacker Gun. Takes 2 staple sizes. \$5.95



New! Swingline Riveting Pliers. \$3⁹⁵

Ask your dealer! From

Swingline® INC.

32-00 SKILLMAN AVENUE, LONG ISLAND CITY, NEW YORK 11101

ABCs OF BRAKES

(Continued from page 217)

system should fail you'll still have brakes on two wheels.

So-called "power brakes" in today's cars are actually only power-assisted brakes. Atmospheric air pressure on one side of the brake booster piston, as opposed to the lack of it on the other side, "helps" you push the brake pedal.

A power brake booster consists of three basic elements: a vacuum power cylinder, a control valve attached to the brake pedal operated push-rod, and a conventional hydraulic master cylinder which may be of the single or dual variety.

All automotive power-brake boosters since 1963 have been of the "vacuum suspended" variety. This means that both sides of the piston are in a vacuum when the engine is running and the brakes are released. The piston is retained in retracted position by the piston return spring.

The booster control valve is double in nature, on a single shaft. The forward air valve, working against the floating valve, controls the entrance of atmospheric air to the booster. The floating valve controls the air flow from the rear side of the piston to the forward side.

Figure 6A shows the power-assisted system with brakes released. The air valve is seated against the floating valve; no outside air can enter. The floating valve is retracted, and the port between the two sides of the piston is open; engine vacuum has exhausted the air from both sides of the piston, and the piston is retracted by the piston return spring.

Figure 6B shows what happens when you apply the brakes: The floating valve is closed, and the air valve is open. Air is being admitted to the rear side of the piston only, and the piston is being pushed forward by atmospheric air pressure, applying the brakes.

Figure 6C shows the system with the brakes being held. Both valves are closed, maintaining a closed system. The brakes have been partially applied by partial atmospheric pressure behind the piston. The partial air pressure behind the piston is balanced by the partial build-up of hydraulic line pressure.

Brakes dissipate kinetic energy in the form of heat, so brakes are essentially devices for converting energy. Efficiency of heat dissipation from the frictional elements of the braking system consequently has a direct bearing on brake efficiency.

Since heat dissipation is in direct relationship to the surface radiating area that is exposed to the cooling air stream, the

(Please turn to page 222)



This is Travelers Agent Mike Leahy -a man on his own.

Free as a bird. Free as only a man can be who works for himself, sets his own hours and his own income potential.

If you have a flair for living, it could be a flair for selling, too. Find out. Look into *your* opportunities as a Travelers Insurance Agent.

You train with Travelers Field Representatives. But the commissions you earn

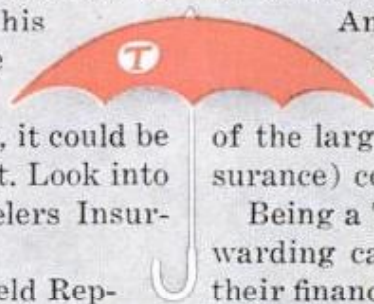
on sales during this period are all yours.

And once established, you can own your own business, backed by the country's first—and one

of the largest—"all line" (all kinds of insurance) companies.

Being a Travelers Agent is a doubly rewarding career. You help others to build their financial security, and you build your own. For details, write to:

James R. Bryant, Jr., Vice President, The Travelers Insurance Co., Dept. MI, One Tower Square, Hartford, Connecticut 06115





WITH FRAMING UP (above), glass panes are installed next and held firmly in place with patented Barcaps which eliminate need of messy putty. Caps protect mastic glazing seal

AFTER 2x6 SILL is fastened to masonry footing (right), frames are joined and anchored to aluminum sill attached to wood sill. Components are numbered, so you can't miss

VENT JALOUSIE has been installed in end of greenhouse and redwood bench finally goes in (below). Vinyl plastic for summer shade was applied to glass before it was installed



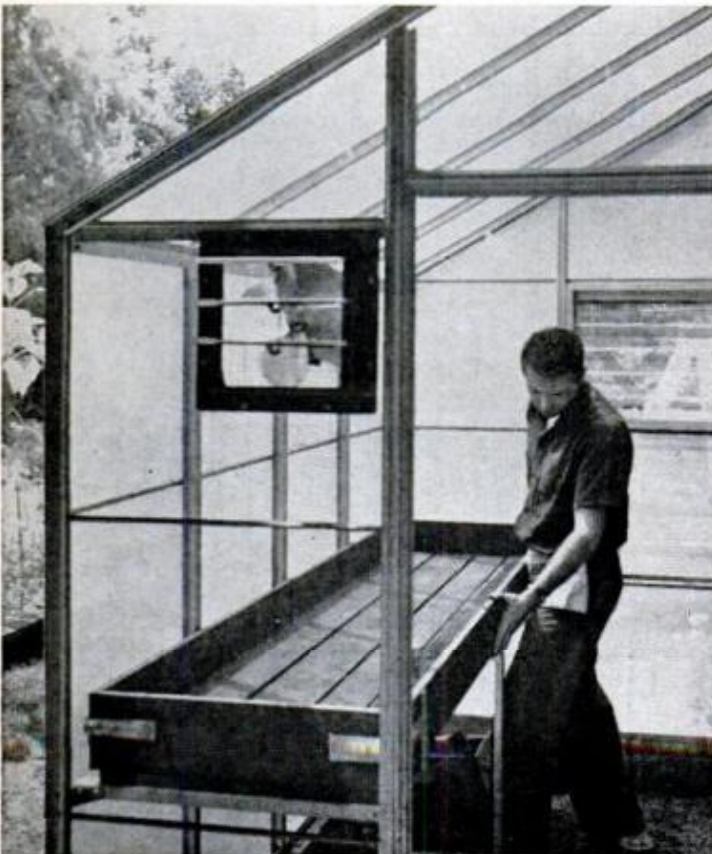
BUILD A KIT GREENHOUSE

(Continued from page 159)

fitted into a long narrow space against the house. On the other hand, an even span offers up to 50 percent more growing space at little added cost, can be built in any length at right angles to another building and is easier to cool and ventilate in summer. Both require less electrical and plumbing expense than free-standing unit, but require careful orientation to winter sun.

You can't, of course, stick a greenhouse just anywhere in the yard. The best spot is where it gets at least three hours of winter sunlight daily and where it's partially shaded by trees in summer. A free-standing greenhouse can be faced in any direction, whereas with an attached even span or a lean-to, a south, southeast or southwest exposure is recommended . . . in that order. A western exposure affords adequate

(Please turn to page 222)



**If you own an
outboard...
you need this**

**FREE
BOOK!**



The "outboarder's bible" . . . a wealth of information about propellers and how they affect boat performance. Answers to "most often asked questions." Details on matching prop to hull, motor and use conditions, for more speed, better handling, increased skiing pleasure. Full color . . . 24 pages . . . absolutely free!

7-6 **WRITE NOW!**

MICHIGAN WHEEL COMPANY
Dept. P, Grand Rapids, Mich. 49502

FREE!

Learn how you can buy used engines \$15 up, new engines \$30 with FREE confidential list and coupons when you order your plans

BUILD THIS MINI-BIKE!

Plans reveal step by step details!

BUILD A RACING KART!

Complete frame for less than \$10!



RUSH \$2 for plans (Indicate type) or send 25¢ for circular describing plans
PLANS, Box 517, Omaha, Nebr. 68101

\$7.95



Dial telephone Special. Factory reconditioned, Complete, guaranteed. Add \$1.00 if plug required. Shipments F.O.B. Waymart. Write for complete telephone list.

SURPLUS SAVING CENTER
Dept. PM-567 Waymart, Pa. 18472

**BASEMENT
TOILET FLUSHES
TOILET UP**



TO OVERHEAD SEWER OR SEPTIC TANK. NO DIGGING UP FLOORS. INSTALLS EASY. Write
McPHERSON, INC. BOX 15133 TAMPA, FLA.

**SAVE UP TO 85%
GOV'T SURPLUS
and NEW EQUIP'T**

Send 25¢ For Big Catalogs Showing
Finest Bargains in U.S.A. On Surplus,
Excess Inventory, Regular Factory Lines.
SATISFACTION OR MONEY BACK GUARANTEED



Lowest Prices On...

HYDRAULICS COMPRESSORS
SURVEYING INST'S
WINCHES GEAR MOTORS
CABLE POWER PLANTS
WELDERS SPEED REDUCERS
ELECTRONICS BINOCULARS
TELEPHONES WEED SPRAYING
PUMPS HOSE
MANY OTHERS



DIAL TELEPHONE

(ITEM #715.P) . . . Same type phone used on all telephone systems. Use as extension to main phone or private systems. Furnished with 4-prong extension plug. Excellent condition. Shipping weight 8 lbs.

\$6.90 F.O.B. LINCOLN

* Include money for postage and save on collection fees. Excess money refunded immediately

SURPLUS CENTER

PM-057

Lincoln, Nebraska
Zip Code 68501



**Keep cool
on porch or patio**

AS LOW AS \$79.50

Nothing beats a large-bladed Hunter Ceiling Fan for moving lots of air quietly. It keeps you cool and also blows away insects. Choose 2-speed 36" or 3-speed 52" blades. Maintenance-free motor. Patented Adaptair on Model FR52A gives direct or indirect air flow.

Write for literature:

Hunter Ceiling Fans

HUNTER DIVISION, ROBBINS & MYERS, INC.

2921 Frisco Ave., Memphis, Tenn.—38114

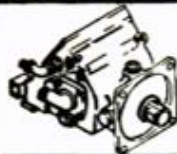
**The Painkiller.
For hemorrhoids that hurt.**

You have probably heard of Nupercainal® Suppositories and Ointment by now. Nupercainal is the most effective and longest lasting painkiller of the leading products available without prescription. It is over eight times stronger than the most commonly used topical anesthetic preparation. Doctors have been recommending Nupercainal for over 33 years for hemorrhoids that hurt.

Over 8 times more pain-killing power than the most commonly used topical anesthetic.



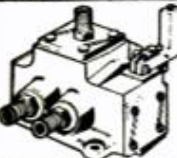
GOVT. SURPLUS AND OTHER BARGAINS SAVE UP TO 90%



VICKERS HYDRAULIC PUMP
Variable displacement. Rated 3000 PSI @ 6 GPM @ 3800 RPM. Contains built-in bypass with adjustable pressure reg. Inlet port 1-1/16"-12. Outlet 3/4"-16. Exc. for all hydraulic applications. Approx. GOVT. COST \$485. Shpg. Wt. 16 lbs. **\$27.50**



DOUBLE-ACTING HYDRAULIC CYLINDER
21-1/2" stroke, 2" bore, 1-1/2" shaft. Operating pressure 3000 PSI. Produces 10,000 lb. thrust. Ports are 1/4" pipe. Top clevis hole 1", bottom hole 5/8". Steel barrel. Completely rebuilt. Approx. GOVT. COST \$130. Shpg. wt. 18 lbs. **\$21.50.**



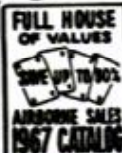
4-WAY HYDRAULIC VALVE
Rated 3000 PSI. 3 ports 1/2" pipe, 1 port 3/8" pipe. Manually operated. Spring return to neutral position. Closed center. Slide-type valve, 5 3/4" L x 3 3/4" W x 3" H. Aluminum housing with 4 mounting feet. Govt. overhauled. Approx. GOVT. COST \$140. Shpg. wt. 5 lbs. **\$9.95**



HEAVY DUTY BATTERY WINCH
Rugged, deluxe winch with ball bearing construction throughout motor & gear train. High gear reduction. Rated cap 3000 lb. pull. Contains reversing switch. Rugged 3/4" plate steel mounting base with outrigger support. 22" L x 9" W x 8" H. Handles 250' of 1/4" cable. Built for 12 V battery operation; also operates on 6 V at reduced cap. & speed. A must for Scouts, Jeeps, Trucks, Boat loading trailers, etc. Shpg. wt. 80 lbs. Approx. GOVT COST \$490. NEW. 90-day guarantee. Model E-D **\$79.50**



ELECTRIC PUMP WITH CONTROL SWITCH For boats, campers & trailers. Output 200 GPH. Can be used in fuel or water. 1/2" pipe bronze inlet. 12 or 24 V.D.C. Explosion proof motor. Shpg. wt. 9 lbs. Complete with wiring diagram. Approx. GOVT COST \$200. NEW **\$11.95**



NEW! BIG! 1967 CATALOG

Send 25c for amazing catalog with 1000's of bargains in hydraulics; electrical, marine, automotive items, etc. Order from ad. Prices FOB 50% deposit for COD. Must include your zip code number. Satisfying mail order customers thru-out the world since 1945.

