

VITAL STATISTICS

## U.S. Population Rising 7,400 Persons Per Day

► THE POPULATION of the United States is increasing at the rate of one million every 135 days.

If that rate continues, this country will have 190 million persons by the third week in September and 200 million by 1967, the Census Bureau estimates.

The figures are based on birth rate, death rate, and immigration and emigration, which combine to give an increase of 7,400 persons per day.

The growth rate is constantly changing. For instance, births are higher and deaths lower in summer than in winter. The rate also varies from year to year.

During the period 1958 to 1961, the rate of population increase was 1.7% per year—one million persons every 115 days.

However, in the past year and a half, it has dropped to between 1.4% and 1.5% per year.

In the next few years it is likely to rise again, as the large number of girls born right after the war reach child-bearing age. With their contribution, the U.S. should reach the quarter-billion mark about 1980.

Presently blessed with a high standard of living, the people of the United States may suffer if the increase is not brought under control before the turn of the century.

• Science News Letter, 84:31 July 13, 1963

AGRICULTURE

## Useless Soil Reclaimed With Salt Solutions

► SCIENTISTS now are washing useless farm soil with salt solutions to make it productive again.

But it is not a simple process.

It all starts with a difficult soil called black alkali or sodic soil. These are particular soils with 15% or more sodium ions attracted to parts of their surfaces. When the soil is irrigated, this sodium causes the soil particles to swell and break apart. The resulting smaller particles fill the large pores or openings in the soil, and make it difficult for the water to soak into the soil.

Farmers find these sodic soils practically impermeable to water. They support only special crops, or are considered worthless unless reclaimed.

But now help is coming from research conducted at the U.S. Salinity Laboratory at Riverside, Calif., part of the U.S. Department of Agriculture.

Scientists are leaching or washing sodic soils with water high in salt concentration. The salt acts as a flocculent, causing small soil particles to join in larger bunches, state agricultural engineer R. C. Reeve and chemist C. A. Bower. This creates larger openings for passage of water.

Sodium ions, each with one positive electrical charge, do not adhere as tightly to soil particles as do calcium or magnesium ions, each with two positive charges. When the concentration of salt in the leaching

water is changed, some calcium ions dislodge sodium ions that are not tightly held, and the leaching water carries away the freed sodium. Because calcium ions carry two positive charges, each calcium ion displaces two single-charged sodium ions.

The scientists first used high-salt water to improve the soil's permeability. They then washed the soil several times with water of lower salt concentration. Finally they finished the test with water from the Colorado River. The soil was reclaimed in 12 days, and water then moved through the soil at a desirable speed of about 0.69 centimeters per hour.

• Science News Letter, 84:31 July 13, 1963

PUBLIC HEALTH

## Reducing Air Pollution From Car Exhaust Studied

► CONVERSION of the smog-producing hydrocarbons present in automobile exhaust into the same harmless gases we exhale with every breath is being studied by scientists of the Department of the Interior's Bureau of Mines.

The Bureau has been studying a process called catalytic oxidation that converts the incompletely burned hydrocarbons into carbon dioxide and water vapor with the aid of catalysts—chemical agents that speed up reactions without being consumed themselves.

A new bulletin issued by the Department describes the Bureau's experiments and gives information on the ability of more than a dozen metallic catalysts to promote oxidation of some common hydrocarbons.

The work is part of a broader air pollution program, carried out in cooperation with the Public Health Service, that includes studies of the reactions of automobile exhaust gas with air in sunlight, pollution caused by fumes from coal refuse pile fires, and contamination caused by industrial smoke.

• Science News Letter, 84:31 July 13, 1963

RADIOLOGY

## New Efficient Medical Scanners Being Installed

► A NEW MEDICAL scanner to obtain information about various organs of the body by measuring amounts of radioactive isotopes has been developed.

By feeding a patient a radioactive isotope and observing its progress through his body, internal conditions can be checked because the concentration of such isotopes is different in sick tissues than in healthy ones.

The radioactive scanning process, used in conjunction with X-ray examination, yields information not obtainable by any other means. The scanner, developed by Baird-Atomic, Inc., Cambridge, Mass., is now being installed in ten hospitals in the U. S. and abroad. It gives readings indicating directly the percentage of an isotope present, rather than merely giving a radiation count.

• Science News Letter, 84:31 July 13, 1963

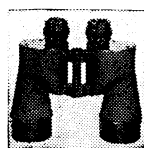
# SCIENCE BARGAINS

Order by Stock No.—Send check or M.O. Shipment same day received—Satisfaction or money back.



