VOL. 76, NO. 21 PAGES 337-352

SCIENCE NEWS LETTER

R

THE WEEKLY SUMMARY OF CURRENT SCIENCE

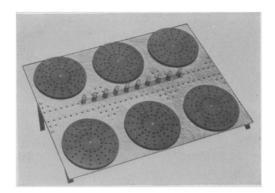


Winter Bird

See Page 340

A SCIENCE SERVICE PUBLICATION

Why have hundreds of schools bought GENIAC,*



The ELECTRIC BRAIN Construction Kit?

ORDER NOW for CHRISTMAS DELIVERY

Because GENIAC is the only kit and text combination that presents the basic ideas of cybernetics, boolean algebra, symbolic logic and computer circuitry so simply that a twelve year old can construct what will still fascinate advanced students!

The partial list of our institutional purchasers below indicates a cross section of our customers.

GENIAC is not only an excellent classroom demonstrator but it provides hours of fun abuilding. As such it makes a perfect present for the science minded teen-ager. As a father-son project it can't be beaten.

GENIAC is sold to all customers on a one-week return guarantee. You may actually use it in that time, returning it as is if you decide not to keep it. For Christmas gifts, guarantee extends until Jan. 1, 1960, so buy early to assure Xmas delivery.

Order yours now—only \$19.95

Some of the 125 GENIACS you can build from the completely detailed instruction manual are: LOGIC MACHINES: Comparing; Reasoning; Syllogism Machine; Intelligence Tester. GAME PLAYING MACHINES: Tic-Tac-Toe; Nim (Think you can beat the machine?). ARITHMETICAL MACHINES (Binary and Decimal): Adder; Subtractor; Multiplier; Divider; Arithmetical Carrying.

CODE MACHINES: Secret Coder; Secret Decoder; Combination Locks.

SIMPLE MACHINES: Burglar Alarm; Automatic Oil Furnace Circuit.

PUZZLE SOLVERS: The Space Ship Airlock; The Fox, the Hen, the Hired Man and the Corn;

The Uranium Shipment and the Space Pirates.

ACTUARIAL: Douglas MacDonald's Will.

SPECIAL: Machine to Compose Music, Machine to Forecast the Weather.
GENIAC parts are specially manufactured to high tolerance; they include a special six-deck switch of unique design and over 400 components plus a book "GENIACS: SIMPLE ELECTRICAL BRAIN MACHINES AND HOW TO MAKE THEM", plus six other books and manuals, parts tray and rack, shown in picture above. GENIAC is a remarkable buy for

only \$19.95

Kit and instructions are returnable for full refund in seven days; on Christmas gifts to Jan. 1, 1960! This is a perfect father-and-son project; your whole family and your friends will enjoy the finished machines. You can design new computers from the adaptable parts. Our GENIAC is the original brain construction kit with up-to-the-minute improvements. Do not confuse it with imitations.

Do not confuse if with imitations.
MAIL THIS COUPON
SCIENCE KITS, Dept. SL-119-C, Oliver Garfield Co., Inc., 108 East 16th St., N. Y. 3, N. Y
Please send me:
1 GENIAC Electric Brain Construction Kit and Manual.
\$19.95 (East of Mississippi)
\$20.95 (Elsewhere in United States)
\$21.95 (Outside the United States)
Returnable in seven days for full refund if not satisfied. I enclose \$in full payment. (For delivery in N. Y. City please add 3% for city sales tax.)

My name and address are attached.

SOME FIRMS AND INSTITUTIONS THAT HAVE ORDERED GENIAC:

Allis-Chalmers
Remington-Rand
International Business Machines
Wheeldex Mfg. Co.
Manuel Missionary College
Walter V. Clarke Associates
Barnard College
Westinghouse Electric
Phillips Laboratories
General Insurance Co. of America
Lafayette Radio
Rohr Aircraft Co.
Southwest Missouri State College
Fibreglas Corp.
Stamford Research Institute
The Hecht Co.
American Management Assoc.
De Pauw University Hydro Electric Tower
Adams State Teachers College
Abercrombie and Fitch
Kleinschmidt Laboratories
Kansas State Teachers College
Albert Einstein Medical College
Naval Research Laboratories
Soard of Education, Tecumsah, Nebraska
Marshfield Public Schools
Los Angeles Public Schools
Jefferson Union High School
Oklahoma A&M
Kansas City University
Duke University
Oval Gables Senior High School
Courtland Jr. High School
Bell Telephone Laboratories
Lovell Public Schools
Clearwater High School
Sclearwater High School
Sclearwater High School
Sclearwater High School
Kentucky Wesleyan College
Morningside College
Morningside College
Morningside College
University of Ottawa
Land hundreds of other individuals

GET READY FOR THE SPACE and SCIENCE ERA! SEE SATELLITES, MOON ROCKETS

*and OTHER SCIENTIFIC BARGAINS



See the Stars, Moon, Planets Close Up! 3" Astronomical Reflecting Telescope (Famous Mt. Palomar Type)



60 to 180 Power

An Unusual BUY!