AIRBORNE SALES CO. Dept. PM 567

8501 Stellar Dr. • Box 2727 • Culver City, Calif. 90230

BUILD A KIT GREENHOUSE

(Continued from page 220)

growing light, but requires shade in summer. A northern exposure will sustain foliage plants such as African violets and orchids, but heating will cost more.

The greatest thrill in year-round gardening comes when you're growing plants and flowers right through the most bitter winter. While the sun may provide all or most of the heat during the day, you'll need some means of furnishing heat at night. This can be done with electric heaters or small gas units. Heat from an existing hot-water or warm-air system will do. The amount of heat required will be determined by the size of your greenhouse, the night temperature you want to maintain and severity of your winters.

Home greenhouses are the easiest things to erect. If you're the least bit handy with tools, you can erect one in two or three weekends. Most of the kits on the market are aluminum and designed to go together like the parts of a toy construction set. Such firms as Lord and Burnham, Aluminum Greenhouses, Inc. and others, offer a whole array of glass houses—little ones and big ones, simple ones and fancy ones—enough to make any gardening buff's mouth water. Most of the larger greenhouses need a masonry wall to sit on. The smaller ones need only a concrete footing that extends below the frost line. As for a floor, a plain dirt one covered with gravel is best. It won't dehumidify the air and dry out the plants. A few flagstones or an aisle of bricks placed between your redwood benches will provide a place to walk. ★ ★ ★

ABCs OF BRAKES

(Continued from page 218)

basic brake drum has undergone some modifications. Figure 7A shows a finned drum which seems to offer the best solution for increased heat dissipation. An alternate method, shown in Figure 7B, and frequently used, is the provision of a long flange extended from the drum periphery.

Disc brakes gain additional cooling area by separating the rubbing surfaces with an air space as shown in Figure 7C. Air flows from the center outward through the disc as the wheel rotates, cooling the disc.

Even in the face of impressive advances in brake design, remember that your brakes have their limitations, and be aware of these as you drive. Keep all parts of your brake system in top condition and properly adjusted: it can be the cheapest travel insurance you can purchase. ★ ★ ★

**NOW AVAILABLE—
COAST-TO-COAST!**

WEATHERPROOF

homasote

FOR HOME

IMPROVEMENT PROJECTS



Upstairs or downstairs, inside or outside, large job or small job, all-wood-fibre Homasote board is best for building or remodeling. Weatherproof . . . insulating . . . resistant to termites, rot, and fungi . . . structurally strong . . . cuts, drills and nails easily—without splintering. Available at lumber dealers, or write for literature and name of local dealer.

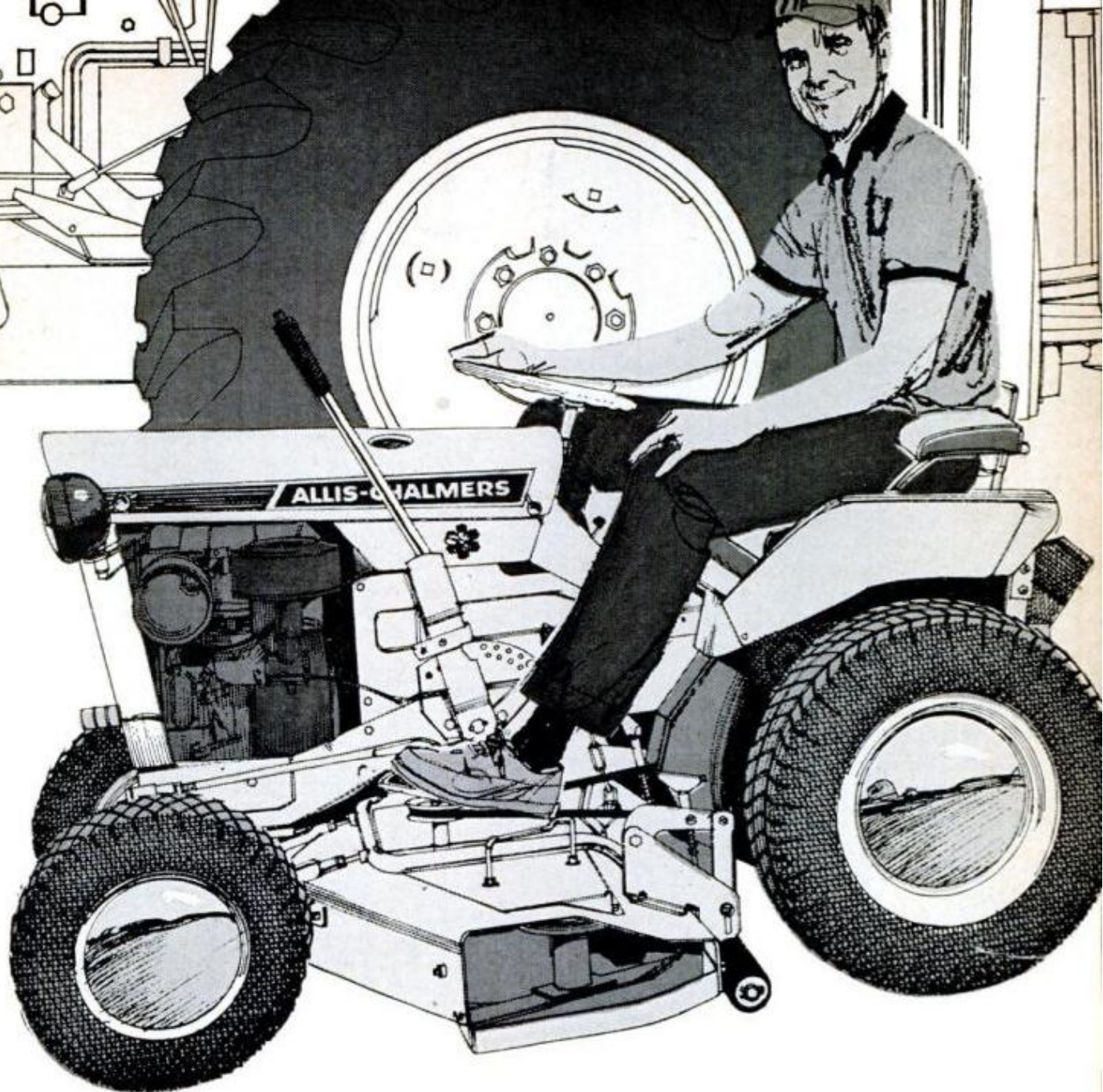
Send for handyman working guides: "hide-away" houses; playhouses and tents; boat-houses; A-frame vacation homes; backyard improvement. (Please enclose 10¢ per set for postage and handling.)

Dept. E-6



homasote Company

TRENTON, N. J. 08603



Built tough like the big ones!

Got a tough job in mind? Like mowing an acre or two of tall grass? The Allis-Chalmers lawn and garden tractor makes short work of it—mows up to two big acres an hour.

Take another rugged job. Like shoveling snow. Our new compact wades into the deepest drifts, chews 'em up—and throws 'em away—200 shovelfuls a minute.

There's more: an Allis-Chalmers lawn and garden

tractor can haul rocks, fertilize, sweep up leaves; or cultivate, till, plow, seed, and roll. With ease.

That's because it's a *real* tractor—with a powerful, air-cooled Briggs and Stratton engine; three forward speeds; and many other big features.

Find out. Ask your nearby Allis-Chalmers dealer for a demonstration. *And be sure to see our new 5 HP Mow-Bee riding mower too.*

- Send me: PM-5
"How to Buy a Garden Tractor."
- Send me Mow-Bee information.
- Send name of my nearby Allis-Chalmers dealer.
- I am a student.

Name _____

Address _____

City _____

State _____ Zip Code _____

Phone _____

Send coupon to: Allis-Chalmers, Box 511, Milwaukee, Wisconsin 53201



ALLIS-CHALMERS

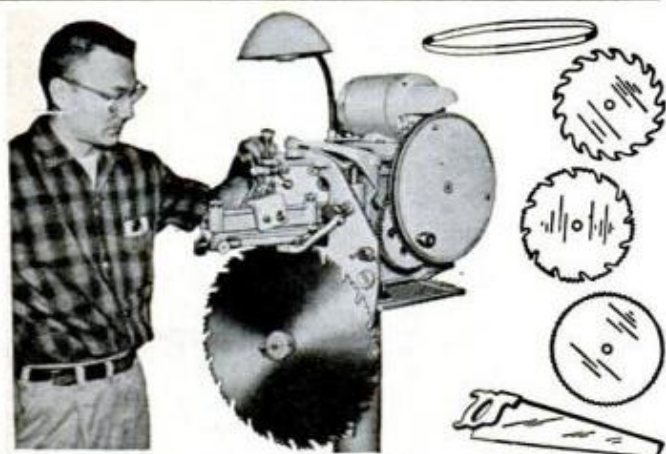
lawn and garden tractors . . . built tough like the big ones



Electric engraver: This new compact Dremel permanently engraves names or identification numbers on steel, copper, brass, silver, aluminum, glass, wood, plastic. Handy for making tools, personal and business valuables, jewelry, industrial tools and dies—anything requiring permanent identification. Weighs only 7 ozs. Exclusive calibrated stroke adjustment regulates depth of engraving. Solid carbide engraving point. Diamond points also available. Price \$14.95 with solid carbide engraving point and storage case. See your dealer, or write for literature. *Dremel Mfg. Co., Dept. 87-E, Racine, Wis.*

ADVERTISEMENT

4421



CASH FILING SAWS

Here is a steady repeat CASH business you can start at home. No experience needed—no canvassing—every saw you sharpen will bring new customers. You can make up to \$3 or \$6 an hour—\$20 to \$30 a week in your spare time as a starter. "My spare time saw filing business has made me \$952 these first ten months," says R. T. Chapman.

The new model 200 Foley Saw Filer automatically sharpens combination (rip and crosscut) circular saws, hand saws, band saws and crosscut circular saws.

Free Book—"MONEY MAKING FACTS" shows you how to get into this CASH business. Time Payments if desired. Mail coupon now. No salesman will call.

FOLEY MFG. CO.
543-7 Foley Bldg., Minneapolis 18, Minn.

Send me free book "MONEY MAKING FACTS" and Time Payment Plan.

Name _____

Address _____

City _____ State _____



WORLD'S WETTEST DRYDOCK

(Continued from page 155)

The *Wasa* sank in 100 feet; for a time her masts showed above water. Salvage efforts were made, but the job was too big for 17th-century technology. However, in 1668, in one of the greatest underwater feats of all time, Swedish divers, under Hans Albrekt von Treileben, working in primitive diving bells, brought up almost all of the ship's ponderous guns.

Then for nearly 300 years the *Wasa* was forgotten, even though generations of ships—sail, then steam—passed above her in busy Stockholm Harbor. Many anchored directly over her and lost their anchors in her rugged beams.

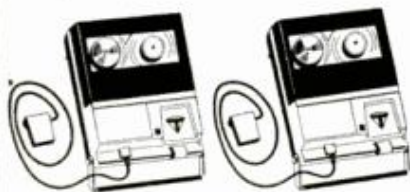
Finally in 1956, a marine archeologist, Anders Franzén, who had studied about the *Wasa* in Swedish archives, retrieved a tiny piece of black oak from a spot where it was believed to have sunk. Navy divers went down and found the lost flagship.