**Highly Sensitive "Wide-Angle" TAYLOR UNI/MAG BAROMETER**  
Exciting Breakthrough in Barometer Design—2 1/2 Times More Pointer Action

Tremendous advance in local weather forecasting. Accurate at any elevation—sea level to 10,000 ft. Gives 2 1/2 times more pointer action for every degree of change in barometric pressure. Temperature compensated. High utility-and-interest value for homes, businesses, farms—forecasts weather changes 12 to 24 hrs. in advance. Attractive design. Simulated brass finish. Brown leatherette front panel. Forecast Chart on back of case—guides to quick, easy reading. 5" x 5 1/2" x 2 3/4". Directions included.  
Stock No. 70,593-Q.....\$11.95 Postpaid



**War Surplus! American-Made 7x50 Binoculars**

Big savings! Brand new! Crystal-clear viewing—7 power. Every optical element is coated. An excellent night glass—the size recommended for satellite viewing. Individual eye focus. Exit pupil 7 mm. Approx. field at 1,000 yds. is 376 ft. Carrying Case included. American 7x50's normally cost \$274.50. Our war surplus price saves you real money.  
Stock No. 1544-Q.....only \$74.80 pstpd. (Tax included)

**7x35 AMERICAN MADE BINOCULARS**  
Stock No. 984-Q.....\$80.50 Ppd. (tax included)  
6 x 30 Binoculars—similar to above and a terrific bargain.  
Stock No. 983-Q....\$33.00 pstpd. (Tax included)

### 19 TRANSPARENT GEOMETRIC SOLIDS



Precisely constructed, transparent plastics. Edges outlined in red—easily marked. Cube 2-15/16"; Sphere 2 1/2" dia.; Rt. Circ. Cone, 2 1/2" dia., 6" high—others in proportion. Imported. Includes: Reg. Tetrahedron (4 sds)—Cube—Reg. Octahedron (8 sds)—Rt. Circ. Dodecahedron (12 sds)—Rt. Circ. Cone—Reg. Icosahedron (20 sds)  
Sphere—Rt. Circ. Cone—Rt. Circ. Cylinder—Frustrum of Rt. Circ. Cone—Rt. Prism—Rect. Base—Rt. Hexagonal Prism—Rt. Triangular Prism—Oblique Parallelepiped—Triangular Pyramid—Reg. Sq. Pyramid—Reg. Hex. Pyramid—Frustrum of Quad. Pyramid—Frustrum of Sq. Pyramid.

Stock No. 70,314-Q.....\$39.50 Postpaid  
SIX EQUAL VOLUME (1 Cu. Inch) SOLIDS  
Stock No. 60-250-Q—One Set.....\$2.50 Pstpd.  
SIX PLASTIC BASIC GEOMETRIC SOLIDS SET  
Stock No. 60,249-Q.....\$1.00 Postpaid

### ASTRO-COMPASS AND TRANSIT



War surplus! Astro Compass alone cost Govt. \$75. We have a Rec. Sighting Level to improve versatility. Hundreds of uses in carpentry, brick laying, foundation work, grading, irrigation or drainage. Much below cost of ordinary surveying instruments. Ideal for do-it-yourselfers. 10 1/4" high, 6" long, 4" wide. Adjustable leveling platform—2 spirit levels for aligning—also spirit level in sighting attachment. A tremendous bargain.

Stock No. 70,267-Q.....\$19.95 Postpaid

### BUILD A SOLAR ENERGY FURNACE



A fascinating new field. Build your own Solar Furnace for experimentation—many practical uses. Easy! Inexpensive! Use scrapwood! We furnish instructions. This sun powered furnace will generate terrific heat—2000° to 3000°. Fuses enamel to metal. Sets paper aflame in seconds. Use our Fresnel Lenses—14" diameter, f. 1.14"  
Stock No. 70,130-Q.....\$6.00 Pstpd.  
11" Sq. Fresnel Lens F.L. 19". Slight 2nd.  
Stock No. 70,533-Q.....\$4.75 Pstpd.

### CRYSTAL-GROWING KIT



Do a crystallography project illustrated with large beautiful crystals you grow yourself. Kit includes the book "Crystals and Crystal Growing" and a generous supply of the chemicals you need to grow large display crystals of potassium aluminum sulfate (clear), potassium sulfate (purple), potassium sodium tartrate (clear), nickel sulfate hexahydrate (blue green) or heptahydrate (green), potassium ferricyanide (red), and copper acetate (blue green).

Stock No. 70,338-Q.....\$9.50 Postpaid

**TEACHERS! Write for Educational Catalog Q-2 Edmund Scientific Co., Barrington, N. J.**

### MAIL COUPON for FREE CATALOG "Q"

New! 1,000's of BARGAINS  
EDMUND SCIENTIFIC CO.  
Barrington, New Jersey  
Name.....  
Address.....  
City.....Zone...State.