41/4" ASTRONOMICAL TELESCOPE! UP TO 270 POWER!



With this scope you can see everything as above but with greater power plus will split finer stars. Mirror has twice the light gathering power. Mirror guaranteed to give theoretical limit of resolution. Rack and pinion focusing, hardwood tripod, reading, hardwood tripod, hardwood tripod, reading, hardwo

ASTRO COMPASS AND STAR FINDER Govt. Cost \$75-Price \$14.95 Pstpd.



st \$75—Price \$14.95 Pstpd.

Determines position of stars quickly. Shows various celestial coordinates. An extremely useful star finder which can be rotated through 60° angles along calibrated degree scale. Hag single eye lens with viewing stop, two spirit levels for aligning, tangent screw with scale for five precision readings, azimuth scale graduated in two-degree intervals, adjustable tilting azimuth scale for angle reference of stars on distant objects. War Surplus. Govt. cost \$75°. Instructions, carrying case included.

200-0.......\$14.95 Postpald

Stock No. 70,200-Q.....\$14.95 Postpald

GIANT MAGNETS! TERRIFIC BARGAINS!

GIANT MAGNETS! TERRIFIC BARGAINS!

War surplus—Alnico V type! Horseshoe shape. Tremendous lifting power. 5-lb. size. Dimensions: A.—3 ¼ "; B.—2 ¾ "; C.—4 3/16"; D.—1 ¼ "; E.—1 ¾ "; F.—2 ½ ". Strength is about 2,000 Gauss. Will lift over 125 lbs. Stock No. 70,183-Q, 5-lb. size. \$8.50 Pstpd. 15 ¾ -lb. size. Approximately 5,000-6,000 Gauss rating. Will lift over 250 lbs. Stock No. 85,088-Q, 15 ¾ -lb. size. \$22,50 F.O.B. Shipping weight 22 lbs.



Take Telephoto Shots Thru

7 x 50 MONOCULAR



Play This New Game-MATH MAGIC . . . The Fun-Way to Math Skill!

proved! 3 fascinating games in one! Great whole family. Increases skill at addition, multiplication, division. Includes Dial and umbered Cards, Plastic Tokens, etc.—also rules and directions.

Stock No. 70,204-Q......\$3.00 Postpaid Terrific Buy! American Made!

OPAQUE PROJECTOR



Projects illustrations up to 3" x 3 ½" and enlarges them to 4 ft. wide. Ideal for sales meetings, designers, artists, schools, clubs, scout meetings, parties, "show-and-tell," etc. No film or negatives needed. Projects charts, diagrams, pictures, photos, lettering in full color or black-and-white. Operates on 115 volt, A.C. current. 6-ft. extension cord and plug included, operates on 60 watt bulb, not included. Approved by Underwriters' Laboratories, Inc. Size 12" x 8" x 4½" wide. Weight 1 lb., 2 oz. Plastic case Stock No. 70.199-0

with built-in handle.
Stock No. 70,199-Q.....\$7.95 postpald

NEW! CIRCULAR SLIDE RULE!



POCKET SIZE - FAST -EASY TO USE!

BARGAIN-PRICED STETHOSCOPE



For Hobbyists, Schools For Hobbyists, Schools
A real stethoscope at half the usual cost. I deal for home craftsmen, hobbyists, schools, children. Listen to running machinery. Check on hard-to-hear motor noises, leakage of gas, air or fluid. Pick up heart beats of animals, insect noises, other "unhearable" sounds. Splendid for experiments, classroom use, cational fun for adults, students and children. Excellent for auto repair, doi-ty-ourself projectors. Sensitive yet sturdily made to stand hard use. Money-back guarantee.

guarantee. Stock No. 50,223-Q......\$3.95 postpald



D-STIX CONSTRUCTION KITS For Science Fans, Hobbyists

For Science Fans, MoDDylsts Visualize your ideas. Crystalize your plans. Unique new D-STIX are ideal for "3-dimensional thinking." Colored wood sticks ¼" thick and "easy-on" rubber joints approx. 3/16" diam. fit together fast—help you work out molecular structures, geometric figures, structural members, shapes, models of all kinds. Ideal for interesting children in developing shapes, structures. Durable kits. Money-back guarantee.