Salvage began by moving the *Wasa underwater* from her 100-foot resting place to a shallower depth. Divers drove six tunnels under the *Wasa's* hull and passed lifting cables through them. The cables were attached to two large pontoons, which were filled with water until they barely floated then pumped out. As they rose, so did the *Wasa*. The pontoons were then towed toward shallower water until the *Wasa* touched bottom. The process was repeated 18 times until the *Wasa* rested in 50 feet (page 114, March '60 PM).

For the final raising, the pontoons acted merely as platforms for big hydraulic jacks which did the actual lifting. But first the *Wasa* had to be made watertight. Divers worked all of 1960 and 1961 sealing up cannon ports, repairing portions of the stern that had been torn out by ships' anchors (several anchors were found in and around the *Wasa*), and banging wooden pegs into holes left by rusted bolts. One "dockside superintendent" suggested filling the hull with millions of ping-pong balls. Another said to pump a cooling liquid into the *Wasa* to freeze her into a solid block of ice which would float.

However, the salvage company decided to stick with pontoons and jacks, and by April 24, 1961, they were ready to hoist. By noon, outlines of the ship were visible. Soon after, carved heads atop two bits gazed at the sun for the first time in 333 years! As soon as the upper deck was above water, pumping began at the rate of 7500 gallons a minute. On May 4, the *Wasa* was buoyant enough to be towed to a drydock. For the first time, the salvagers and divers and archeologists could see the full immensity of their prize. ★ ★ ★

Which should you buy?



A battery tape recorder
priced at \$39.95...

OR

another unit priced at \$99.95?



A 12-inch TV set
priced at \$89.95...

OR

another unit priced at \$120.00



An instant-load camera
priced at \$54.95...

OR

another model priced at \$71.98?

The answers below may surprise you!

IF YOU buy "blindfolded" (as most consumers do), you are probably spending too much money. For example, according to our impartial laboratory tests...

- The battery tape recorder priced at \$39.95 was judged a "Best Buy" over other models priced up to \$99.95. (Possible saving: up to \$60.00).

- A 12-inch TV set priced at \$89.95 was judged a "Best Buy" over other models priced up to \$120.00 (Possible saving: up to \$30.05).

- The instant-load autoexposure camera priced at \$54.95 was rated above another model priced at \$71.98. (Possible saving: up to \$17.03)

These "hidden" values and savings were revealed in recent issues of *Consumer Reports*. Hundreds of products like these are rated in the latest 448-page issue of the famous *Consumer Reports Buying Guide* — yours as a gift with a one-year subscription to *Consumer Reports*.

Consumer Reports is published monthly by Consumers Union, a non-profit, public-service organization. It is not connected with any manufacturer. It accepts no gifts or "loans" of products for testing. It accepts no advertising. Its sole income is from the sale of publications to over 1,000,000 subscribers and newsstand buyers.

Our own shoppers buy, at retail, samples of products to be tested comparatively by our chemists and engineers. Each issue of *Consumer Reports* brings the latest findings, with ratings of these products by brand name and model number.

In addition, the magazine reports the authoritative (and sometimes startling) facts about misleading advertising, deceptive packaging, hidden costs of credit buying, reducing diets, vitamins, and many other topics essential to home management.

The Wall Street Journal credits our "broad appeal to the reputation for honesty and technical accuracy [we have] maintained."

Save \$3.40 Immediately

By subscribing now you will see *Consumer Reports'* ratings on: electric saws, compact cars, washing machines, FM-AM clock radios, sneakers, telescopes, permanent-press sheets and pillowcases, imported cars, stereo headphones, low-cost still cameras, interior latex flat paint, lawn sprinklers, and many other products. The annual Christmas buying issue also has the famous Consumers Union "Best Buy" gift selection. In addition, you will get the 1967 *Buying Guide* issue which rates over 2,000 products.

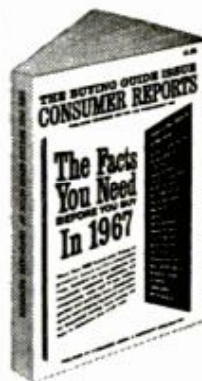
All this costs \$9.40 at a newsstand. With the coupon, you save \$3.40 at the outset. And your subscription might end up not costing you a cent. Thousands have told us how *Consumer Reports* helped them save up to \$100 a year and more.

GIVEN TO YOU

with your subscription

Partial listing of contents. Many of these products are rated comparatively; general buying guidance is given for all.

Air conditioners
Antenna rotators
Automobile battery chargers
Automobiles
Bathroom scales
Cameras
Card table sets
Children's auto harnesses
Coffee-makers
Dishwashers
Drills, electric
Fishing nets and creels
Food blenders
Garden sprayers
Hearing aids
Heaters
Ice crushers



Lawn fertilizers
Lawn mowers
Molded luggage
Permanent-press shirts
Phonographic components
Radios
Refrigerators
Sewing machines
Shavers
Slide projectors
Stereo tape players for cars
Tape recorders
Television sets
Toasters
Toothbrushes, electric
Washing machines

YOU SAVE \$3.40 IMMEDIATELY OVER THE NEWSSTAND PRICE

HERE'S HOW:

YOU GET the next 12 issues of *Consumer Reports*, including the *Buying Guide* issue for 1968 when published — newsstand price\$7.45

YOU GET the 448-page *Buying Guide* issue for 1967 — newsstand price\$1.95
TOTAL 9.40
YOU PAY ONLY 6.00
YOU SAVE\$3.40

Consumers Union, Dept. PM-1
Mount Vernon, N. Y. 10550

Please enter my subscription to *CONSUMER REPORTS* for a full year (12 issues) at just \$6.00, and send me the current 448-page *Consumer Reports Buying Guide* issue at no extra cost.

Payment enclosed Bill me

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

If you wish, you may benefit from the reduced rate for two or three years. Check the period you prefer.

2 years—\$10.00 3 years—\$14.00

RODGER WARD'S INDY PREVIEW

(Continued from page 118)

ther, and one will be in reserve. The remaining eight cars have been sold to such entrants as Lindsey Hopkins (Roger McCluskey), Leader Cards, Inc. (Bobby Unser), Pacesetter Homes (Jochen Rindt), Friedkin Enterprise (Jerry Grant), Weinberger Homes (Johnny Rutherford) and so on.

Two-time U. S. Auto Club national champion Mario Andretti, winner of this year's Daytona 500 stock-car race, will drive one of two Ford-powered Brawner-Brabham chassis cars for Dean Van Lines. One is the same car (although somewhat refined aerodynamically) in which he qualified last year at an eye-popping 165.889 mph.

Carrol Horton, Indianapolis-based builder, has two cars ready for this year's race, again both rear-engine Fords to be driven by Ronnie Bucknum and Al Smith.

Also in rear-engine cars will be such stars as Clark and Hill, Cale Yarborough, Jimmy McElreath, Gordon Johncock, Al Unser and others, and such outstanding international drivers as Lorenzo Bandini (presumably on hand as a prelude to Ferrari's plan to try the Brickyard in 1968),

Dennis Hulme, Pedro Rodriguez, Chris Amon, and several others.

Cars of this design, some of them, as noted, rebuilt from former years, have of course been modified and hopefully improved in power, suspension, handling, reliability and so on.

(Keep in mind, incidentally, that when it comes to innovations at Indy, there's actually very little that is really new; just about everything—sometimes crudely, I admit—has been tried. But car builders, engineers, mechanics, tire specialists, drivers—the entire racing fraternity—are working with new knowledge of what may in fact be old concepts. This, I think, is what each year accounts for higher speeds and better racing.)

But coming on strong for 1967 will be a number of designs that, even if only partially successful, may prove as revolutionary as did Clark's first Lotus.

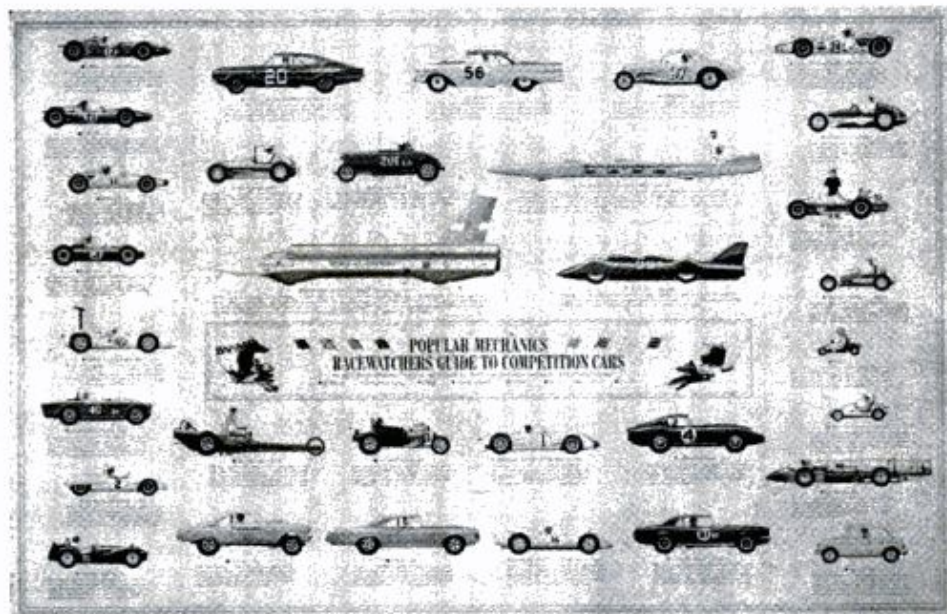
Jim Hurtubise, now a car builder as well as a driver, has put together three unique cars for this year's race—one and a spare for himself, the other for entrant Herb Porter, the driver of which will probably be veteran Bobby Grim.

The cars are modified roadster-types with turbocharged Offy power located ap-

(Please turn to page 234)

RACE FANS! Get This Handsome, Full-Color Wall Chart— Your New PM Guide to Competition Cars

32 types of racing cars in 8 major classes—Championship, Stock, Formula, Sports, GT, etc. Beautifully painted. Printed on heavy paper, 35 x 23 inches, suitable for framing. \$1.50 each postpaid.



Racing, Popular Mechanics, 575 Lexington Ave., New York, N. Y. 10022

Please send _____ copies of Popular Mechanics Racewatchers Guide to Competition Cars. Enclosed find \$1.50 for each

Name _____
Street _____
City _____ State _____ Zip Code _____

AMES

LAWN & GARDEN VALUES

No. 19-140 (ALGR)



Lets your lawn breathe!

Use one side of this unique two-way rake for quick, easy removal of matted grass-killing thatch . . . to let sun, water and fertilizer nourish roots. Use reverse tines for reseeding, cultivating. Self-cleaning—pull, it's full . . . push, it's clean! Ask for Ames Lawn Groom Rake—\$4.50

Ends messy hose handling!

Eliminate kinking, knotting, tripping. You need unwind only length of hose required—because *water flows through reel itself!* Sprinkle, then easily rewind for storage. Holds 150 feet. Detach reel for sturdy hand truck! Ames Handi-Truk Reel—\$17.00



No. 23-809

Short cut to a trim lawn!



No. 19-759 (30)

Famous Ames Roto-Edger®—fastest, easiest way to trim shaggy, overhanging grass along walks, beds, house, fences, around trees. Literally a pair of scissors on wheels . . . with shelf-sharpening, clog-proof blades. Quality and workmanship unconditionally guaranteed—\$6.50

WIN A MILLIONAIRE'S BACKYARD

including 16' x 32' Spartan Swimming Pool!

Nothing to buy

Enter at department, hardware or garden supply stores

AMES®
SINCE 1774
O. AMES CO.
Parkersburg, W. Va.