 Stock
 No.
 70,209-Q
 (230 pcs)
 \$3.00 ppd.

 Stock
 No.
 70,210-Q
 (370 pcs)
 \$5.00 ppd.

 Stock
 No.
 70,211-Q
 (452 pcs)
 \$7.00 ppd.



NEW! STATIC ELECTRICITY GENERATOR

Sturdy, Improved Model.
See a thrilling spark display as you set off a miniature bolt of lightning. Absolutely safe and harmless. Sturdily made—stands 14" high. Turn the handle and two 9" plastic discs rotate in oposite directions. Metal collector brushes pick up the static electricity, store it in the Leyden jar type condenser until discharged by the jumping spark. Countless tricks and experiments. 24 page instruced.

booklet included. er Stock No. 70,070-Q.....\$12.95 Postpaid Send Check or M.O.—Money-back Guarantee

LOW-COST VERSATILE SPECTROSCOPE



Ideal for school use. Can be used with transmission diffraction grating replica (a piece is supplied) or with prism. It has a rotating prism table with scale. The telescope arm extends through 120°. Slit is adjustable. Optical system includes two achromatic 25mm diam. 122mm f.1. lenses. Arms extend from 5" to 8" for focusing. Diameter of base is 6", overall height 4" and overall with approx. 14". Instructions included. Stock No. 70,229-Q.....\$39.50 Postpaid

"EASY-CARRY" SLIDE PROJECTOR

Ideal for travel or occasional use. PROJECT and SHOW 2x2 35mm. slides or 35mm. film strips, single or double frame. No cumbersome equipment to lug. 100-watt, 120-volt Projector folds to 2 ½ " wide, 4½" high, 4½" long. Opens to 8" long. Wt. less than 3 lb, 3-element f, 3.5 lens with 80mm. focal length, Plastic leatherette carrying case. 6' cord included.



Stock No. 70,232-Q.....\$22.95 Postpaid

NEW, LOW-COST LAB PROJECTOR SHOWS EXPERIMENTS ON SCREEN!



Stock No. 70,230-Q \$45.00 Postpaid

9-PIECE DRAWING-COMPUTING SET



For students, engineers, designers, teachers and technicians. A true \$10.00 value! Includes ruler, T-Square calibrated in inches and centimeters, 6" protractor calibrated in ½ degrees, a French curve, a 10" 30" 60° triangle, a 45° 90° triangle, an Engineer's Scalemaster 6" and Architect's Scalemaster 6" and Architect's Scalemaster 6" and State No. 20 242.

Stock No. 70,242-Q \$5.00 Postpaid

MAGIC DESIGNER



For all geometric forms. This creative drawing toy double as a Math aid. More than a million different designs including many important geometric figures can be made. Appeals to serious student and child alike. The magic designant of the complete with special diecut paper diese of assorted colors, pencil and clear, easy to follow instructions.

Stock No. 70,253-Q.....\$4.95 Postpaid

NEW BINOCULAR-TO-CAMERA HOLDER For Exciting Telephoto Pictures



Will Fit Any Camera
Bring distant objects 7 times
nearer with a 35 mm. camera, 7x50 binocular and TorCAMERA HOLDER. Ideal
life, flying birds, nests, etc.
Camera and binoculars action
color or black and white. Full directions for making
telephotos.

Stock No. 76 2225

Stock No. 70,223-Q.....\$11.50 Postpaid

WRITE FREE CATALOG-Q

128 pages! Over 1,000 Bargains! Optics for the Space Era! Huge selection of lenses, prisms, war surplus optical instruments, surplus optical instruments, parts and accessories. Tele-scopes, microscopes, satellite scopes, binoculars, infrared sniperscopes, science experi-ment items, math learning and teaching aids. Request Catalog. and



ORDER BY STOCK NUMBER . SEND CHECK OR MONEY ORDER . SATISFACTION GUARANTEED!

Passenger-Carrying FREIGHTERS Are the Secret of Low Cost Travel

Yes, for no more than you'd spend at a resort, you can take a never-to-be-forgotten cruise to Rio and Buenos Aires. Or through the Canal to either New York or California. Or to the West Indies or along the St. Lawrence River to French Canada. In fact, trips to almost everywhere are within your means.

And what accommodations you get; large rooms with beds (not bunks), probably a private bath, lots of good food and plenty of relaxation as you speed from port to port.