ADDING COMFORT TO CAMPERS

(Continued from page 127)

draining the system, especially for winter storage. Attach a copper tube to the drain fitting and run the tube to the rear of the camper. Attach an easy-to-operate valve at the end of the tube. With this modification, you will also have a fresh-water outlet outside the camper.

● **Install an extra storage battery.** When considerable electrical power is used for camper appliances and lights, there's always the fear that the battery will be so drained that it will not have enough punch to start the engine. Though the dual electrical system mentioned earlier is the best system, many camper owners have installed just a second 12-volt battery in the engine compartment. This second battery, placed in parallel with the main battery, gives an extra margin of battery power safety.

With the two batteries in parallel, they can both be charged when the engine is running. When the camper is parked, a heavy-duty switch is used to disconnect the extra battery from the main line. It can then be used for the camper's power source without using up the main battery.

● **Improve your water system.** The basic

camper water system consists of a sink-mounted toggle pump that lifts water from a plastic storage tank. This can be improved by installing a 12-volt electric water pump (\$30.55 from Airborne Sales) that's operated by a pressure foot switch on the floor. Campers that use a snap switch on a bulkhead for operating the water pump can improve their system by changing to a handier foot switch, saving considerable amounts of water.

To get instant running water at any faucet, including the shower, an air-pressure system is recommended. This calls for copper piping, a steel water tank and a threaded exterior connection to which a water hose can be securely fastened. As the water fills the tank, it squeezes the air, pressurizing the system. Some systems, such as are used on Travel Queen campers, have an air pressure gauge and air valve for bleeding off excess pressure. Others use a hand or electric pump to build pressure when it's needed.

Any one of these 12 items will add that extra bit of comfort which makes camping even more enjoyable. There are many other excellent ideas that you can get from some of the "old pros" that you're bound to meet this summer at your favorite camp site. ★★★



Mow like a million with **HAHN-ECLIPSE POW-R-PRO™**

This belt-drive rotary mower cuts cleanly to within a grass blade or less of patio or poolside. Completely safe yardening because you start the blade only after you are behind the handles. 20" and 22" hand-propelled and self-propelled models — all with grass bags included. Meets ASA Safety Code. Write for literature.



Dept. PM-567
Evansville, Ind. 47717

New Engineering Magic:



Ford's new Super Wide Oval Tire for Mustang, Fairlane and Ford

Another better idea from Ford: More new tires for more driving needs

Ford engineers continually search for tires to meet special driving needs and for ideas to improve tires used in everyday driving. That's why you'll find more different kinds of tires available on the '67's from Ford than on any other cars.

Ford standard equipment tires are designed to give all the qualities you need for average driving conditions.

The new Super Wide Oval Tire has 21% additional tread width on the road. Wide ovals are ideal for performance-minded drivers, or anyone with a special need for extra traction combined with low rolling resistance. Wide ovals are optional on all Fairlanes (except wagons), on all Mustangs and are standard on Fords equipped with the 7-Litre package.

Radial ply tires are a Ford exclusive. Their cords run directly across the tire from one bead to the other, instead of "criss-cross" as do cords in conventional tires.

This radial design makes sidewalls more flexible to absorb shock, cuts heat-building internal friction and reduces the "squirm" of tread rubber meeting the road. Result: a cooler-



running, better-gripping tire with up to 80% longer tread life. In addition, radial tires offer less rolling resistance. They're optional on Fords, Falcon sedans and G.T. or HD-suspension-equipped Mustang V-8s.

There's a built-in tread wear indicator on every standard equip-

ment tire on every one of the '67s from Ford. It's a sort of "early warning system" that shows up as six smooth spots spaced around the tread to remind you to replace the tire before it becomes unsafe.



Better ideas like these in tires are typical of Ford's extra effort to make your driving smoother and more secure.

Other better ideas from Ford—the exclusive Magic Doorgate on all Ford and Fairlane wagons, that swings open like a door for people... swings down like a tailgate for cargo, and Ford Motor Company's standard Lifeguard Design Safety Features.

You're ahead in a Ford



MUSTANG FALCON FAIRLANE
FORD THUNDERBIRD

“Even the world’s best gasoline can leave deposits of gum in your carburetor”

—says:
Tom McCahill,
noted automotive
authority



**That’s
why
you
need GUMOUT!**

A spotlessly clean carburetor is vitally important to your car. Unless, of course, you’re willing to put up with hard starting, stalling, loss of power and poor gas mileage. Let dirt, gum or varnish clog your carburetor and you’ll have those problems.

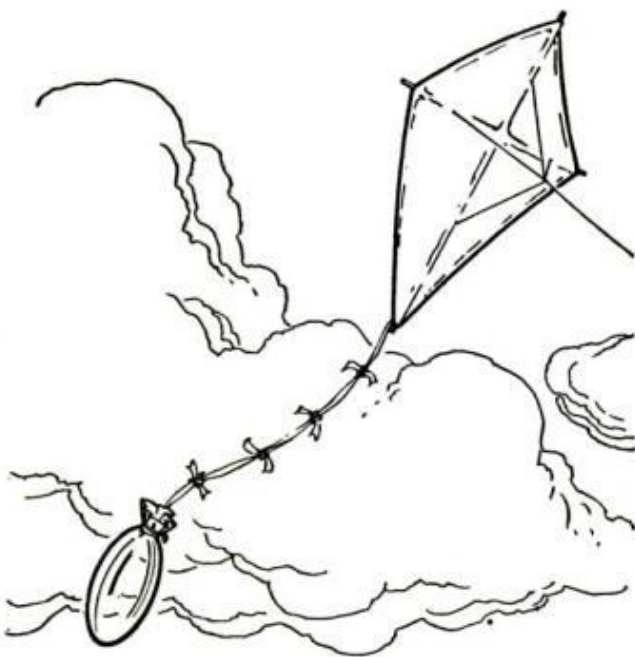
The most effective carburetor cleaner of all is GUMOUT. Pour a pint in your gas tank and it cleans your carburetor completely as you drive.

You’ll notice the results right away. Fast starts again, smoother idling, “get-up-and-go” that your car hasn’t had since it was new. And... all it takes is a pint of GUMOUT 3 or 4 times a year. A real bargain . . . wherever automotive products are sold.



GUMOUT DIVISION
Pennsylvania Refining Co., Cleveland, Ohio 44104

HINTS FROM READERS



Kill kite cutups

If tail ballast is insufficient, attach an inflated plastic bag to the end of the tail. You’ll have a more upright kite with fewer acrobatics.—G. E. Hendrickson

Offset dirt tamper

Skinned knuckles may result when tamping around fenceposts with a rod. If you set many posts, it will pay to make this tamper that bends.—G. E. Hendrickson



POPULAR MECHANICS

DISSTON TEFLON-COATED SAWS†

New Disston satin slide saws coated with "Teflon S"* self-lubricating finish

Bind-free cutting with minimum maintenance; same Disston quality with new added feature. Industrial-hard Du Pont "Teflon S," a breakthrough in nonstick finishes, permits a finish treatment baked on that won't wear off in normal woodcutting. You get slicker cutting, and lifelong rust protection, too!

We clamped the Teflon-coated saw blade between two wooden blocks so that only a machine could push it back and forth. After one million strokes, the Teflon showed less than 5% wear. That represents years of professional sawing, with Teflon action left for

*Du Pont T.M.

generations of easy cutting. Riding in its own kerf, as in normal woodcutting, a million strokes would produce no measurable Teflon wear, only a smoother, slicker finish.

Professional tree men found that Teflon pruning saws glided through wet or sappy wood, stayed clean and smooth. The smooth, sure action makes them safer to use where off-balance positions are required. Home gardeners proved that year-round delimiting could be easy, effortless fun. Clean, accurate cuts lessen danger of permanent tree damage and provide a finished appearance.

†Patent Pending



Teflon handsaws available in two models.
Suggested retail \$8.95 to \$12.50



Double-edge pruning saw
Suggested retail \$5.95



Folding pruning saw
Suggested retail \$4.50



Compass saw kit
Suggested retail \$4.50



Single-edge lightweight saw
Suggested retail \$3.99

PORTER

**HARDWARE & INDUSTRIAL
PRODUCTS DIVISION
H. K. PORTER COMPANY, INC.**



Who ever heard of a vitamin shot for tired automatic transmissions?

You just did. It's Quaker State ATA, the Automatic Transmission Additive that revitalizes tired automatic transmission fluids. ATA does more than just restore fluid level. It reduces future fluid loss by swelling hardened transmission seals. ATA prevents sludge and varnish deposits from forming and insures smoother shifting. Ask your dealer for Quaker State ATA.

ATA is made by the makers of



QUAKER STATE OIL REFINING CORPORATION P.M.
 P.O. Box 989
 Oil City, Pennsylvania 16301

Please send more details about ATA.

Name.....
 Address.....
 City.....State.....Zip.....



Great Rust Hunter

MAC'S No. 13 Rust Inhibitor is called the "Great Rust Hunter." It hunts down radiator rust and drops it dead in its tracks. Just what you'd expect from the top seller. Available wherever automotive chemicals are sold. And it's guaranteed!

MAC'S SUPER GLOSS CO., INC.
 Los Angeles 90042 • Cincinnati 45226

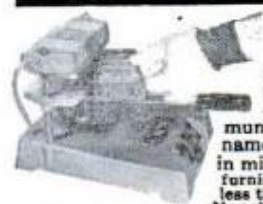
DRAINS cellars, cisterns, wash tubs; **\$ 8.95** **IRRIGATES - CIRCULATES - SPRAYS**



1,001 uses. Stainless shaft. Won't rust or clog! Use 1/6 HP motor or larger... 3/4 HP for up to 2,400 GPH; 450 GPH 80' high; or 1,800 GPH from 25' well. 1" inlet; 3/4" outlet. Coupling included free. **\$8.95.**
HEAVY DUTY BALL-BEARING PUMP. Up to 5,200 GPH; or 3,000 GPH from 25' well. 1 1/4" inlet; 1" outlet. **\$12.95**
 Postpaid if cash with order. **MONEY BACK GUARANTEE**

Centrifugal and Gear Pumps in All Sizes
LABAWCO, Box 7, Belle Mead, N. J. 08502

Make Rubber Stamps for BIG PAY



Need more money? Earn \$60-\$75 a week, spare time, at home making rubber stamps for offices, factories, individuals. Hundreds of uses. Hundreds of prospects—everywhere. Right in your own community. Turn out special stamps for names, addresses, notices, prices, etc., in minutes with table-top machine. We furnish everything and *help finance you*, at less than bank rates. Write for free facts. No salesman will call.

Rubber Stamp Div., 1512 Jarvis, Dept. R-2-ET, Chicago 60626

RECHARGE ALL BATTERIES

Only Everlite

- Charges 6 batteries
- Charges 3 times faster
- Charges all batteries

Including hearing aid, flashlight, lantern, radio, in fact any battery up to 12V. Save Money and have the convenience of fresh batteries always. Simple and 100% Safe. Plugs into any 115V. outlet. Guar. for one year. Send \$6.95 plus \$.65 for shipping

695



Model 75

MASTER MECHANIC MFG. CO., Dept. A-57 Burlington, Wis.
 Southern Customers write Dept. A-57, Box 65, Sarasota, Florida

Will you help our country keep a promise?

America promised freedom to the immigrants who came here not so long ago. And still come. They, in turn, promised America hard work, ingenuity.

They kept their promise. America has thrived on it.

How's America doing lately? Still a land where individual striving means a lot?

You can help keep it that way by joining the Air Force Reserve. The Reserve urgently needs pilots, navigators and panel engineers. It won't take much time out of your life...one weekend a

month, plus two weeks a year...and it's your opportunity to continue flying. A welcome little change from your daily routine at home.

You also get paid for it. This isn't bad when those extra bills come in. You also pile up added time toward promotions and retirement benefits.

For further information, visit the nearest Air Force Reserve unit or contact the Reserve Affairs Officer at the nearest Air Force base. For information on the nearest Reserve unit, send in the coupon below.

Help America keep its promise.



CAC (PRP)
Robins AFB, Ga. 31093

Please send me information about joining the Air Force Reserve. I was a member of the AIR FORCE , NAVY , COAST GUARD , MARINES ,

ARMY . My grade was _____

My military specialty was _____

Name: _____

(Please print)

Address: _____

PM-75

Trolling's a breeze with a McCulloch air-cooled 4.

Here's the slowest trolling, pushiest little outboard that ever crossed a lake. McCulloch's air-cooled 4 hp can run all day at 450 rpm. Remarkably maneuverable, too, with 360° steering. And the dependable, air-cooled powerhead eliminates engine water. So no corrosion. No freezing in cold weather—great for duck hunters. Also, air cooling adds no weight. (It's a mere 37 lbs.) Trouble-free air cooling... another McCulloch extra at no extra cost. For literature, write: McCulloch Corporation, 6101 West Century Boulevard, Los Angeles, California 90045.

The year of the extras at no extra cost.



McCULLOCH
OUTBOARDS · CHAIN SAWS
LEADERSHIP THROUGH
CREATIVE ENGINEERING

All specifications subject to change without notice.

RODGER WARD'S INDY PREVIEW

(Continued from page 226)

proximately amidships. Construction is semi-monocoque. The driver sits farther back than in a "conventional" roadster—almost against the solid rear axle. The cars have coil springs and two-speed rear-end drive. If Herk's high hopes for the cars turn out to be justified, there could be a lot of racing-world drawing board activity in the coming months.

Personally, for this type of race, I think the roadster-type car is best. I've raced both kinds and I always felt the "seat-of-the-pants" control factor was more acute in a roadster. In a tight, high-speed corner, for example, the rear wheels of a roadster will swing out in a more pronounced fashion, tending—I think, anyway—to make the driver more aware of just what's happening to his car.

Four-wheel steering

Another new front-engine car that will be battling for a starting spot this year is Mickey Thompson's Wynn's Spit-Fire Special, to be driven by Gary Congdon. Thompson is nothing if not inventive and his effort in this car is no exception. Not only is the engine up front, but the car also features front-wheel drive and four-wheel steering. He claims to have licked the traction problems that usually plague front-drive cars and says his four-wheel steering setup will give the car much improved high-speed cornering ability.

Thompson's car is built on a 96-inch wheelbase and is powered by his own version of a basic Chevy V8 engine offset two inches left and featuring hemispherical combustion chambers with three valves (two intake, one exhaust) per cylinder. Right now the engine is cranking out 540 hp at 7200 rpm. I doubt this is enough, and so does Mickey. He says he hopes for 565 hp at 8500 rpm by race day.

(The car also houses what I've been told is some kind of radio device—for what, nobody will say. Radio communication in one form or another has been tried at Indy in years past, but various bugs—to say nothing of driver distraction—caused such attempts to be abandoned.)

Thompson also plans to show up with a conventionally designed rear-engine rear-drive car, the driver of which has not as yet been announced.

STP's Andy Granatelli and his Merry Men will be on hand this year with an interesting array of cars, including a radical four-wheel-drive, Novi-powered rear-engine car to be driven by Greg Weld. Also in Granatelli's surprise package is a

(Please turn to page 238)

Sure beats smoking!



Enjoy Copenhagen: Place a small pinch between cheek and gum. No chewing.

United States Tobacco Company



Print Your Own

Cards, Stationery, Advertising, Circulars, labels, photo and movie titles, church work, tags, greeting, sympathy, prayer cards, etc. Save money. Pays for itself in a short time.

Own a Printing Business

Good Profit. Raised printing like engraving too. Have home shop. We supply everything. Direct from factory, only. Easily followed rules. Write now for free details. **KELSEY PRESSES E-37 Meriden, Conn. 06450**

HARD-TO-FIND TOOLS

NEW CATALOG of exceptional useful tools rarely found in stores or other catalogs. Industrial—professional quality only. Used by wood & metal workers, repairmen, welders, machinists, clock, watch and instrument makers, jewelers and model makers. Brookstone tools solve problems—make work easier, more fun. Send 20c.

BROOKSTONE CO.

57-24 RIVER ROAD
WORTHINGTON, MASS. 01098

original HANDEE® the ideal gift

TOOL OF 1001 USES



cut, carve, sand, saw, grind, drill, engrave, polish, clean

Handee weighs only 14 oz. Smooth operation. 28,000 R.P.M. A complete line of accessories including Drill Press, Bench Holder, Tool Post Adapter and Foot Speed Control increases Handee's usefulness. For Model Builders the No. 7001 Drill Set (No. 61 thru No. 80) and the No. 38A Drill Chuck are invaluable. Fully guaranteed against defects in material and workmanship.

No. 6000 Handee with 3/32" collet, 1/8" collet, and wrench. **\$25.95**

No. 6009 Handee with 7 accessories **\$26.95**

No. 6010 Handee with 45 accessories and case **\$35.95**

No. 3500 Hi-Power Handee 18,000 R.P.M., 1/8 h.p., 11 3/8" long & 6 3/4 lbs. 1/4 cap. Jacobs chuck. . **\$55.95**

ORDER NOW!

See your Handee Dealer or Order direct

CHICAGO WHEEL & MFG. CO.
Dept. PM-5, 1101 W. Monroe Street, Chicago, Illinois 60607

- Enclosed is payment for set No. _____ (add 60¢ to each set for postage and handling).
 Please send me complete Handee catalog.

NAME _____

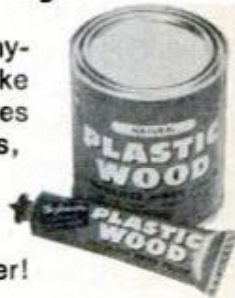
STREET _____

CITY _____ STATE _____ ZIP CODE _____



When it's fixed with plastic wood... it stays fixed!

Plastic Wood is the way to fix anything made of wood. It handles like putty, hardens just like wood. Does a "pro" job on busted chairs, wobbly tables, loose screws... you name it! Resists weather; comes in 5 natural wood colors. Plastic Wood...the great little fixer!



Bikes cost money.



Protecting them is still cheap.

3-IN-ONE can help keep bikes from rusting and running down. It fights rust; protects moving parts from wear; makes things last longer. You pay good money for a bike, a lawn mower, power saws, fans, etc. They're certainly worth a few cents of "insurance." Use 3-IN-ONE. Regular...electric motor oil...or this handy new spray can.

Compact cars sure were a good idea. Valiant still is.

In case you've forgotten, the original idea was to skip the doodads and concentrate on the most car for the least money possible. But compacts have been getting chromier and less economic lately—even the foreign economy jobs. Meanwhile, Valiant's stuck to its guns. Which is why its percentage of repeat owners is highest of any American compact. And its depreciation rate is among the very lowest. So much for the highlights; now let's get to specifics . . .

Our sticking to—and perfecting—the basic compact car involves a lot more than just size—it's a whole philosophy we're committed to.

In fact, while others have been adding GTs, SS's, etc., we've dropped all hardtops, station wagons and convertibles from our line. *Because we found they required compromises we don't like.*

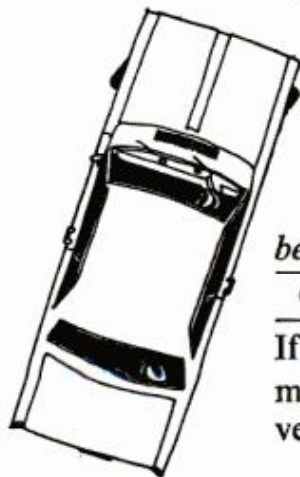
Sure, we'll lose some sales to sporty-car buyers. But we figure to win over more of you who *want* what a compact car was intended to be in the first place.

Uhh—what is a proper compact, anyway?

It's sort of like a perfect marriage—hard to describe, rarely found, but a delight to experience.

Specifically, a compact is big enough to hold six without pinching, plus a fair stack of luggage—but small enough to maneuver and park with ease.

It's heavy enough to hug the road at 70 mph. Light enough to give you every



break on license fees and insurance.

It's lively enough to keep up with any traffic. Yet thrifty enough to save you good money on gas.

And it's deluxe enough to give you all the comfort you need. But never at the expense of becoming expensive.

Valiant *is* all these things. And more.

Now, what it isn't . . .

Valiant is not a sports car—even though it has options like vinyl roof coverings and bucket seats and 4-on-the-floor. (The last is to help our ex-foreign-car owners enjoy their new surroundings.)

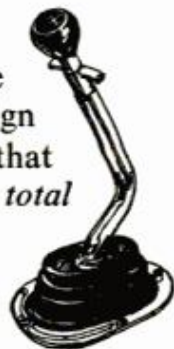
Valiant also is not the absolutely lowest-priced car in the world to buy and feed. The foreign economy cars have us beat on that point—until you figure out their *total cost-to-own*.

When you factor in the extras . . . the more frequent service usually recommended . . . the repair costs you can figure on after the warranty runs out (assuming you can get parts) . . . you'll find Valiant, figured on the same basis, comes out a whole lot closer than most people would guess. (And we have a few engineers who swear their figures prove Valiant *beats* the bitty ones.)

Could Valiant win you over to compacts?

If you've gotten this far into our ad, it just might. Because people do manage to become very devoted to it.

Item: Valiant is winning its owners back



for seconds and thirds at the highest rate of repeat ownership among all American compacts. And their used Valiants bring back one of the highest returns on original investment.

Now you *know* that doesn't happen by accident. Obviously, something is fundamentally very right about this car.

What are the ground rules?

Some of Valiant's biggest advantages start in closest to the ground. Its wheelbase is 108 inches—long enough for riding comfort, short enough for easy handling and parking. Its suspension has never varied from the originally computed ideal—torsion bars up front, multi-leaf springs in the rear. And its extra weight helps give you a great sense of man over machine.

The brakes are self-adjusting; a chassis lube job is recommended only every 36,000 miles—you can see we're still thinking of your budget every minute.

Mileage, schmileage.

Inevitably, someone will ask what kind of mileage you're getting in your Valiant. When that happens, it's only natural to feel a bit smug. For usually you're getting better miles-per-gallon than you have a right to expect. Because economy is a Plymouth specialty. (Witness its class wins in 10 straight Mobil Economy Runs.)

Another thing to remember, while we're on engines. Valiant's Sixes and V-8s were the first in the field with a 5-year/50,000-mile warranty.* Which tells you something about their stamina and durability. And, of course, we didn't quit perfecting just because they were ahead.

Care about safety? Money?

If you're Valiant's kind of people, you do. That's why such

basic safety measures as engine in the front and safety rims on the wheels (in case of flats) were part of the first Valiant ever built. Now that everyone's safety conscious, we still do a little extra for our kind of customers. So we have the



Safety Ridges

conventional features—and go on from there. With super-silent door latches that are now 50% stronger than ever before. And new Safety-Action inside door handles.

As for money, we've saved the best for last: with all we've accomplished here, we still keep our Valiant 100 2-door sedan list-priced at \$2,117†—

which happens to be lower than 74 models of foreign economy cars.

That ought to give you something to think about until you can get down to your Plymouth dealer's. It's his turn to prove we're out to win you over this year. He's ready and waiting.



†Manufacturer's suggested retail price for standard six-cylinder Valiant 100 2-door sedan. Destination charges, state and local taxes, if any, and optional equipment (including whitewall tires, wheel covers, bumper guards and deluxe interior) extra.