Depending upon how fast you want to go, a round the world cruise can be yours for as little as \$250-\$300 a month. And there are shorter trips. Fast, uncrowded voyages to England, France, the Mediterranean; two or three week vacations up and down the Pacific Coast or elsewhere. Name the port and the chances are you can find it listed in Travel Routes Around the World. This is the book that names the lines, tells where they go, how much they charge, briefly describes accommodations. Hundreds of thousands of travelers all over the world swear by it. Travel editors and travel writers say: "To learn how to travel for as little as you'd spend at a resort get Travel Routes Around the World."

It's yours for just \$1, and the big new edition includes practically every passenger carrying service starting from or going to New York, Canada, New Orleans, the Pacific Coast, Mexico, South America, England, France, the Mediterranean, Africa, the Indies, Australia, the South Seas, Japan, Hawaii, etc. There's a whole section called "How to See the World at Low Cost," plus pages and pages of maps.

A big \$1 worth, especially as it can open the way to more travel than you ever thought possible. For your copy, simply fill out coupon.

Bargain Paradises of the World

Do you know where to find an island right near the U.S. so nearly like Tahiti in appearance, beauty, and color even the natives say it was made from a rainbow? (And that costs here are so low you can not only reach it but also stay a while for hardly more than you'd spend at a resort in the U.S.?)

Do you know where to find the world's best mountain hideaways or its most dazzling surf-washed coastal resorts, where even today you can live for a sorg?

most dazzling surf-washed coastal resorts, where even today you can live for a song?

Do you know where it costs less to spend a while, the surroundings are pleasant, and the climate well nigh perfect in such places as Mexico, the West Indies, Peru, France, along the Mediterranean, and in the world's other low cost wonderlands?

Or if you've thought of more distant places, do you know which of the South Sea Islands are as unspoiled today as in Conrad's day? Or which is the one spot world travelers call the most beautiful place on earth, where two can live in sheer luxury, with a retinue of servants for only \$175 a month?

Bargain Paradises of the World, a hig book with about 70 photos and

where two can live in sheer luxlry, with a retinute of servants for only 175 a month?

Bargain Paradises of the World, a big book with about 70 photos and 4 maps, proves that if you can afford a vacation in the U.S., the rest of the world is closer than you think. Author Norman B. Ford, honorary vice president of the British Globe Trotters Club, shows that the American dollar is respected all over the world, and buys a lot more than you'd give it credit for.

Yes, if you're planning to retire, this book shows that you can live for months on end in the world's wonderlands for hardly more than you'd spend for a few months at home. Or if you've dreamed of taking time out for a real rest, this book shows how you can afford it.

In any case, when it can cost as little as \$24.50 from the U.S. border to reach some of the world's Bargain Paradises, it's time you learned how much you can do on the money you've got. Send now for Bargain Paradises of the World. Price \$1.50. Use coupon to order.

Round the World on a Shoestring

If you know the seldom-advertised ways of reaching foreign countries, you don't need fantastic sums of money in order to travel. You could spend \$500-\$1000 on a one-way luxury steamer to Buenos Aires—but do you know you can travel all the way to Argentina through colorful Mexico, the Andes, Peru, etc. by bus and rail for just \$139 in fares? You can spend \$5000 on a luxury cruise around the world. But do you know you can travel around the world via deluxe freighter for only a fourth the cost—and that there are half a dozen other round the world routings for under \$1000?

There are two ways to travel—like a tourist, who spends a lot, or like a traveler, who knows all the ways to reach his destination economically, comfortably, and while seeing the most.

Norman Ford's big new guide How to Travel Without Being Rich gives you the traveler's picture of the world showing you the lower cost, comfortable ways to practically any part of the world. Page after page reveals the ship, rail, bus, airplane and other routings that save you money and open the world to you.

What do you want to do? Explore the West Indies? This is the guide that tells you how to see them like an old time resident who knows all the tricks of how to make one dollar do the work of two. Visit Mexico? This is the guide that tells you the low cost ways of reaching the sights (how 76¢ takes you via 8-passenger automobile as far as those not-in-the-know pay \$5.60 to reach). Roam around South America? Europe? Any other part of the world. This is the guide that tells you where and how to go at prices you can really afford.

If you've ever wanted to travel, prove now, once and for all, that travel is within your reach. Send now for How to Travel Without Being Rich. It's a big book, with over 75,000 words, filled with facts, prices, and routings, and it's yours for only \$1.50. Even one little hint can save you this sum several times over.