*Here's how Valiant's new Customer Care Warranty protects you: Chrysler Corporation warrants against defects in materials and workmanship and will repair or replace without charge for parts or labor at any Imperial, Chrysler, Plymouth or Dodge Authorized Dealer's place of business, the engine block, head and internal parts, intake manifold, water pump, transmission case and internal parts (except manual clutch), torque converter, drive shaft, universal joints, rear axle and differential, suspension system (except shock absorbers), steering gear and linkage system, wheels and wheel bearings of its 1967 Valiants for 5 years or 50,000 miles and all other parts for 24 months or 24,000 miles, whichever occurs first, excluding only tires, normal maintenance replacement of spark plugs, condensers, ignition points, filters, brake and clutch lining, etc., and normal deterioration of hoses, belts, upholstery, soft trim and appearance items. Maintenance services required under the warranty are: change engine oil every 3 months or 4,000 miles, whichever occurs first, and replace oil filter every second oil change, clean carburetor air filter every 6 months and replace every 2 years, lubricate front suspension ball joints and tie rod ends at 3 years or 36,000 miles, whichever occurs first; and every 6 months have an Imperial, Chrysler, Plymouth or Dodge dealer certify (i) receipt of evidence of performance of the required services and (ii) the car's then current mileage.



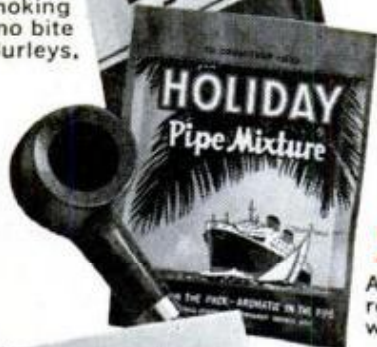
Plymouth



Get 5 FREE SAMPLES

of these fine
House of Edgeworth
tobaccos

1.
Choice,
cool-smoking
no bite
Burleys.



2.
Aroma men
relish, women
welcome, too.

3.
Exclusive
Peach
Brandy
Flavor.



4.
Flavored with
Sweet Birch
Southern.



5.

New fragrance for the outdoorsman.

LARUS & BROTHER COMPANY, INC.
Dept. M-5, Post Office Box 3-AC,
Richmond, Va. 23208



Please send my five free trial pack samples as offered.

Name _____

Address _____

City _____ State _____ Zip _____

Limited to U.S.A. One offer per customer.
Fine Tobacco Products Since 1877

RODGER WARD'S INDY PREVIEW

(Continued from page 234)

turbine-powered car I'm told a "name" driver will try to qualify. Other STP entries include four new Lotus cars being built in England by Colin Chapman. The two fastest will be driven by former 500-winners Clark and Hill.

The Novi engine has been a big wind and a fan favorite at Indy for years. In action, it blasts out an awesome sound. But cars powered by this big bomber haven't had much luck, the engine's best finish being Duke Nalon's third in 1948. This year's Novi will feature a Rootes-type blower in place of a former screaming centrifugal-type.

Turbine-powered cars, probably the powerplant of the future at Indy, are nothing new, really. In 1962, as a 500 rookie, Gurney did his best with an entry called the John Zink Trackburner but found it about four mph shy of qualifying. This year, with new technology and techniques, things could be different.

Lots of torque

The STP turbine car is powered by a Pratt & Whitney Type ST6B-62 engine that develops 550 shaft hp at 6230 rpm. At a standstill, the engine cranks out 1000 pounds/feet of torque, enough to tear the axles out of the car if the driver isn't extra careful. Torque is reduced as the rpm climbs, but even so the power available is awesome.

The car is just over two feet in height, its underside clearing the ground by only three inches. Overall length is 12 feet, 6 inches, the wheelbase a fraction over 96 inches. Fully loaded, including JP-1 fuel and driver, the car weighs 1845 pounds, distributed 45 percent on the front wheels, 55 percent on the rear. The offset ratio is 60 percent left, 40 right.

Construction is of the torsional-box type, with substructures for axle and suspension support, the cockpit and the engine supports. Chassis and frame are of an aluminum alloy, fully riveted, with all panels in stress. The body is of a design known as the Ellipse Variant, which features a stressed skin of structural fiberglass.

In all, the car could snap a few heads. With no clutch, no gears to shift, only two sparkplugs and no electrical system in the conventional sense, the car might prove one of the most trouble-free to ever appear at Indy. Granatelli told me he thought it represented the first adaptation in a race car of space-age techniques and technology.

(Please turn to page 243)

Medical news from America's leading society of foot doctors.

Now! Clinically-proven relief of athlete's foot.



This official seal of the Council on Podiatric Therapeutics of the American Podiatry Association has been granted to Quinsana Foot Products with this statement: **"Quinsana Foot Powder, Penetrating Foam and Foot Deodorant are effective foot health aids and of significant value when used in a consistently applied program of daily foot care and regular professional treatment."**

The Council on Podiatric Therapeutics of the American Podiatry Association.

Today, after hundreds of clinical tests supervised by some of America's foremost foot specialists, Quinsana's power to relieve athlete's foot was confirmed. Three out of every four patients tested showed *unmistakable* improvement.

Thus, Quinsana was granted this official seal—your assurance that Quinsana Foot

Products measure up to high professional standards of effectiveness.

Quinsana Foot Powder—for relief of athlete's foot and daily foot care.

Quinsana Penetrating Foam—for more stubborn cases of athlete's foot.

Quinsana Foot Deodorant—for long-lasting protection against foot odor.

Quinsana

Products of Mennen Laboratories. The Mennen Company, Morristown, New Jersey.

MAY 1967





WORRY PROOF!

Water proof, rust proof, cold proof, hot proof, just about everything but bomb proof. That's Lubriplate outboard motor Gear Oils. Tailored especially for your gear shift needs. They won't let you down. Lubriplate has been proven in the silence and isolation of outer space to be dependable, long lasting. Next time, be sure to cast off with Lubriplate, it's the silent service.

LUBRIPLATE® MARINE LUBRICANTS

Lubriplate Division, Fiske Brothers Refining Co. • Established 1870 • Newark, N. J. • Toledo, Ohio

GUNK
ENGINE BRITE

ENGINE CLEANER and DEGREASER
Just spray it on... hose it off!

GUNK LABORATORIES, INC.
5879 N. 96TH, CHICAGO, ILL. 60638

LOOSENS RUSTED NUTS, BOLTS, PARTS IN SECONDS

LIQUID WRENCH

LIQUID WRENCH

RADIATOR SPECIALTY COMPANY,
CHARLOTTE, N. C.

B & I Portable Electric Power Plant

Be prepared for power failure. Full 1250 watts will run oil burner, pumps, lights, TV, refrigerator or anything. Run your power saw, drills, hedge trimmer and other tools on the job. Perfect for home, farm, or industry. Modern trouble free alternator revolving field design. 1250 watts steady output — 115 volts AC. **ALL BRAND NEW!** No Surplus Parts! Comes complete with: Powerful 3 HP Briggs & Stratton 4 cycle gasoline engine, carrying handle, rubber feet and duplex standard outlet. Built to NEMA high specification standards. 1 year factory warranty on complete unit! Other units up to 20,000 watts competitively priced. Shipped FOB Wis. (Freight under \$5.)

No. A1250 **\$144.50**

DEPT. P B & I Mfg. Co., Burlington, Wis. 52105

Please mention
Popular Mechanics
when writing to advertisers

**38.44%
MORE
SPACE**



V-156 — Sportster

Another of the great "new breed" from Glastron. This 15 foot Sportster gives you 38% more cockpit space! Fore and aft cockpits are instantly accessible through the swing out windshield. Makes fishing a dream — docking a cinch. And there's Glastron's Velvet-V ride at all speeds! While trolling, the Aqua-Lift hull gains additional stability from gently swept back outer sponsons. At speed, the outer sponsons ride free for maximum efficiency and economy. Go great! Swing out with the Glastron Sportster!

Please send me information and free color catalog on the 1967 Glastron line.

Name _____

Address _____

City, State, Zip _____

Glastron

Dept. PM-57 P. O. Box 9447
Austin, Texas 78756

Glue it right the first time.

Here are some do-it-yourself jobs. And the right glue for each of them.

Elmer's Glue-All is best for indoor construction, furniture repairs and general household uses. It's also good for gluing materials like cloth and leather to wood. Or to each other. Elmer's Glue-All dries fast, clear and strong. And it comes in a handy squeeze bottle, with mess-free applicator top.



For outdoor do-it-yourself jobs this Spring, use Elmer's Waterproof Glue. Or whenever a job calls for waterproof and weatherproof bonding. You can use it for planter boxes, exterior doors, patio repairs and for maximum strength in boat building and repairs. You can also use Elmer's Waterproof Glue for custom shaping your laminated gunstocks, decoys, fish lures, surf-boards, water-skis or model boats.



For rigid frames and enclosures on high grade furniture, do as the pros do, use Elmer's Plastic Resin Glue. It's ideal for laminating, veneering, doweling and edge gluing on all furniture construction. Elmer's Plastic Resin Glue is highly water resistant and will not stain acid woods such as oak or mahogany.



For inexpensive, heavy-duty wood gluing jobs, use Elmer's Casein Glue. Unlike most glues, this one will set in low temperatures. It's especially good for bond-

ing oily woods like teak and pitch pine. And for gluing porous materials to wood, like linoleum and canvas. What's more, Elmer's Casein Glue makes an excellent heavy-duty wood putty when mixed with sawdust.



Elmer's Contact Cement is an adhesive you can use on both porous and non-porous surfaces. (Examples: Leather. Linoleum. Synthetic rubber. Plastic Wall Paneling.) It's

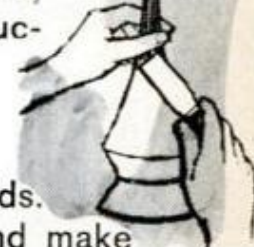


also handy for gluing plastic laminates to coffee tables, home bars and sink tops. Or gluing stainless steel or aluminum trim to wood, with no need for clamps.

Epoxy glues are so strong they take the place of riveting in many airplane assemblies. Now you can use Elmer's Epoxy Glue in your home to glue non-porous materials, such as glass, iron, aluminum, brass and bronze. And in your shop to glue wooden wheels to wire axles, car bodies to chassis, or for metal boat construction and repairs.



Elmer's glues and cements are made to meet specific gluing needs. Choose the right one. And make sure you "glue it right the first time".



 **BORDEN CHEMICAL**



You're the guy they count on to keep the moving parts moving.

There are over 50,000 moving parts in an armored convoy. And you know them all.

You're an expert—an Army mechanic. You can hear an engine knock 5,000 miles before it starts. And the swingiest music in your life is the sound of a well-tuned motor.

You first heard that music back in high school when you had that sweet '61 convertible. You figured you were a good mechanic then, but now you know you are.

Now you have Army training behind you. A three-month course you couldn't buy in civilian life. It was eight hours a day of valves, pistons, gears, bearings, shafts and rings. It mixed classroom theory with shop-room practice.

And when it was over, you had it made. The course and your future. Your future in the Army. Your future later as a civilian.

As a high school grad, you got your training guaranteed in writing before you enlisted. You had over 300 choices. The one you picked was a winner.

So were all the others.

Army



RODGER WARD'S INDY PREVIEW

(Continued from page 238)

The power setup for two of the four new Lotus cars could rattle a few cages, too.

New British engine

Two of the cars will be powered by a new 16-cylinder nonsupercharged H-type BRM (British Racing Motors) engine. Builder Chapman claims to be getting an extra 30 hp out of the new mill, but it's rumored that they're having a bit of reliability trouble. If the engines prove fast and hold together, though, we could have a new power cycle at the Brickyard.

Power for the other Lotus cars will be a 255 CID Ford and a 170 CID Ford with an exhaust-driven turbocharger.

Carrol Horton has modified his Checker Marathon Specials this year by moving the driver seat back almost eight inches, increasing overall length by 12 inches, and stretching the wheelbase from 96 to 108 inches. He sees the changes as doing a better job of weight distribution and providing improved handling.

He is also equipping his cars with a new vacuum fuel system in lieu of the usual pressure setup.

All the Gurney Eagles will have Ford engines, with one of the new cars possibly being powered by a 303 CID pushrod Ford with Gurney-Weslake heads. Unlike last year's Eagles, all of which were centered, the chassis of this year's cars will be offset one inch left of center in an attempt to improve high-speed cornering ability.

A. J. Watson, a man who built me a few great cars in years past, and (reportedly) Colin Chapman are reintroducing the de Dion rear end to Indy this year. This is a somewhat complex axle-suspension arrangement allowing stress loads to be taken off the drive components and transmitted directly to the wheels.

Added to a record field of entrants, one of the most positive proofs that the annual 500-mile race is growing in size, importance and popularity is that Speedway president Tony Hulman has built 14 new garages along Gasoline Alley, bringing the total to 83. Also, 3500 new seats have been added to the stands.

In all, what with a record field, new designs and probably faster cars, the 1967 Indy 500 shapes up as the world's foremost auto race. I'll be there and, like an old firehorse, I know I'll be wound up as tight inside as any man on the track.

Who's going to win? I have no idea, but I know Andretti is going to be a tough man to beat. So is Foyt and so is Gurney, and then there's . . . well, that's what makes racing. ★ ★ ★



How to get your choice of training guaranteed before you enlist.

Your first step should be towards your Army Recruiting Sergeant. He has all the facts on more than 300 courses open to you. As a high school grad, you'll get the course you select guaranteed in writing before you enlist. And there's no obligation until you enlist.

Call him today. He's in the phone book under U.S. Government.

Meantime, get a colorful, exciting 40-page booklet about Army life and Army opportunities. Simply fill out and mail this coupon. There's no obligation.

Army

PM 5/67

OPPORTUNITIES

Box 1041

Mt. Pleasant, Iowa 52641

Please rush me your 40-page booklet,
"The Secret of Getting Ahead."

NAME _____

AGE _____

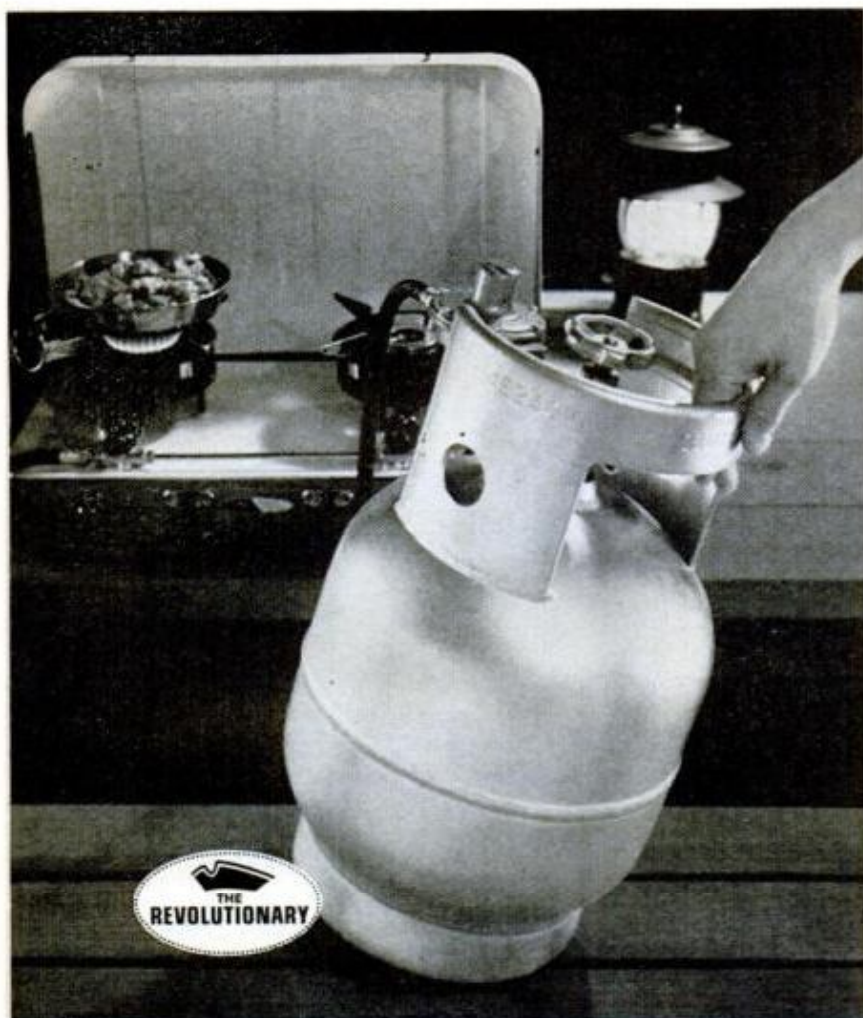
ADDRESS _____

CITY _____

STATE _____ ZIP CODE _____

PHONE _____

EDUCATION _____



Join the Lennox Light Brigade

Switch to lightweight, rugged aluminum cylinders for LP Gas. You get more vapor pressure, more fuel capacity; no more out-of-gas-in-the-middle-of-the-meal blues. Safe, too. They're non-sparking. And they won't rust, ever. Sizes for every camping need. Handy, too, to run propane torches, etc., around the home workshop. See your local LP Gas dealer or write: Lennox Industries Inc., Light Brigade Headquarters, Box 1319, Columbus, Ohio 43216.

LENNOX
Military Fabrication Division

How to ride a motorcycle

Three tips from
Triumph expert riders on
how to turn a hobby
into a sport

1. Always ride according to your ability. Don't override your brakes, lights or experience. Be sure you can stop in the area of visibility ahead.
2. Maintain control of your motorcycle at all times.
3. Always wear a safety helmet. Wear protective clothing and gloves.

Any Triumph dealer in the USA will be glad to help introduce you into the growing sport of motorcycling. For details see your Triumph dealer—he's listed in the yellow pages.

Triumph holds the world's absolute speed record of 245.667 MPH.



TRIUMPH

Now! Mail this coupon today for
FREE CATALOG in color

West
JOHNSON MOTORS, INC.
P.O. BOX 275
Duarte, Calif. 91010

East
THE TRIUMPH
CORPORATION
Baltimore, Md. 21204

Name _____ Age _____

PLEASE PRINT

Street _____

City _____ State _____ Zip _____

Telephone Number _____ Dept. P

Rally bred and combat ready...GT version

Ford's Model C.



The Model C is Ford's new Cortina. Shown here, the GT—unique blend of sports-car performance with razor-honed handling and 5-passenger comfort. All at a sensible price.

Like all five Model C's, this GT has a distinguished racing heritage built right in. (Winner of such events as the East African Safari.) But whether you rally or run to the market, it's fun to drive.

All standard on GT

- Rally-proved 1500 cc ohv 4-cylinder engine.
- Weber carburetor and tuned exhaust headers.
- Full instrumentation including: tachometer, ammeter, oil-pressure and temperature gauges.

- Custom-contoured, individually adjustable bucket seats, and all-vinyl interior.
- Four-speed gearbox with short-throw gear change lever: fully synchronized.
- Individual front suspension.
- Front disc brakes: self-adjusting dual brake system.
- Self-adjusting diaphragm clutch.
- 83.5 bhp @5200 rpm, 97 lb/ft torque @3600 rpm.
- GT rally stripes and special insignia.

And a lot of other things going for you

- Aeroflow Ventilation—changes air every 34 seconds with the windows closed.
- Optional wide-based wheels with radial ply tires on GTs.
- Spacious room for five adults.

- A turning circle 6' less than VWs.
- A trunk that holds twice the luggage of a VW.
- Ford Motor Company Lifeguard Design Cortina Safety features.
- The Model C is sold and serviced by Ford dealers—backed by Ford Motor Company.

Take a test drive and watch your sports-car senses come alive. GT shown **\$2172***.

Other Model C's from **\$1815***. Check the Yellow Pages for your nearest Ford Cortina dealer.

Ford Cortina



*Prices quoted are manufacturer's suggested retail base prices at East Coast P.O.E. The prices include Federal excise tax and suggested dealer delivery and handling charges. State and local taxes and transportation charges to your local dealer are additional.

Материал, защищенный авторским правом

**Fix it
with
DAP®
and
forget it**



Sold at leading hardware, building supply, paint and specialty stores.

Install wall panels with DAP Panel and Drywall Adhesive. Saves time and trouble. Eliminates nails ... bonds wood paneling and wallboard to studs or directly to walls. Waterproof. Super-tough grip.

Caulk with DAP Latex before you paint with latex. DAP Latex Caulk assures a longer lasting, better looking paint job. Won't stain, blush or bleed through any paint. Goes on easier, takes paint faster.

Reglue furniture with DURATITE® White Glue. Makes a tight, clear bond you can depend on. Handy for mounting photographs, mending leather, repairing cabinets. Squeeze-easy plastic bottle.

Finish floors with Indothane Polyurethane Clear Wood Finish. Outlasts conventional varnishes 2 to 1. Never needs waxing. So tough it resists scuffs. Use it inside or outside. Gloss or satin finish.

DAP INC., DAYTON, OHIO 45401. SUBSIDIARY OF *Plough, Inc.*

ELECTRIC ARC WELDER \$14.95!



LIFETIME BURN-OUT GUARANTEE
—10 day money back (if ret'd) trial!
Works on 110 volt plug in 10 WAYS!
WELDS, BRAZES, SOLDERS, CUTS,
MELTS most ALL metals! HEATS,
SOFTENS, THAWS, LOOSENS, BENDS.
COMPLETE READY TO USE WITH
face mask, clamps, arc torch, rod
holder cables—and supply of welding,
brazing carbon, solder rods. **ARC**

WELDING INSTRUCTION BOOK—Tells how YOU can
use for CARS-HOME-FARM-SHOP—NO EXPERIENCE
NEEDED!
SEND ONLY \$2.00 (cash, ck, M.O.) and pay postman
\$12.95 plus COD postage or send
\$14.95 for PP del. in USA. Sold ONLY by:
Midway Welder, Dept. DPM-5, Kearney, Nebr. 68847



**BUILD
YOUR OWN
CAMPER
AND SAVE!**



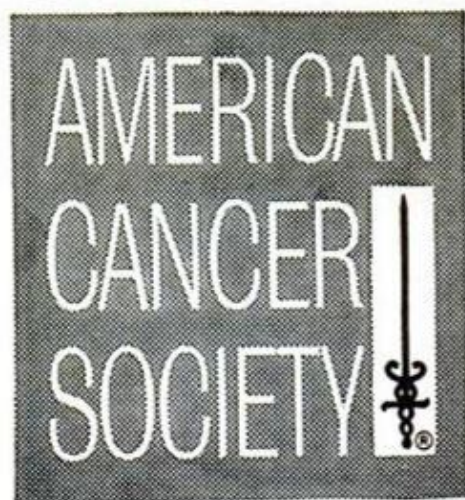
Complete, easy to follow Camper Plans, Instructions and Materials List ... \$3.95
Satisfaction Guaranteed!
PICKUP COVER PLANS \$2.00
EQUIPMENT CATALOG \$1.00
refundable on first order.
Also Factory Built Units.

Save 50% With This Viking Package Deal
All items from our catalog to build a 10' or 10'6" Camper. Average retail \$1,795. Total Pkge. \$847.10.
SEND CHECK OR M.O. FOR DETAILS SEND DIME

VIKING CAMPER SUPPLY, INC.
94-8P Glenwood Ave.
Minneapolis, Minn. 55403

NAME _____
ADDRESS _____
CITY _____ STATE _____

**FIGHT
CANCER**



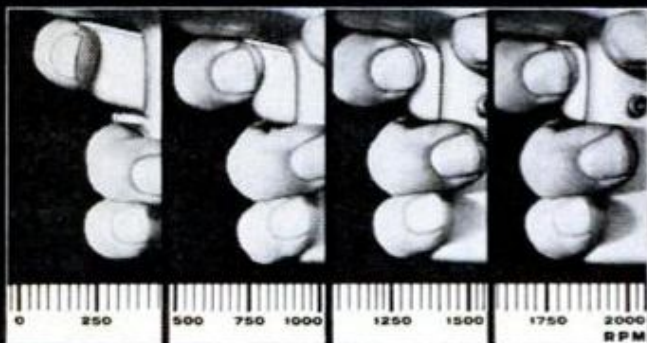
POPULAR MECHANICS

Meet the most useful power tool ever invented!