Special Offer: all three books above — Travel Routes Around the World, Bargain Paradises of the World, and How to Travel Without Being Rich - for \$3.

Where Will You Go in Florida?

If You Want a Vacation You Can Afford?

Florida needn't be expensive—not if you know just where to go for whatever you seek in Florida. And if there's any man who can give you the facts you want it's Norman Ford, founder the world-famous Globetrotters Club. (Yes, Florida is his home whenever he isn't traveling!)
His big book, Norman Ford's Florida, tells you, first of all, road by road, mile by mile, everything you'll find in Florida, whether you're on vacation, or looking over job, business, real estate, or retirement prospects.
Always, he names the hotels, motels, and restaurants where you can stop for the best accommodations and meals at the price you want to pay. For that longer vacation, if you let Norman Ford guide you, you'll find a real "paradise"—just the spot which has everything you want.
Of course, there's much more to this big book.
If you want a job or a home in Florida, Norman Ford tells you just where to head. If you want to retire on a small income, Norman Ford tells you where life in Florida is pleasantest on a small income.
Yes, no matter what you seek in Florida—whether you want to retire, vacation, get a job, buy a home, or start a business, Norman Ford's Florida gives you the facts you need to find exactly what you want. Yet this book with plenty of maps and well over 100,000 words sells for only \$2—only a fraction of the money you'd spend needlessly if you went to Florida blind.
For your copy, fill out coupon now.

For your copy, fill out coupon now.

Where to Retire or Vacation

at what look like prewar prices-and where no one ever heard of nerves or worries

These Are America's Own Bargain Paradises

Norman Ford's new book Off-the-Beaten Path names the really low cost Florida retirement and vacationing towns, the best values in Texas, the Southwest, California, the South and East, Canada—and a dozen other areas which the crowds have not yet discovered.

— Fabulous places like that undiscovered region where winters are as warm and sunny as Miami Beach's yet costs can be two-thirds less. Or that island that looks like Hawaii yet is 2,000 miles nearer (no expensive sea or air trip to get there). Or those many other low-cost exquisitely beautiful spots all over the United States and Canada which visitors in-a-hurry overlook (so costs are low and stay low). Every page of Off-the-Beaten Path opens a different kind of vacationing or retirement paradise which you can afford—places as glamorous as faroff countries yet every one of them located right near at hand. Like these:

France's only remaining outpost in this part of the world—completely surrounded by Canadian territory . . . or a village more Scottish than Scotland . . . or age-old Spanish hamlets right in our own U. S., where no one ever heard of nervous tension or the worries of modern day

no one ever heard of nervous tension or the worries of modern day life.

Resort villages where visitors come by the score, so you always meet new people . . . (but they never come by the thousands to raise prices or crowd you out).

That remarkable town where a fee of 3¢ a day gives you an almost endless round of barbecues, musicals, concerts, picnics, pot luck suppers, smorgasbord dinners and a fine arts program. That southern island first discovered by millionaires who had all the world to roam in . . and now their hideaways are open to anyone who knows where to find them.

You read of island paradises aplenty in the United States and Canada, of art colonies (artists search for picturesque locations where costs are low!), of areas with almost a perfect climate or with flowers on every side. Here are the real U.S.A.-brand Shangri-Las made for the man or woman who's had enough of crowds. Here, too, are unspoiled seashore villages, tropics-like islands, and dozens of other spots just about perfect for your retirement or vacation at some of the lowest prices you've heard of since the gone-forever prewar days. They're all in the United States and Canada, and for good measure you also read about the low-cost paradises in Hawaii, the Virgin Islands and Puerto Rico.

Off-the-Beaten Path is a big book filled with facts that open the way to freedom from tension and a vacation or retirement you can really afford. About 100,000 words and plenty of pictures. Yet it costs only \$2.

	Mail to HARIAN PUBLICATIONS, 19 Duke St., Greenlawn (Long Island), New York
	I have enclosed \$
	 ☐ TRAYEL ROUTES AROUND THE WORLD — (the traveler's directory of passenger-carrying freighters). ☐ BARGAIN PARADISES OF THE WORLD. \$1.50.
	HOW TO TRAVEL WITHOUT BEING RICH. \$1.50. SPECIAL OFFER: Travel Routes Around the World, Bargain
	Paradises of the World, and How to Travel Without Being Rich — all three (\$4 value) for \$3. NORMAN FORD'S FLORIDA. \$2.
	☐ OFF-THE-BEATEN PATH — America's own bargain Paradises. \$2. SPECIAL OFFER: All five books listed above for only \$6.
Ì	Print Name
	City