Other drills are single speed. This one is any speed you want it to be. An accelerator instead of an "on-off" switch gives you speeds from 0 to 2000 r.p.m. to drill any material. Other drills operate in only one direction. This one goes forward and reverse. Lets you drive screws, nuts, bolts and remove 'em, too. Powers a workshop of accessories. We call it **Drive-R-Drill**. You'll call it the most useful power tool ever invented. Comes in 1/4", 3/8" and 1/2" sizes. Prices start under \$32 at better hardware, lumber and department stores. Skil Corp., Chicago 60630.

WRITE FOR FREE 32-PAGE POWER TOOL CATALOG.



Has trigger speed control, any speed 0-2000 rpm.



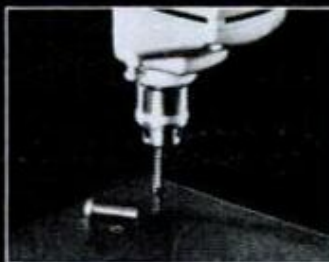
(1) Forward or (2) reverse at flick of a switch



Drives screws and removes 'em, too



Removes nuts, bolts like a power wrench

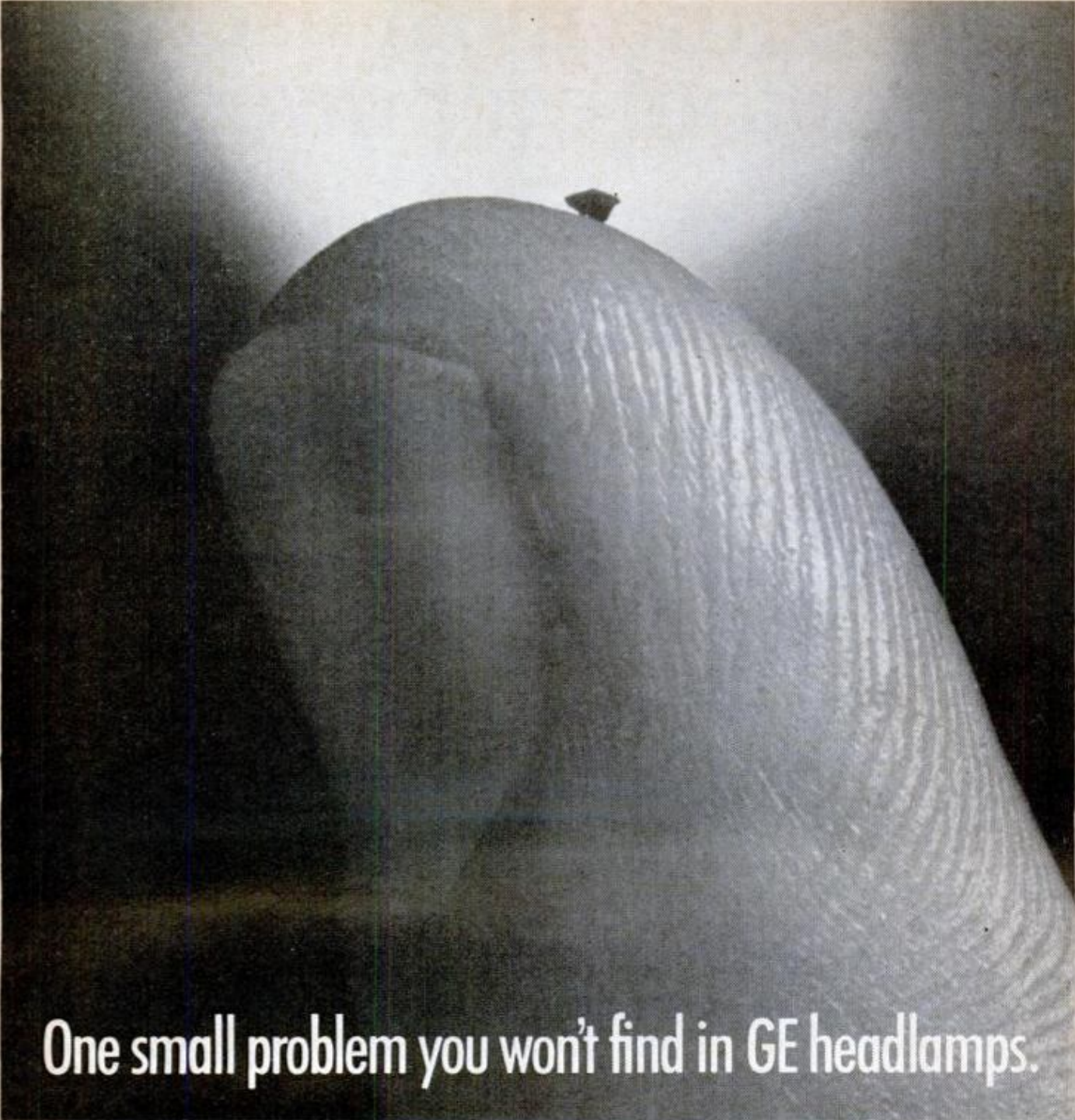


Makes threaded holes in metal



Drills holes in tile, masonry and glass

Put power in your hands with **SKIL**®



One small problem you won't find in GE headlamps.

See the three



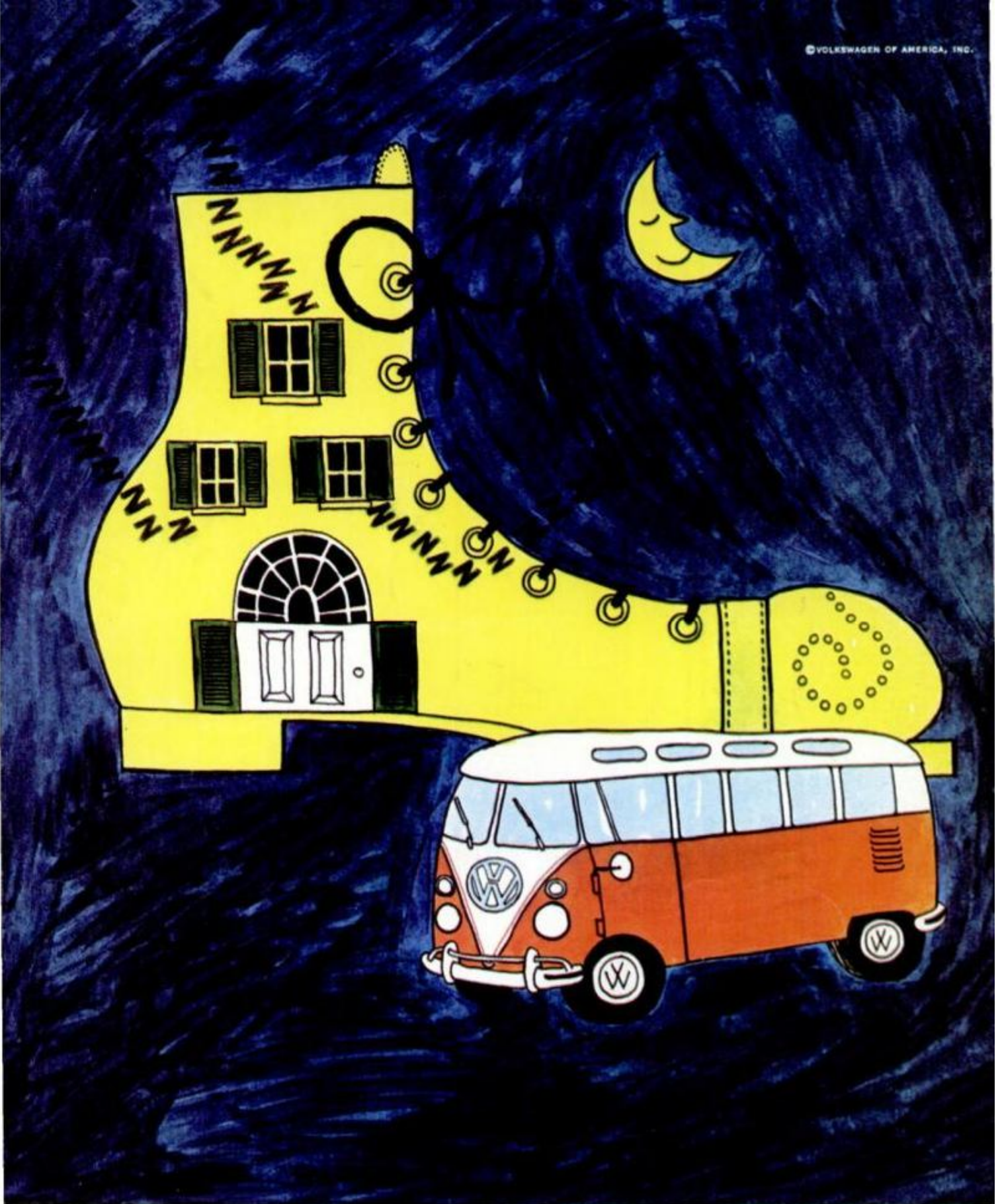
black ferrules at the back of this headlamp. If even a tiny speck of rust worked its way through any one of them, it could cause your headlamp to burn out before it otherwise might.

So General Electric takes the extra care to super rust-proof the ferrules. They put on a coating agent that protects your lamp long beyond its rated life.

Only General Electric headlamps give you this super protection.

Super rustproofing is one more reason GE headlamps are your best lighting value. Insist on them for replacement. See if it doesn't pay. General Electric Co., Miniature Lamp Department, M7-1, Nela Park, Cleveland, Ohio 44112.

GENERAL  **ELECTRIC**



The ol' lady finally figured out what to do.
A Volkswagen not only holds about twice as much as other station wagons,
but it's economical to keep up, too.
(And the people in the hat next door thought she was crazy.)



why does Evinrude build more fishing motors than anyone else?



Because we've been building fishing motors longer than anyone else. And over the years, we've learned that the motor that fills the stringer for a Kentucky bass fisherman isn't always the answer for the man who goes for Mississippi River catfish, or Minnesota walleye, or Wisconsin muskellunge, or Florida snook, or Georgia bream.

So we build the motor to fit the fisherman — instead of trying to do it the other way around. We build more sizes and types of fishing motors than anyone else.

Deluxe motors like the 6 hp Fisherman — a compact twin that's as finely balanced and beautifully machined as a jeweled watch — and almost as quiet. With full gearshift and every deluxe feature.

Budget-priced motors like the 5 hp Angler — a high thrust lightweight twin that's short on frills — but long on smoothness and quiet and precision-engineered performance.

Go-anywhere motors like our 3 hp twins that come in weedless (Lightwin) and high-thrust (Yachtwin) versions — in folding and conventional models — and in specially camouflaged hunting models (Ducktwin).

Low-silhouette motors like our sporty little 9½ hp Sportwin — most popular fishing motor ever built — now even smoother and quieter for 1967.

In the under-10 horsepower range alone — there are 9 Evinrude motors to choose from.

Why not stop in at your Evinrude dealer's and try one on for fishing size.

Evinrude Motors, 4162 N. 27th St., Milwaukee, Wis. 53216

- I'm willing to try a new fish-catching method. Send me your new Evinrude Fishing Booklet.
 Also send Evinrude motor and boat catalog.

Name _____

Address _____

City _____

State _____

Zip _____

EVINRUDE
 first in  outboards
 Div. of Outboard Marine Corp.